# Ramsar Information Sheet

Published on 1 February 2022

# South Africa

## Berg Estuary Ramsar Site


| | |
|---|---|
| Designation date | 1 February 2022 |
| Site number | 2466 |
| Coordinates | 32°51'15"S 18°15'27"E |
| Area | 1 162,85 ha |

## Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

## 1 - Summary

Summary

The wetland vegetation of the Berg River estuary and floodplain are unique and valuable natural assets. The physiographic features of the Berg River (conducive to floodplain formation) and the interaction between marine water inflows and freshwater outflows have resulted in the wide range of habitats which correspond to the large number of vegetation communities. The estuary possesses the third largest saltmarsh on the Cape Coast (Anchor Environmental 2008). The Berg River forms one of only four perennial estuaries on the west coast of southern Africa. In addition to the river channel, the floodplain encompasses five major wetland types of importance to waterbirds: ephemeral pans, commercial saltpans, riparian marshes, saltmarshes and intertidal mudflats. Since 1975, 127 species of waterbirds have been recorded on the lower Berg River. In terms of numbers of waterbirds, the area is the most important coastal wetland in South Africa, ranking above Langebaan Lagoon and Lake St Lucia. Of these three sites, the Berg River is the only one to lack official conservation status. During a survey in December 1992, more than 46 000 waterbirds were present. (Hockey 1993). The most important wetlands for foraging birds are estuarine mudflats and ephemeral floodplain pans. The most important breeding sites are riparian marshes and commercial saltpans. The mudflats support the highest foraging densities of waders recorded at any coastal wetland along the entire Atlantic seaboard (Hockey 1993).

# 2 - Data & location

## 2.1 - Formal data

### 2.1.1 - Name and address of the compiler of this RIS

#### Responsible compiler

Institution/agency: CapeNature

Postal address:
Western Cape Nature Conservation Board (CapeNature)
Private Bag X29
GATESVILLE 7766
REPUBLIC OF SOUTH AFRICA

#### National Ramsar Administrative Authority

Institution/agency: Department of Forestry Fisheries and the Environment

Postal address:
Office of the DDG: Biodiversity & Conservation
473 Steve Biko (Old Beatrix Street), Arcadia
PRETORIA
0083
GF-Block-C1-25

### 2.1.2 - Period of collection of data and information used to compile the RIS

From year: 1975

To year: 2019

### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish): Berg Estuary Ramsar Site

## 2.2 - Site location

### 2.2.1 - Defining the Site boundaries

b) Digital map/image
<2 file(s) uploaded>

Former maps: 0

Boundaries description

The proposed Ramsar site is from the R27 road bridge up stream to the tidal extent of the estuary approximately 61 km from the mouth. The site is from high water mark on each bank of the estuary. Berg River doesn't have any official national conservation status.

### 2.2.2 - General location

a) In which large administrative region does the site lie? Western Cape

b) What is the nearest town or population centre? Laaiplek

### 2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes ○ No ◉

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes ○ No ◉

### 2.2.4 - Area of the Site

Official area, in hectares (ha): 1162.85

Area, in hectares (ha) as calculated from GIS boundaries: 1161.892

### 2.2.5 - Biogeography

Biogeographic regions

| Regionalisation scheme(s) | Biogeographic region |
|---|---|
| Marine Ecoregions of the World (MEOW) | Temperate Southern Africa: Benguela |

Other biogeographic regionalisation scheme

None

# 3 - Why is the Site important?

## 3.1 - Ramsar Criteria and their justification

☑ Criterion 1: Representative, rare or unique natural or near-natural wetland types

| | |
|---|---|
| Hydrological services provided | The physiographic features of the Berg River and surrounds are the root cause for the wide range of habitats which correspond to the large number of vegetation communities identified. It possesses the third largest area of saltmarsh within the Cape Coast following the Olifants and Knysna Estuaries respectively. The lower Berg River, however, differs from the systems at Olifants and Knysna as it occurs at the basal end of a major river system. The Berg River forms one of only four perennial estuaries on the west coast of southern Africa. In addition to the river channel, the floodplain encompasses five major wetland types of importance to waterbirds: ephemeral pans, commercial saltpans, riparian marshes, saltmarshes and intertidal mudflats. The Berg River vegetation has an exceptionally high productivity leading to a large faunal biomass per unit area. The vegetation includes several specialized species adapted to a variety of environmental permutations. |
| Other ecosystem services provided | Estuaries provide a range of services that have economic or welfare value. In the case of the Berg estuary, the most important of these are the commercial fishing harbour, the recreational value and the<br>nursery value of the estuary, recreation and tourism, and salt production. There may be additional values, such as carbon sequestration, but these are not well understood and are probably fairly minor.<br>The Berg estuary provides a nursery area for numerous fish species that are caught in the commercial<br>and recreational inshore fisheries along the west coast, including harders, white steenbras, elf and leervis. Estuarine fish make up about 25% of the value of the gill- and seine-net fisheries and 0.3% of the value of the commercial boat fisheries on the west coast, or about 8% of the overall value of West Coast inshore marine fisheries. The Berg Estuary contributes about 60% of the estuarine habitat on the<br>west coast and is thus extremely important in this respect. Taking into account the degree to which these fish are dependent on estuaries, the nursery value of the Berg Estuary is estimated to be some R9 million per year.<br>The Berg estuary is a popular tourist destination for South Africans and overseas tourists. The north bank of the lower estuary is almost completely urbanized, while the middle and upper reaches have a strong natural or rural feel. Holiday cottages have been erected along both banks of the estuary, while<br>hotels, the Stywelyne Caravan Park and other accommodation establishments in the area cater for visiting tourists. These establishments are all generally full during the major holiday periods. Several farms on the banks of the estuary offer tourist accommodation and eco-tourism and/ adventure sports (including waterskiing) activities. Recreational fishing opportunities represent an important draw card for visitors to the estuary, where above average catch-rates can be expected. |
| Other reasons | None |

