

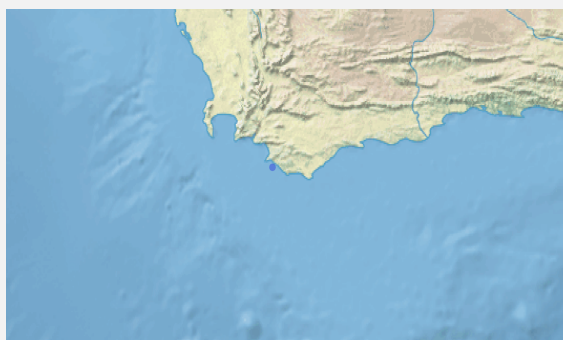


Ramsar Information Sheet

Published on 26 August 2019

South Africa

Dyer Island Provincial Nature Reserve and Geyser Island Provincial Nature Reserve



Designation date	29 March 2019
Site number	2384
Coordinates	34°41'05"S 19°24'59"E
Area	288,00 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 Dyer Island Nature Reserve consists of Dyer Island and Geysers Island. Dyer Island is the largest island in this complex, and is the eastern most of the chain of seabird islands of the Western Cape Province, and forms the link between islands in this province and the Eastern Cape Province. This island reserve is situated within the Benguela Upwelling Ecosystem (BUE), one of four major eastern boundary current systems located within the Southern Hemisphere, extending from Southern Angola to Algoa Bay on South Africa's south coast. This ecosystem is one of the most productive areas of ocean in the world and is characterised by coastal wind-induced upwelling which results in cold, nutrient rich-water being transported to the surface. This upwelled water is the basis for the high biological productivity of the coastal waters along the west coast of Southern Africa and is a rich feeding ground of a number of marine species making it a system of considerable biodiversity value.

Dyer Island is considered by Birdlife International to be one of 103 Globally Important Bird Areas (IBAs) in South Africa. Twenty one bird species breed on the island, including endangered seabird species such as the African penguin, Cape Cormorant and Bank Cormorant. In addition to these species, Hartlaub's Gull, Grey-headed Gull, Kelp Gull, Roseate Tern are fairly common. Several species of shorebird breed on the Island, including African Black Oystercatcher, White-fronted plover and Kittlitz's plover. 48 bird species have been recorded on the island (Birss et al. 2012). Many migratory shorebirds utilize the shoreline seasonally, e.g. curlew sandpiper, turnstone, grey plover and whimbrel. Speckled pigeon is the only indigenous passerine species breeding ashore.

Geysers Island is one of 48 Cape fur seal colonies within the BUE (Angola = 1, Namibia = 26 and South Africa = 21). The marine waters surrounding the Dyer island Nature Reserve are also inhabited by a number of shark and other fish species, e.g. endangered Galjoen, as well as whales and dolphins. The Lesser dwarf shrew present on the Island for more than a century.

Abalone is an abundant and valuable resource in and around the reserve, and despite the strict control and regulatory measures it is illegally harvested and over-utilised. Recreation and tourism opportunities are limited to the marine section and include boat based tourism, e.g. Whale watching and Shark cage diving.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Compiler 1

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

From year	1956
To year	2017

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Dyer Island Provincial Nature Reserve and Geysers Island Provincial Nature Reserve
Unofficial name (optional)	Dyer Island Nature Reserve Complex

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<1 file(s) uploaded>

Former maps	0
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Boundaries description

Dyer Island Nature Reserve lies at 34°41'S 19°25'E off the south-western Cape coast. The closest access point for boats is at Kleinbaai; about 8 km northwest from the island. Danger Point Lighthouse also lies northwest of the island, approximately 13 km away.