☑ Criterion 2 : Rare species and threatened ecological communities

☑ Criterion 3 : Biological diversity

Justification: A total of 145 plant species was identified in a vegetation survey of the lower estuary and floodplain, including ten distinctive estuarine and floodplain communities comprising: Inundated Mudflats, Reed Marsh, Reed Marsh - Short, Halophytic Saltmarsh, Sedge Marsh, Pan Communities, Halophytic Floodplain, Xeric Floodplain, Riparian Woodland.

An average of 14 000 non-passerine waterbirds are recorded in mid-summer counts (CWAC), this number decreasing to about 12 300 in mid-winter. Regionally important populations of 31 waterbird species occur at the Berg River. Nationally important populations total 25 species. There are also substantial populations of five species (White Pelican, Greater Flamingo, Lesser Flamingo, Caspian Tern & Chestnut-banded Plover) listed in the South African Red Data Book species.

A total of 35 fish species have been recorded in the Berg Estuary, of which 17 (48 %) can be regarded as either partially or completely dependent on the estuary for their survival.

☑ Criterion 4 : Support during critical life cycle stage or in adverse conditions

☑ Criterion 5 : >20,000 waterbirds

Overall waterbird numbers: 40000

Start year: 1975

Source of data: Percy Fitzpatrick Institute

☑ Criterion 6 : >1% waterbird population

☑ Criterion 7 : Significant and representative fish

Justification: A total of 35 fish species have been recorded in the Berg Estuary historically (Bennet 1994). 17 out of these 35 are either partially or fully dependent on estuaries for the completion of their life cycle. The ichthyofauna is typically dominated by the southern mullet Liza richardsoni, with the estuarine round herring Gilchristella aestuaria being second most abundant and occasionally dominant. These, together with bald goby Caffrogobius nudiceps, cape silverside Atherina breviceps, Knysna sand goby Psammagobius knysnaensis and Mozambique tilapia Oreochromis mossambicus dominate the ichthyofauna. Of these, the latter is a freshwater species and G. aestuaria is confined to estuaries; the others are marine species that depend on estuaries. Liza richardsoni is most abundant in the lowest 10 km, but extends all the way up the estuary in winter and summer. The flathead mullet Mugil cephalus, a commonly occurring estuarine dependent species, is found mostly in the middle reaches of the estuary. Opportunistic species, including elf Pomatomus saltatrix and white stumpnose Rhabdosargus globiceps, are confined to the lower reaches and are more common in summer than winter. Gilchristella aestuaria occurs throughout the estuary during all seasons but is most abundant between 15 and 50 km upstream.

☑ Criterion 8 : Fish spawning grounds, etc.

Justification: A total of 35 fish species have been recorded in the Berg Estuary, of which 17 (48 %) can be regarded as either partially or completely dependent on the estuary for their survival.

## 3.2 - Plant species whose presence relates to the international importance of the site

| Phylum | Scientific name | Criterion 2 | Criterion 3 | Criterion 4 | IUCN Red List | CITES Appendix I | Other status | Justification |
|---|---|---|---|---|---|---|---|---|
| **Plantae** | | | | | | | | |
| TRACHEOPHYTA / LILIOPSIDA | *Aponogeton distachyos* | ☐ | ☑ | ☐ | LC | ☐ | | It is representative of the saltmarsh communities of the Berg Estuary |
| TRACHEOPHYTA / MAGNOLIOPSIDA | *Bassia diffusa* | ☐ | ☑ | ☐ | | ☐ | SANBI Red Data - LC | It is representative of the saltmarsh communities of the Berg Estuary |
| TRACHEOPHYTA / LILIOPSIDA | *Bolboschoenus maritimus* | ☐ | ☑ | ☐ | | ☐ | | It is representative of the saltmarsh communities of the Berg Estuary |
| TRACHEOPHYTA / LILIOPSIDA | *Phragmites australis australis* | ☐ | ☑ | ☐ | | ☐ | SANBI Red Data - LC | It is representative of the saltmarsh communities of the Berg Estuary |
| TRACHEOPHYTA / LILIOPSIDA | *Ruppia cirrhosa* | ☐ | ☑ | ☐ | LC | ☐ | | It is representative of the saltmarsh communities of the Berg Estuary |
| TRACHEOPHYTA / MAGNOLIOPSIDA | *Salicornia meyeriana* | ☐ | ☑ | ☐ | | ☐ | | It is representative of the saltmarsh communities of the Berg Estuary |
| TRACHEOPHYTA / LILIOPSIDA | *Zostera capensis* | ☑ | ☑ | ☐ | VU | ☐ | | It is representative of the saltmarsh communities of the Berg Estuary |

The wetland vegetation of the Berg River estuary and floodplain are unique and valuable natural assets. Although relatively species-poor compared with other areas in the Fynbos Biome, the actual diversity in terms of plant communities is high. This structural diversity contributes to the rich faunal diversity.

The physiographic features of the Berg River (conducive to floodplain formation) and the interaction between marine water inflows and freshwater outflows are the causes of the wide range of habitats which correspond to the large number of vegetation communities. The estuary possess the third largest saltmarsh on the Cape Coast.

The Berg River vegetation has an exceptionally high productivity leading to a large faunal biomass per unit area. The vegetation includes several specialised species adapted to a variety of environmental permutations.

A total of 145 plant species was identified in a vegetation survey of the lower estuary and floodplain, including ten distinctive estuarine and floodplain communities

## 3.3 - Animal species whose presence relates to the international importance of the site

| Phylum | Scientific name | Species qualifies under criterion | | | | Species contributes under criterion | | | | Pop. Size | Period of pop. Est. | % occurrence 1) | IUCN Red List | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 4 | 6 | 9 | 3 | 5 | 7 | 8 | | | | | | | | |
| **Fish, Mollusc and Crustacea** | | | | | | | | | | | | | | | | | |
| CHORDATA / ACTINOPTERYGII | *Atherina breviceps* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☑ | 12199 | 1992-2003 | | | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Caffrogobius nudiceps* | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | 7470 | 1992-2003 | | LC | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Chaetodon marleyi* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☐ | 1 | 1992-2003 | | LC | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Chelon richardsonii* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☐ | 23656 | 1992-2003 | | | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Clinus superciliosus* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☐ | 453 | 1992-2003 | | LC | ☐ | ☐ | | |

| Phylum | Scientific name | Species qualifies under criterion | | | | Species contributes under criterion | | | | Pop. Size | Period of pop. Est. | % occurrence 1) | IUCN Red List | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 4 | 6 | 9 | 3 | 5 | 7 | 8 | | | | | | | | |
| CHORDATA / ACTINOPTERYGII | *Galeichthys feliceps* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☐ | 58 | 1992-2003 | | | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Gilchristella aestuaria* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☐ | 15011 | 1992-2003 | | LC | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Lichia amia* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☐ | 3 | 1992-2003 | | LC | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Lithognathus lithognathus* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☑ | 14 | 1992-2003 | | EN | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Mugil cephalus* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☐ | 103 | 1992-2003 | | LC | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Pomatomus saltatrix* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☑ | 68 | 1992-2003 | | VU | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Psammogobius knysnaensis* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☑ | 1069 | 1992-2003 | | LC | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Rhabdosargus globiceps* | ☑ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☑ | 18 | 1992-2003 | | VU | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Rhabdosargus holubi* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☑ | 2 | 1992-2003 | | LC | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Solea turbynei* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☐ | 26 | 1992-2003 | | LC | ☐ | ☐ | | |
| CHORDATA / ACTINOPTERYGII | *Syngnathus acus* | ☐ | ☐ | ☐ | ☐ | ☑ | ☐ | ☑ | ☐ | 259 | 1992-2003 | | LC | ☐ | ☐ | | |
| **Birds** | | | | | | | | | | | | | | | | | |
| CHORDATA / AVES | *Charadrius pallidus* | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 184 | 1993-2019 | 1.7 | NT | ☐ | ☐ | | |
| CHORDATA / AVES | *Chroicocephalus hartlaubii* | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 1528 | 1994-2019 | 5.1 | | ☐ | ☐ | | |
| CHORDATA / AVES | *Hydroprogne caspia* | ☑ | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 72 | 1993-2019 | 3.6 | LC | ☐ | ☐ | Regionally Vulnerable Status | |
| CHORDATA / AVES | *Phalacrocorax capensis* | ☑ | ☑ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 8451 | 1994-2019 | 2.8 | EN | ☐ | ☐ | | The Berg Estuary is an important roosting site for Cape Cormorants in the non-breeding season |
| CHORDATA / AVES | *Phoeniconaias minor* | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 1786 | 1994-2019 | 3 | NT | ☐ | ☐ | | |
| CHORDATA / AVES | *Phoenicopterus roseus* | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 2767 | 1994-2019 | 3.6 | LC | ☐ | ☐ | | |
| CHORDATA / AVES | *Podiceps nigricollis* | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 762 | 1993-2019 | 5.1 | LC | ☐ | ☐ | | |
| CHORDATA / AVES | *Sterna hirundo* | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 24 | 1994-2019 | 1.2 | LC | ☐ | ☐ | | |
| CHORDATA / AVES | *Thalasseus bergii* | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | 7770 | 1994-2019 | 38.9 | LC | ☐ | ☐ | | The Berg Estuary is an important roosting site during the non-breeding season |

*1) Percentage of the total biogeographic population at the site*

A total of 35 fish species have been recorded in the Berg Estuary historically (Bennet 1994). 17 out of these 35 are either partially or fully dependent on estuaries for the completion of their life cycle. The ichtyofauna is typically dominated by the southern mullet Liza richardsoni, with the estuarine round herring Gilchristella aestuaria being second most abundant and occasionally dominant. These, together with bald goby Caffrogobius nudiceps, cape silverside Atherina breviceps, Knysna sand goby Psammagobius knysnaensis and Mozambique tilapia Oreochromis mossambicus dominate the ichthyofauna. Of these, the latter is a freshwater species and G. aestuaria is confined to estuaries; the others are marine species that depend on estuaries. Liza richardsoni is most abundant in the lowest 10 km, but extends all the way up the estuary in winter and summer. The flathead mullet Mugil cephalus, a commonly occurring estuarine dependent species, is found mostly in the middle reaches of the estuary. Opportunistic species, including elf Pomatomus saltatrix and white stumpnose Rhabdosargus globiceps, are confined to the lower reaches and are more common in summer than winter. Gilchristella aestuaria occurs throughout the estuary during all seasons but is most abundant between 15 and 50 km upstream.