The Reserve comprises of two islands adjacent to each other. Dyer and Geysers Islands. The bigger Dyer Island is approximately 20.77 ha in size and approximately 1 km in length, and 200 m across its widest point. Geysers Island is a rocky outcrop of approximately 3.89 ha and lies about 150 m to the southwest of Dyer. These two islands are separated by a sandy bottom channel known as Shark Alley. This channel is on average 100 m wide and 5 m in depth. Dyer Island and Geysers Island Nature Reserves include a sea/marine component that extend 500m seawards below the high water mark and is around the full extent of both islands. This is an unsurveyed boundary although proclaimed in terms of the Nature and Environmental Conservation Ordinance, 1974 (Ordinance No 19 of 1974). The proclaimed marine component links the two reserves into one as the islands are approximately 100 meters from each other and within the overlapping marine component.

Geographical coordinates:

Dyer Island: 34° 40' 57.9"S 19° 25' 01.2"E
Geysers Rock: 34° 41' 21.4"S 19° 24' 50.7"E

2.2.2 - General location

- a) In which large administrative region does the site lie?
- b) What is the nearest town or population centre?

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):

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

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Marine Ecoregions of the World (MEOW)	Temperate Southern Africa
Marine Ecoregions of the World (MEOW)	Realm Agulhas (51) Agulhas Bank (192)

Other biogeographic regionalisation scheme

The reserve falls within the Agulhas Ecoregion according to the broad classification system that was developed during South Africa first National Spatial Biodiversity Assessment (Sink et al. 2004). These Ecoregions have been used in subsequent revisions of the Assessment, but have been refined with the subdivision of the ecoregions into ecozones with the reserve falling within the Agulhas Inner Shelf Ecoregion (Sink et al. 2011).

This island reserve is situated within the Benguela Upwelling Ecosystem (BUE), one of four major eastern boundary current systems located within the Southern Hemisphere (Hill et al. 1988), extending from southern Angola to Algoa Bay on South Africa's south coast (Schwartzlose et al. 1999).

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

<no data available>

Criterion 2 : Rare species and threatened ecological communities

Criterion 3 : Biological diversity

Justification

Geyser Island is one of 48 Cape fur seal colonies (*Arctocephalus pusilus pusilus*) within the Benguela Upwelling Ecosystem (Angola = 1, Namibia = 26 and South Africa = 21). Rare sightings of the Southern elephant seal *Mirounga leonina* (Least concern), Leopard seal *Hydrurga leptonyx* (Least concern), Sub-Antarctic fur seal *Arctocephalus tropicalis*, Antarctic fur seal *Arctocephalus gazelle* and Crabeater seal *Lobodon carcinophaga* have occurred within and adjacent to the marine waters of the Dyer Island Nature Reserve.

A number of whale species occur within and adjacent to the marine area around Dyer Island. These include the Southern right whale *Eubalena australis* (Endangered), the Humpback whale *Megaptera novaengliae* (Least Concern), Bryde's whale *Balaenoptera brydei* (Data deficient), Sei whale *Balaenoptera borealis* (Endangered) and there have also been sightings of killer whales, *Orcinus orca* (Data deficient) (Best 20017, Elwen and Best 2004, Vinding et al. 2015, IUCN 2017).

A few dolphin species are found within and adjacent to the marine waters of Dyer Island Nature Reserve. These include the Indo-pacific bottlenose dolphin *Tursiops aduncus* (Data deficient) and Long-beaked common dolphin *Delphinus capensis* (Data deficient) (Best 2007, Vermeulen et al. 2017, IUCN 2017). Humpbacked dolphins have also been seen in the vicinity of the Reserve.

The following reptiles have been recorded on the island: Angulate tortoises (*Chersina angulate*), marbled leaf-toed gecko *Afrogecko porphyreus*, Cape Skink *Trachylepis capensis*, Cape seps *Tetradactylus seps*, silvery dwarf burrowing skink *Scelotes bipes* and puff adder *Bitis arietens* (Birss et al. 2012).