Many of the species targeted by line fishing in South African waters are currently considered overexploited and management measures aimed at rebuilding stocks have been implemented. Wholly or partially estuarine dependent “linefish” species found in the Berg Estuary include elf P. saltatrix, white steenbras Lithognathus lithognathus, and leervis Lichia amia. It has been shown from past assessments that the area from 10 to 30 km upstream is the main area for these fishes, and the area from 12 – 22 km upstream is considered to the the best core area to conserve for these species. The nursery function of the Berg Estuary is considered to be significant, in that many marine species caught in the surrounding marine fisheries are dependent on estuaries as nursery areas, because it is one of only four permanently open systems, and it accounts for at least 60 % of the estuarine area on the west coast.

## 3.4 - Ecological communities whose presence relates to the international importance of the site

| Name of ecological community | Community qualifies under Criterion 2? | Description | Justification |
|---|---|---|---|
| Riparian Woodland | ☑ | Salix mucronata, Rhus tomentosa, Olea spp. and Metrosideros angulstifolia. Alien species such as Eucalyptus, Acacia and Populus spp. are also common | |
| Haplophytic saltmarsh | ☑ | Above the intertidal area of the lower estuary, the intertidal saltmarsh gives way to supratidal salt marsh, dominated by a characteristic brakbos Sarcocornia pillansii and interspersed with bare patches | |
| Reed marsh | ☑ | Reed marsh tends to replace sedge marsh on the silt-rich soils which are deposited on inner river bends. Behind the reed marsh, many of the inner river bends also contain extensive lower-lying sedge marshes that are flooded during winter, creating shelte | |
| Inundated mudflats | ☑ | | |
| Halophytic Floodplain | ☑ | | |
| Open Pan | ☑ | open pans, with scattered saltpan plants such as Salicornia meyeriana | |
| Xeric Floodplain | ☑ | At higher elevations, the floodplain is occupied by a xeric floodplain community which contains elemets of terrestrial strandveld and is dominated by succulents, such as Aizoaceae, and Asparagaceae, as well as other drought-adapted species. This communit | |
| Sedge Pan | ☑ | Characterized by monospecific stands of sareegras Juncus maritumus and waterblommetjie Aponogeton distachyos. Usually at a lower elevation and tend to be linked to the river channel by drainage lines | |
| Sedge marsh | ☑ | Further upstream in the fresher reaches of the estuary, the narrow intertidal and adjoining foodplain areas are mainly occupied by sedge marsh, dominated by Schoenoplectus spp. and Cyperus textiles or by taller reed marsh, mainly monospecific stands | |

Optional text box to provide further information

The wetland vegetation of the Berg River estuary and floodplain are unique and valuable natural assets. Although relatively species-poor compared with other areas in the Fynbos Biome, the actual diversity in terms of plant communities is high. This structural diversity contributes to the rich faunal diversity.

The physiographic features of the Berg River (conducive to floodplain formation) and the interaction between marine water inflows and freshwater outflows are the causes of the wide range of habitats which correspond to the large number of vegetation communities. The estuary possess the third largest saltmarsh on the Cape Coast.

The Berg River vegetation has an exceptionally high productivity leading to a large faunal biomass per unit area. The vegetation includes several specialised species adapted to a variety of environmental permutations.

A total of 145 plant species was identified in a vegetation survey of the lower estuary and floodplain, including ten distinctive estuarine and floodplain communities comprising:

# 4 - What is the Site like? (Ecological character description)

## 4.1 - Ecological character

The wetland vegetation of the Berg River estuary and floodplain are unique and valuable natural assets. The physiographic features of the Berg River (conducive to floodplain formation) and the interaction between marine water inflows and freshwater outflows have resulted in the wide range of habitats which correspond to the large number of vegetation communities. The estuary possesses the third largest saltmarsh on the Cape Coast (Anchor Environmental 2008). The Berg River forms one of only four perennial estuaries on the west coast of southern Africa. In addition to the river channel, the floodplain encompasses five major wetland types of importance to waterbirds: ephemeral pans, commercial saltpans, riparian marshes, saltmarshes and intertidal mudflats. Since 1975, 127 species of waterbirds have been recorded on the lower Berg River. In terms of numbers of waterbirds, the area is the most important coastal wetland in South Africa, ranking above Langebaan Lagoon and Lake St Lucia. Of these three sites, the Berg River is the only one to lack official conservation status. During a survey in December 1992, more than 46 000 waterbirds were present (Hockey 1993). The most important wetlands for foraging birds are estuarine mudflats and ephemeral floodplain pans. The most important breeding sites are riparian marshes and commercial saltpans. The mudflats support the highest foraging densities of waders recorded at any coastal wetland along the entire Atlantic seaboard (Hockey 1993).