The area around Dyer Island and Geyser Island is well known for the great white shark, *Carcharodon carcharias*. For 11 other shark species, the island reserve is crucial during stages in their life cycle. The Sardine and Cape Anchovy are two other important fish species found in this area upon which many of the threatened seabirds feed. Twenty six fish species have been recorded in the waters surrounding Dyer Island including the endangered galjoen, geelbek, kob, red roman and several other species of reef fish inhabiting the zone (Roberson 2015).

The inter-tidal zones and giant kelp forest create suitable habitats for a diversity of invertebrates. These includes, sponges, sea anemones, zoanthids, soft corals, sea fans and sea pens, hard coral, sea fans, flat worms, bristle worms, sea spiders, barnacles, isopods, amphipods, rock lobster, rock crabs, various mollusc species, e.g. Abalone, sea hares, nudibranchs, and octopus (Branch et al. 2007)

The 500 meter marine habitat included in the reserve consist of the marine habitat type Agulhas Island which according to the 2011 National Biodiversity Assessment is currently listed as Vulnerable (Sink et al. 2011). This is the only area affording protection to this marine habitat type.

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

Criterion 5 : >20,000 waterbirds

Overall waterbird numbers:

Start year:

Source of data:

Criterion 7 : Significant and representative fish

Justification

The marine component of the island reserve supports the following threatened shark species: Ragged tooth shark (Vulnerable), Great white shark (Vulnerable), Soupfin shark (Vulnerable), Pyjama Shark (Near-threatened), Puffadder shyshark (Near-threatened), Spotted gully shark (Near-threatened). Abalone are a significant resource that are poached in the area. Rock lobster is an important prey item for the endangered Bank Cormorant (IUCN 2017). The Galjoen is an endangered species that inhabits the near shore zone (IUCN 2017).

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

<no data available>

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

Phylum	Scientific name	Common 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								
Birds																		
CHORDATA/AVES	<i>Charadrius marginatus</i>	White-fronted Plover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/AVES	<i>Charadrius pecuarius</i>	Kittlitz's Plover	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/AVES	<i>Haematopus moquini</i>	African Oystercatcher	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/AVES	<i>Hydroprogne caspia</i>	Caspian Tern	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input checked="" type="checkbox"/>		N/A
CHORDATA/AVES	<i>Larus dominicanus vetula</i>	Kelp Gull	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/AVES	<i>Phalacrocorax capensis</i>	Cape Cormorant	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35778	1956-2017	60	EN	<input type="checkbox"/>	<input type="checkbox"/>		Crawford et al. 2016
CHORDATA/AVES	<i>Phalacrocorax lucidus</i>	White-breasted Cormorant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	266	1976-2016		LC	<input type="checkbox"/>	<input type="checkbox"/>		Crawford et al. 2012
CHORDATA/AVES	<i>Phalacrocorax neglectus</i>	Bank Cormorant	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/AVES	<i>Spheniscus demersus</i>	African Penguin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1376	1956-2016	5	EN	<input type="checkbox"/>	<input type="checkbox"/>		CapeNature and DEA unpubl. Data, Crawford et al. 2012
CHORDATA/AVES	<i>Sterna dougallii</i>	Roseate Tern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30	2000-2016	4	LC	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Birss et al. 2012
Fish, Mollusc and Crustacea																		
CHORDATA/HOLOCEPHALI	<i>Callorhynchus capensis</i>	St. Joseph	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Red	WWF South African Sustainable Seafood list
CHORDATA/ELASMOBRANCHII	<i>Carcharhinus obscurus</i>	Dusky ground shark	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/ELASMOBRANCHII	<i>Carcharias taurus</i>	Ragged tooth shark	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		N/A

Phylum	Scientific name	Common 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/ ELASMOBRANCHII	<i>Carcharodon carcharias</i>	Great White shark	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Red	WWF South African Sustainable Seafood list
CHORDATA/ ELASMOBRANCHII	<i>Galeorhinus galeus</i>	Soupfin shark	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	Red/Orange	WWF South African Sustainable Seafood list
MOLLUSCA/ GASTROPODA	<i>Haliotis midae</i>	abalone; perlemoen; perlemo en abalone	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	red	WWF South African Sustainable Seafood list
CHORDATA/ ELASMOBRANCHII	<i>Haploblepharus pictus</i>	Dark Shyshark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/ ELASMOBRANCHII	<i>Isurus oxyrinchus</i>	Short finned mako shark	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	red	WWF South African Sustainable Seafood list
ARTHROPODA/ MALACOSTRACA	<i>Jasus lalandii</i>	cape rock lobster	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	red	WWF South African Sustainable Seafood list
CHORDATA/ ELASMOBRANCHII	<i>Mustelus mustelus</i>	Smooth-hound shark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Not Assessed
CHORDATA/ ELASMOBRANCHII	<i>Notorynchus cepedianus</i>	Seven-gill cowshark	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Not Assessed
CHORDATA/ ELASMOBRANCHII	<i>Paroderma pantherinum</i>	Leopard cat shark	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/ ELASMOBRANCHII	<i>Reja straeleni</i>	Biscuit skate; False thornback skate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/ ELASMOBRANCHII	<i>Rostroraja alba</i>	Speamose skate; Speamose skate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		N/A
CHORDATA/ ELASMOBRANCHII	<i>Sphyrna zygaena</i>	Smooth hammerhead shark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	Not Assessed	N/A
Others																		
CHORDATA/ MAMMALIA	<i>Arctocephalus pusillus pusillus</i>	Cape Fur Seal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11184	1971-1998	0	LC	<input type="checkbox"/>	<input type="checkbox"/>		Kirkman et al. 2007

1) Percentage of the total biogeographic population at the site

In terms of the 1% rule the following total populations are given in the Waterfowl Population estimates 5th edition:
 African Penguin – this species is not listed in the Waterfowl Population estimates, but the estimates are taken from a database that the National government updates on an annual basis, the counts of which are made by CapeNature.

The Waterfowl Population estimates 5th for the qualifying species are below, however where possible the percent occurrence and population size are based on updated information, the source of which is stated in the Justification column:

Cape Cormorant – 300000. 1% = 3000 Br Prs. Dyer Island has 4000 Br Prs representing 1.3% of the population therefore this species meets the 1% criteria

Crowned Cormorant – 8700. 1% = 87 Br Prs. Dyer Island has 266 Br Prs representing 3% of the population therefore this species meets the 1% criteria

Swift Tern – 8750 (Southern Africa sub-population). 1% = 88 Br Prs. Dyer Island has 500 Br Prs representing 6% of the sub-population.

Roseate Tern – 765 Br Prs (Southern Africa sub-population). 1% = 8 Br Prs. Dyer Island has 30 Br Prs representing 4% of the sub-population.

Kirkman et al. 2007 provides published data on seal counts from 1971 to 2004. The paper highlights years and sites where counts were not done, or when estimates are considered undercounts, stating various reasons. In 1998, a complete count was done throughout Namibia and South Africa, and based on that count, the seals at Geyser Rock contributed to 3.6% of the population.

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

<no data available>

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

4.1 - Ecological character

Dyer Island is one of 14, and the most southern, of the islands off the South African coastline. Dyer Island is the easternmost island of the Western Cape Province, and forms the link between islands in this province and the Eastern Cape Province. It is c. 600 km from the westernmost island in the Eastern Cape Province, (Crawford et al. 2011). This island reserve complex is situated within the Benguela Upwelling Ecosystem (BUE), one of four major eastern boundary current systems located within the Southern Hemisphere (Hill et al. 1988), extending from southern Angola to Algoa Bay on South Africa's south coast (Schwartzlose et al. 1999). This ecosystem is one of the most productive areas of ocean in the world (Brown et al. 1991) and is characterised by coastal wind-induced upwelling which results in cold, nutrient rich-water being transported to the surface (Shannon, 1985). This upwelled water is the basis for the high biological productivity of the coastal waters along the west coast of southern Africa and is a rich feeding ground of a number of marine species (Shannon 1989, van der Lingen et al. 2006), making it a system of considerable biodiversity value.