## 4.2 - What wetland type(s) are in the site?

Marine or coastal wetlands

| Wetland types (code and name) | Local name | Ranking of extent (1: greatest - 4: least) | Area (ha) of wetland type | Justification of Criterion 1 |
|---|---|---|---|---|
| A: Permanent shallow marine waters | salt pans | 4 | | Representative |
| F: Estuarine waters | ephemeral pans | 4 | | Representative |
| G: Intertidal mud, sand or salt flats | intertidal mudflats | 4 | | Representative |
| H: Intertidal marshes | intertidal saltmarshes | 3 | | Representative |

Inland wetlands

| Wetland types (code and name) | Local name | Ranking of extent (1: greatest - 4: least) | Area (ha) of wetland type | Justification of Criterion 1 |
|---|---|---|---|---|
| Saline, brackish or alkaline water > Marshes & pools >> Ss: Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools | Floodplain communities | 4 | | Representative |

Human-made wetlands

| Wetland types (code and name) | Local name | Ranking of extent (1: greatest - 4: least) | Area (ha) of wetland type |
|---|---|---|---|
| 5: Salt exploitation sites | Salt pan | 4 | |

Other non-wetland habitat

| Other non-wetland habitats within the site | Area (ha) if known |
|---|---|
| Riparian woodland | |

(ECD) Habitat connectivity: Unknown

## 4.3 - Biological components

### 4.3.1 - Plant species

Other noteworthy plant species

| Phylum | Scientific name | Position in range / endemism / other |
|---|---|---|
| TRACHEOPHYTA/LILIOPSIDA | *Cyperus vaginatus* | |
| TRACHEOPHYTA/LILIOPSIDA | *Juncus maritimus* | |
| TRACHEOPHYTA/MAGNOLIOPSIDA | *Limonium depauperatum* | |
| TRACHEOPHYTA/MAGNOLIOPSIDA | *Metrosideros angustifolius* | |
| TRACHEOPHYTA/MAGNOLIOPSIDA | *Salix mucronata* | |
| TRACHEOPHYTA/LILIOPSIDA | *Schoenoplectus scirpoides* | |
| TRACHEOPHYTA/MAGNOLIOPSIDA | *Searsia tomentosa* | |

Invasive alien plant species

| Phylum | Scientific name | Impacts |
|---|---|---|
| TRACHEOPHYTA/LILIOPSIDA | *Schoenoplectus triqueter* | Actual (minor impacts) |

Optional text box to provide further information

None.

### 4.3.2 - Animal species

Other noteworthy animal species

| Phylum | Scientific name | Pop. size | Period of pop. est. | % occurrence | Position in range /endemism/other |
|---|---|---|---|---|---|
| CHORDATA/AVES | *Circus ranivorus* | 2 | 1994-2019 | | |
| CHORDATA/AVES | *Limosa limosa* | 30 | 1994-2019 | | |
| CHORDATA/AVES | *Pelecanus onocrotalus* | 68 | 1994-2019 | | |

Invasive alien animal species

| Phylum | Scientific name | Impacts |
|---|---|---|
| CHORDATA/ACTINOPTERYGII | *Cyprinus carpio* | Actual (major impacts) |
| CHORDATA/ACTINOPTERYGII | *Gambusia affinis* | Actual (major impacts) |
| CHORDATA/ACTINOPTERYGII | *Lepomis macrochirus* | Actual (major impacts) |
| CHORDATA/ACTINOPTERYGII | *Micropterus dolomieu* | Actual (major impacts) |
| CHORDATA/ACTINOPTERYGII | *Oreochromis mossambicus* | Actual (minor impacts) |

Optional text box to provide further information

None.

## 4.4 - Physical components

### 4.4.1 - Climate

| Climatic region | Subregion |
|---|---|
| C: Moist Mid-Latitude climate with mild winters | Csa: Mediterranean (Mild with dry, hot summer) |

The Berg River basin lies within the winter rainfall region with rainfall varying between 2 600 mm per annum in the mountains to 400 - 500 mm per annum in the middle and lower reaches. This leads to winter floods and summer low flows.

### 4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 0

a) Maximum elevation above sea level (in metres): 10

- Entire river basin ☐
- Upper part of river basin ☐
- Middle part of river basin ☐
- Lower part of river basin ☑
- More than one river basin ☐
- Not in river basin ☐
- Coastal ☑

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

South Atlantic Ocean

### 4.4.3 - Soil

- Mineral ☑
- Organic ☐
- No available information ☐

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes ○ No ◉

Please provide further information on the soil (optional)

Geologically the Berg is an old river, having its origins in the orogenic folding in the Western Cape mountains some 200 - 300 million years ago, in the Carboniferous age. The vertical drop from the mountain source to Paarl (one eighth of its length) is 900 m. The peaks and most of the mountain catchment are composed of quartzitic Table Mountain Sandstone (TMS). Water running off this formation is generally very low in mineral content, acidic and poorly buffered.
Along the lower reaches of the Berg River, the overlying sandstones of the Table Mountain Group have been progressively eroded exposing bedrock of Malmesbury Shales. These shales are of marine origin and contain high quantities of soluble salts which are released during weathering processes.