Kelp beds trap sediment, particularly seabird guano, that gets taken up by the kelp. The kelp in turn becomes food for the grazing kelp limpet, abalone and alikreukel and sea urchin. Filter feeders such as mussels, sponges, red bait and sea cucumbers rely on kelp forests. The mucous released from kelp fronds is rich in organic compounds that promote the growth of bacteria on which protozoans feed. Filter feeders consume these micro-organisms as well as phytoplankton, kelp spores and small fragments eroded from growing kelp fronds (Branch and Branch 1981).

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		2	31.25	Representative
B: Marine subtidal aquatic beds (Underwater vegetation)		1	226.89	Representative
D: Rocky marine shores		4	8.39	Representative
E: Sand, shingle or pebble shores		3	14.46	Representative

4.3 - Biological components

4.3.1 - Plant species

<no data available>

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/MAMMALIA	<i>Megaptera novaeangliae</i>					

4.4 - Physical components

4.4.1 - Climate

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

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- 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.

Indian 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

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	
Marine water	<input type="checkbox"/>	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.

Rain water leaches sediment and guano from island into surrounding ocean

(EOD) Stratification and mixing regime Prevailing ocean currents linked to the influence of tides and the prevailing winds and swell

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

(EOD) Water turbidity and colour Water turbidity depends on conditions at sea, with turbidity increasing during storm surges. Turbidity can increase if t

(EOD) Water temperature Water temperature varies between 11°C in winter to 19°C in summer with exceptional temperatures of 10 and 21 being measu

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)

Microhaline (brackish)/Mesohaline (0.5-30 g/l)

Euhaline/Euhaline (30-40 g/l)

Hyperhaline/Hypersaline (>40 g/l)

Unknown

Please provide further information on salinity (optional):

The marine area of the site can be classified as Euhaline with salinities in the order of 35g/l. Pools are, however, formed on the island due to sea water washing over at extreme high tides or storms. Due to evaporation water in these pools reach hypersaline concentrations. In terms of area these pools form an insignificant portion of the site, but they can have an impact on organisms and are therefore mentioned

4.4.8 - Dissolved or suspended nutrients in water

Eutrophic

Mesotrophic

Oligotrophic

Dystrophic

Unknown

(EOD) Water conductivity Sea water (35ppt)

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 i) broadly similar ii) significantly different site itself:

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Hazard reduction	Flood control, flood storage	not relevant for site

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	Low
Recreation and tourism	Nature observation and nature-based tourism	High
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High
Scientific and educational	Long-term monitoring site	High
Scientific and educational	Major scientific study site	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	High

Other ecosystem service(s) not included above:

Flood Control – The following wetland types of Dyer Island: Marine subtidal aquatic beds (Underwater vegetation), Rocky marine shores, Sand, shingle or pebble shores provide a level of protection from flooding as a result of storm surges.
 Shoreline stabilisation and storm protection – Marine subtidal aquatic beds (Underwater vegetation) and associated kelp beds provide some measure of physical barrier that slows down storm surges, reducing their height and destructive power.
 Sediment and nutrient retention and export – Kelp beds trap sediment, particularly seabird guano, that gets taken up by the kelp. The kelp in turn becomes food for the grazing kelp limpet, abalone and alikreukel and sea urchin. Filter feeders such as mussels, sponges, red bait and sea cucumbers rely on kelp forests. The mucous released from kelp fronds is rich in organic compounds that promote the growth of bacteria on which protozoans feed. Filter feeders consume these micro-organisms as well as phytoplankton, kelp spores and small fragments eroded from growing kelp fronds (Branch and Branch 1981). Nutrients are leached off the Island complex into the surrounding ocean which add to the nutrients provided by the oceanic upwelling events.
 Reservoirs of biodiversity – The reserve is a centre of seabird diversity and provides breeding habitat for a number of seabirds, the details of which are provided further in the document. The reserve provides habitat for the Cape Fur Seal which in turn are preyed upon by the threatened Great White Sharks. The rocky shore and subtidal marine environment are rich in associated invertebrate and fish biodiversity.
 Wetland products – Kelp is harvested in the area around Dyer Island and is used to support the abalone industry.
 Cultural values – Dyer Island Nature Reserve is part of the story of the guano mining, egg collecting and seal harvesting period in South Africa's history.

Within the site: 10s

Outside the site: 10 000s

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

This is possible if the Abalone harvesting systems and processes were in place to govern this process in the nearshore area

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

Description if applicable

Dyer Island Nature Reserve has a history that includes guano harvesting, egg collecting and seal harvesting. Two ruins of crude stone buildings, possibly used as shelters during the early guano collecting days, stand adjacent to the channel and along the north-western coast of Dyer Island. Two graves with illegible inscriptions can be found about 50m above the high water mark along the northern coastline of the island. The thick walled stone buildings near the living area were also used for guano related purposes. There are also ship wrecks in the area.

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

Description if applicable

The area is influenced by tourism operators as well as Abalone harvesters (legal and illegal)

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

(ECD) Primary production	Oceanic upwelling processes provide nutrients for primary production, which in turn sustains small pelagic fish populations which in turn sustain the kelp forests and marine top predator populations.
(ECD) Nutrient cycling	Oceanic upwelling
(ECD) Notable species interactions, including grazing, predation, competition, diseases and pathogens	Primary production caused by oceanic upwelling sustains small pelagic fish species populations which in turn sustain the marine top predator populations. Oceanic upwelling supports kelp forests and other macro algae which in turn sustain populations of grazers
(ECD) Notable aspects concerning animal and plant dispersal	Primary production caused by oceanic upwelling sustains small pelagic fish species populations which in turn sustain the marine top predator populations. Kelp forests and other macro algae also sustain populations of grazers such as Abalone
(ECD) Notable aspects concerning migration	Marine birds, mammals and fish (sharks) migrate globally from the site
(ECD) Pressures and trends concerning any of the above, and/or concerning ecosystem integrity	The unsustainable harvesting of Abalone is a broad issue as well as oceanic pollution and stress induced diseases, e.g. Avian Flu. Competition between top predator species is being monitored and will need to be managed into the future

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>
National/Federal government	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

Dyer and Geyser Island Provincial Nature Reserves were established as provincial nature reserves in terms of the Nature Conservation Ordinance, 1974, on 9 March 1998 and proclaimed in the Provincial Gazette of 18 March 1988 by Proclamation No. 23/1988; The area of jurisdiction was extended in terms of the Nature Conservation Ordinance, 1974, on 14 November 1997 and proclaimed in the Provincial Gazette of 15 May 1998 by Proclamation No. 15/1998 (the amendment extended the Nature Reserve's restricted area and took effect on 1 June 1998). CapeNature is the executive arm of the Western Cape Nature Conservation Board (WCNCB), established in terms of the Western Cape Nature Conservation Board Act, 1998 as amended.

5.1.2 - Management authority

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

Western Cape Nature Conservation Board, trading as CapeNature. Managed from local site at Hermanus

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

Deon Geldenhuys, Conservation Manager

Postal address:

16 17th Avenue, Voëlklip, Hermanus, 7200

E-mail address:

dgeldenhuys@capenature.co.za

5.2 - Ecological character threats and responses (Management)

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

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Shipping lanes	Medium impact		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fishing and harvesting aquatic resources	High impact	High impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Temperature extremes	Low impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Habitat shifting and alteration	Low impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Storms and flooding	Low impact	High impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please describe any other threats (optional):

Disease outbreaks have taken place on the island such as Avian cholera which as affected the Cape cormorants (Waller and Underhill 2007). Avian influenza is an emerging threat to some of the seabirds (CapeNature unpublished data).