### 4.4.4 - Water regime

Water permanence

| Presence? | |
|---|---|
| Usually permanent water present | No change |

Source of water that maintains character of the site

| Presence? | Predominant water source | |
|---|---|---|
| Water inputs from precipitation | ☑ | No change |
| Marine water | ☑ | No change |
| Water inputs from groundwater | ☐ | No change |

Water destination

| Presence? | |
|---|---|
| Marine | No change |

Stability of water regime

| Presence? | |
|---|---|
| Water levels fluctuating (including tidal) | No change |

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology:

In general, the physicochemical status of the estuary reflects the strongly seasonal hydrological regime. During winter, when the river is flowing strongly, the estuary is fluvially dominated. Despite the fact that saline intrusion occurs during flood tides, the system is usually flushed completely by river water during the subsequent ebb tide. During summer months, when riverine input is low, the predominate influence on the system is marine.

| | |
|---|---|
| (ECD) Stratification and mixing regime | Tidal and fluvial influences mixing |

### 4.4.5 - Sediment regime

Significant erosion of sediments occurs on the site ☐

Significant accretion or deposition of sediments occurs on the site ☐

Significant transportation of sediments occurs on or through the site ☑

Sediment regime is highly variable, either seasonally or inter-annually ☑

Sediment regime unknown ☐

| | |
|---|---|
| (ECD) Water turbidity and colour | Water turbidity strongly influenced by freshwater and marine flow |
| (ECD) Water temperature | Fairly uniform along the estuary during winter, typically 12 – 15oC . In summer temperatures can reach 20oC |

### 4.4.6 - Water pH

Acid (pH<5.5) ☐

Circumneutral (pH: 5.5-7.4 ) ☐

Alkaline (pH>7.4) ☐

Unknown ☑

### 4.4.7 - Water salinity

Fresh (<0.5 g/l) ☑

Mixohaline (brackish)/Mixosaline (0.5-30 g/l) ☑

Euhaline/Eusaline (30-40 g/l) ☑

Hyperhaline/Hypersaline (>40 g/l) ☑

Unknown ☐

Please provide further information on salinity (optional):

The salinity varies greatly in the Berg River Estuary and the extent of saltwater penetration for any given freshwater inflow depends on the tidal phase (spring vs. neap and ebb vs. flood). Although pushing back and forth with the tides, salt water tends to work its way up the system over the dry season, penetrating further upstream with each tidal cycle. During the summer low-flow period, saline water penetrates the estuary up to at least 40 km from the mouth, depending on the tidal state. Freshwater inflow to the estuary during winter is sufficient to push the salt water entering the estuary back to within 10 km of the mouth.

(ECD) Dissolved gases in water

Unknown

### 4.4.8 - Dissolved or suspended nutrients in water

Eutrophic ☐

Mesotrophic ☐

Oligotrophic ☐

Dystrophic ☐

Unknown ☑

Please provide further information on dissolved or suspended nutrients (optional):

Unknown

| | |
|---|---|
| (ECD) Dissolved organic carbon | Unknown |
| (ECD) Redox potential of water and sediments | Unknown |
| (ECD) Water conductivity | Unknown |

### 4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the site itself: i) broadly similar ○ ii) significantly different ◉

Surrounding area has greater urbanisation or development ☑

Surrounding area has higher human population density ☑

Surrounding area has more intensive agricultural use ☑

Surrounding area has significantly different land cover or habitat types ☑

Please describe other ways in which the surrounding area is different:

The Berg River is one of the larger rivers in the South Western Cape and is an important source of water for both domestic and irrigation purposes. There are presently three dams along the river, with the possibility of more to come. Since the water-flow has been regulated, the river no longer displays the same degree of seasonality of flow and flood events that were historically experienced.
The major portion of the mountainous upper reaches of the catchment is controlled by CapeNature Conservation according to the National Water Act. Commercial forestry is practiced on some slopes of the upper catchment mountains. The remainder of the catchment is irrigated farmland, mainly vineyards and deciduous fruit.
The middle and lower reaches of the river flows through extensive wheat farms.

## 4.5 - Ecosystem services

### 4.5.1 - Ecosystem services/benefits

Provisioning Services

| Ecosystem service | Examples | Importance/Extent/Significance |
|---|---|---|
| Food for humans | Sustenance for humans (e.g., fish, molluscs, grains) | Medium |

Regulating Services

| Ecosystem service | Examples | Importance/Extent/Significance |
|---|---|---|
| Climate regulation | Regulation of greenhouse gases, temperature, precipitation and other climactic processes | Low |

Cultural Services

| Ecosystem service | Examples | Importance/Extent/Significance |
|---|---|---|
| Recreation and tourism | Recreational hunting and fishing | Medium |
| Spiritual and inspirational | Aesthetic and sense of place values | Low |
| Scientific and educational | Important knowledge systems, importance for research (scientific reference area or site) | High |
| Scientific and educational | Important knowledge systems, importance for research (scientific reference area or site) | High |

Supporting Services

| Ecosystem service | Examples | Importance/Extent/Significance |
|---|---|---|
| Biodiversity | Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part | High |

Optional text box to provide further information

The nursery function of the Berg estuary is considered to be significant, in that many marine species caught in the surrounding marine fisheries are dependent on estuaries as nursery areas, because it is one of only four permanently open systems, and it accounts for at least 60% of the estuarine area on the west coast.

Other ecosystem service(s) not included above:

Refuge areas are areas that help to maintain populations in a broader area. For example, wetlands within relatively arid areas may play an important seasonal role in the maintenance of wild herbivores that are utilised in tourism operations well beyond the wetland. The Berg estuary and associated floodplain areas provide critical breeding habitat for both fish and bird populations.
Bird populations dependent on the estuary include many species that move into the area to breed and then move to other areas for much of the remainder of the year. The presence of the birds may contribute to the value of those areas.
Some inshore marine fish populations may utilise the estuary as a warmer refuge during upwelling events (Lamberth 2006). The extent of this function in its contribution to marine populations is unknown.

Within the site: 100s

Outside the site: 10000

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes ○ No ○ Unknown ◉

### 4.5.2 - Social and cultural values

i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland ☑

Description if applicable

The Cerebos and smaller commercial salt works are based on the Berg Estuary. The commercial harvesting is done in a sustainable manner that has limited impact on the Estuary.

ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland ☐

iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples ☐

iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland ☐

## 4.6 - Ecological processes

<no data available>

# 5 - How is the Site managed? (Conservation and management)

## 5.1 - Land tenure and responsibilities (Managers)

### 5.1.1 - Land tenure/ownership

Public ownership

| Category | Within the Ramsar Site | In the surrounding area |
|---|---|---|
| Provincial/region/state government | ☑ | ☐ |

Private ownership

| Category | Within the Ramsar Site | In the surrounding area |
|---|---|---|
| Commercial (company) | ☐ | ☑ |

Provide further information on the land tenure / ownership regime (optional):

The permanent water body and inter-tidal mud-flats belong to the State and are controlled by the Department of Environmental Affairs.

To the immediate north lies the municipal area of the two towns of Velddrif and Laaiplek. All the surrounding farms are privately owned as are the two salt-works. To the west lies the Atlantic ocean which, from below the high water mark to 200 nautical miles into the sea, belongs to the State.

The proposed Ramsar site is from the R27 road bridge up stream to the tidal extent of the estuary approximately 61 km from the mouth. The site is from high water mark on each bank of the estuary.

### 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

No formal management authority currently exists for Berg Estuary. Various national, provincial and local departments are responsible for different management aspects in and around the wetland. The implementation of the management plan is partly driven by the Berg Estuary Forum but it depends on inputs from various private and public stakeholders. Implementation of the plan is hampered by the fact that the Berg Estuary Forum has no legal authority to implement or direct outcomes.

(i) Department of Agriculture, Land reform and Rural Development;
(ii) Department of Forestry, Fisheries and the Environment;
(iii) Department of Water and Sanitation;
(iv) CapeNature Conservation.
(v) Berg River Municipality
(vi) West Coast District Municipality
(vii) Department of Public Works
(viii) Department of Mineral Resources
(ix) Department of Environmental Affairs and Development Planning (Provincial)

Provide the name and/or title of the person or people with responsibility for the wetland:

Stanley Tshitwamulomoni

Postal address:

Office of the DDG: Biodiversity & Conservation
473 Steve Biko (Old Beatrix Street), Arcadia
PRETORIA
0083
South Africa
GF-Block-C1-25

E-mail address:

stanleyt@environment.gov.za

## 5.2 - Ecological character threats and responses (Management)

### 5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human settlements (non agricultural)

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|---|---|---|---|---|
| Tourism and recreation areas | Low impact | Low impact | ☑ | ☑ |
| Commercial and industrial areas | unknown impact | unknown impact | ☑ | ☑ |

Water regulation

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|---|---|---|---|---|
| Water abstraction | Low impact | Low impact | ☑ | ☐ |

Agriculture and aquaculture

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|---|---|---|---|---|
| Livestock farming and ranching | Low impact | Low impact | ☐ | ☑ |

Biological resource use

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|---|---|---|---|---|
| Fishing and harvesting aquatic resources | Low impact | Medium impact | ☑ | ☐ |

Human intrusions and disturbance

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|---|---|---|---|---|
| Recreational and tourism activities | Low impact | Low impact | ☑ | ☐ |

Natural system modifications

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|---|---|---|---|---|
| Dams and water management/use | Low impact | High impact | ☑ | ☑ |

Invasive and other problematic species and genes

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|---|---|---|---|---|
| Invasive non-native/ alien species | Medium impact | High impact | ☑ | ☑ |

Climate change and severe weather

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|---|---|---|---|---|
| Habitat shifting and alteration | Low impact | High impact | ☑ | ☑ |
| Droughts | Low impact | Medium impact | ☑ | ☑ |
| Storms and flooding | Low impact | Medium impact | ☑ | ☑ |

Please describe any other threats (optional):

(a) at the site

(i) The dredging of the Berg River mouth and channel for boats has increased the velocity of the tidal flow and the turbidity of the water. The depositing of dredged soil on three dumps on the river bank is causing the degeneration of some of the salt-marshes nearest to the sea.

(ii) Saline spume from the evaporation and concentration pans of the salt works has reduced the vegetation in the surrounding areas.

(iii) Development pressure for high-income housing on the southern bank of the river and the coastline south of the river mouth is high. Any further developments on the southern side of the river will have a severe influence on the ecology of the area. If developments go ahead however, pressure will be exerted on the developers to go through the Environmental Impact Assessment (EIA) procedure.

(iv) Pollution by boats and factories is a potential threat. In the management plan, a contingency plan for pollution will be drawn up.

(v) Occurrence of exotic plants like Eichhornia crassipes (water hyacinth), Eucalyptus spp. Sesbania punicea (sesbania) and Acacia spp. The controlling of these plants is addressed in the management plan.

(vi) Increase in the growth of the algae, Cladophora, in the estuary which during the dry summer season is deposited on the salt-marsh and mud-flats, thus reducing the quality of the mud- flats as feeding grounds for estuarine birds.

(vii) Occurrence of feral pigs on the floodplain.

(b) in the surroundings/catchment

(i) The construction of impoundments, dams and the abstraction of water for urban and agricultural uses have reduced river inflow into the estuary and the incidence and intensity of floods.

(ii) The various types of intensive farming activities in the areas through which the river flows, and the eutrophication of the water associated with these activities.

(iii) The large concentrations of exotic plants of an invasive nature occurring along the river. These include amongst others Eichhornia crassipes (water hyacinth), Sesbania punicea (sesbania), Prosopis glandulosa (mesquite), various Acacia and Eucalyptus species.

Most of these threats and disturbances can be minimized through Integrated Coastal Management (ICM) procedures and by drawing up a comprehensive management plan for the area.

## 5.2.2 - Legal conservation status

<no data available>

## 5.2.3 - IUCN protected areas categories (2008)

Ia Strict Nature Reserve ☐

Ib Wilderness Area: protected area managed mainly for wilderness protection ☐

II National Park: protected area managed mainly for ecosystem protection and recreation ☐

III Natural Monument: protected area managed mainly for conservation of specific natural features ☐

IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention ☐

V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation ☐

VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems ☐

<no data available>

### 5.2.4 - Key conservation measures

Legal protection

| Measures | Status |
|---|---|
| Legal protection | Proposed |

Other:

It is proposed that the aquatic habitat included in this proposal be declared as a Provincial Nature Reserve as in the case of the Verlorenvlei Estuary RAMSAR site. An Estuary Management Forum has also been set up at Berg Estuary.

### 5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes ○ No ◉

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes ○ No ◉

### 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Yes, there is a plan

### 5.2.7 - Monitoring implemented or proposed

| Monitoring | Status |
|---|---|
| Water quality | Implemented |
| Animal community | Implemented |

Research and monitoring priorities have been identified within the estuary management plan. The District Municipality in association with DWA has initiated a water quality monitoring programme for the estuary. Data is presented to stakeholders at forum meetings.

# 6 - Additional material

## 6.1 - Additional reports and documents

### 6.1.1 - Bibliographical references

Anchor Environmental Consultants (2008) Berg Estuary Management Plan Part 1: Situation Assessment. Report to CapeNature and the C.A.P.E. Estuaries Management Programme. 85pp

Brooke, R.K. (1984). South African Red Data Book - Aves. South African National Scientific Progress Report 97: 1-213.

Bennet, B.A. (1994) The fish community of the Berg River estuary and an assessment of the likely effects of reduced freshwater inflows. South African Journal of Zoology. 29: 118 – 123.

Chittenden, H. (Ed.) (1992). Top birding spots in southern Africa. Halfway House: Southern Book Publishers

Department of Water Affairs (DWA) 2010. Feasibility Study into the Potential Development of Further Surface Water Supply Schemes for the Western Cape: Comprehensive assessment of the Ecological Water Requirements for the Berg River Estuary.

Hockey, P.A.R. (1991). Checklists of the birds of the lower Berg River. Cape Town: Percy Fitzpatrick Institute of African Ornithology. pp 20.

Hockey, P.A.R. 1993. Potential impacts of water abstraction on the birds of the lower Berg River wetlands. Report to Department of Water Affairs and Forestry.

Hockey, P.A.R. and Hockey, C.T. (1980). Notes on Caspian Tern Sterna caspia breeding near the Berg River, southwestern Cape. Cormorant 8: 7-10.

Hockey, PA.R., Underhill, L.G., Neatherway, M. and Ryan, P.G. (1989). Atlas of the birds of the southwestern Cape. Cape Town: Cape Bird Club.

Maclean, G.L. (1985). Robert's birds of southern Africa. Cape Town: John Voelcker Bird Book Fund.

Murison, G. and Hockey, P.A.R. (2004) Conservation management of the lower Berg River wetlands, South Africa – avian perspectives. Final report for the Ramsar project SGF/98/South Africa/DAB/ahp. Percy FitzPatrick Institute of African Ornithology, University of Cape Town, Rondebosch 7701.

Ninham Shand Inc. (1991). Western Cape Systems analysis: Berg River Work Session Report (Draft). Cape Town. Ninham Shand Draft Report No 1868/5131. 9pp + Appendices.

O'Callaghan, M. (1991). The wetland vegetation associated with the Berg River. (Presented at a workshop on impacts of dams on the Berg River, Ninham Shand, Cape Town. Unpublished Report).

O'Keeffe, J.H. (1986). Ecological research on South African rivers - a preliminary synthesis. South African National Scientific Programmes Report No 121.

Schumann, E. (2007) Chapter 3: Water Chemistry I – Temperature, Salinity, Oxygen and Turbidity. In: Clark, B.M. (Ed.) Berg River Baseline Monitoring Programme Final Report – Volume 3: Berg River Estuary. Anchor Environmental Consultant CC and Freshwater Consulting Group for the Department of Water Affairs.

Velasquez, C.R. and Hockey, P.A.R. (1992). The importance of supratidal foraging habitats for waders at a south temperate estuary. Ardea 80: 243-253.

Velasquez, C.R., Kaletja, B. and Hockey P.A.R. (1991).Seasonal abundance, habitat selection and energy consumption of water-birds at the Berg River estuary, South Africa.

### 6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)
<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)
<no file available>

iii. a description of the site in a national or regional wetland inventory
<no file available>

iv. relevant Article 3.2 reports
<no file available>

v. site management plan
<1 file(s) uploaded>

vi. other published literature
<no file available>

### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:

Lower Berg River Estuary ( *CapeNature, 13-11-2008* )

Salt marshes - Berg River Estuary ( *CapeNature, 13-11-2008* )

Upstream of salt works ( *CapeNature, 31-10-2008* )

Lower reaches Berg River Estuary ( *CapeNature, 31-10-2008* )

## 6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation 2022-02-01