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Provincial Nature Reserve	Dyer Island Nature Reserve Complex	http://www.capenature.co.za/wp-content/uploads/2014/05/Dyer-Island-Nature-Reserve-Complex-PAMP.pdf	whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Dyer Island	http://www.birdlife.org.za/conservation/important-bird-areas/iba-directory/item/262-sa120-dyer-island-nature-reserve	whole

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

5.2.4 - Key conservation measures

Habitat

Measures	Status
Habitat manipulation/enhancement	Partially implemented
Faunal corridors/passage	Implemented

Species

Measures	Status
Threatened/rare species management programmes	Implemented

Human Activities

Measures	Status
Harvest controls/poaching enforcement	Implemented
Regulation/management of recreational activities	Implemented
Communication, education, and participation and awareness activities	Implemented
Research	Implemented

Other:

Shark cage diving and whale watching takes place within the reserve boundaries at certain times of the year. This activity is managed by the national department of environmental affairs. Poaching enforcement is conducted by the National Department of Agriculture Forestry and Fisheries.

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

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

African penguin and Seabird Sanctuary (DICT)
SANCCOB

URL of site-related webpage (if relevant): <https://www.birdlife.org.za/get-involved/join-birdlife-south-africa/item/262-sa120-dyer-island-nature-reserve>

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
Birds	Implemented
Animal species (please specify)	Implemented

CapeNature has a monitoring programme that provides the list of all monitoring projects implemented throughout the year. The focus of the monitoring programme is on the threatened seabird species. These include species breeding counts, recording of re-sightings (through rings and transponders) predominantly for African penguins and chick condition of African penguins. Observations are made of oiled, injured and diseased birds, and they are sent off for rehabilitation when possible. GPS tracking is conducted to monitor foraging behaviour of African penguins and Cape cormorants. In addition, predation by Cape fur seals on seabirds is also monitored. The presence of poachers is also monitored and recorded on a daily basis.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Full list available under point {vi. other published literature} below

Best PB (2007) Whales and dolphins of the Southern African subregion. Cambridge University Press pp338.

Birss C, Geldenhuys D, Waller LJ and Cleaver-Christie, G. (eds). 2012. Dyer Island Nature Reserve Complex Management Plan 2013-2018.Branch and Branch 1981

Branch, M., Branch, G. 1981. The Living Shores of Southern Africa. Cape Town: Struik Publishers.

Branch GM, Griffiths CL, Branch ML, Beckley LE. 2007. Two Oceans: A guide to marine life of southern Africa. Cape Town: Struik Publishers.

Crawford RJM, Altwegg R, Barham BJ, Barham PJ, Durant JM, Dyer BM, Geldenhuys D, Makhado AB, Pichegru L, Ryan PG, Underhill LG, Upfold L, Visagie J, Waller LJ, Whittington PA. 2011. Collapse of South Africa's penguins in the early 21st century: a consideration of the possible influence of food and fishing. African Journal of Marine Science. 33: 139-156.

Crawford RJM, Dyer BM, Kotze PGH, Meyer MA, Upfold L, Makhado AB. (eds) 2011. Status of seabirds breeding in South Africa in 2011. Branch Oceans & Coasts, Department of Environmental Affairs, South Africa, Cape Town, 2012.

Crawford RJ, Randall RM, Cook TR, Ryan PG, Dyer BM, Fox R, Geldenhuys D, Huisamen J, McGeorge C, Smith MK, Upfold L, Visagie J, Waller LJ, Whittington PA, Wilke CG, Makhado AB, 2016. Cape Cormorants decrease, move east and adapt foraging strategies following eastward displacement of their main prey. African J. Mar. Sci. doi:10.2989/1814232X.2016.120286

Hill AE, Hickey BM, Shillington FA, Strub PT, Brink KH, Barton ED, Thomas AC (1998) Eastern ocean boundaries: coastal segment (E). In: Robinson AR, Brink KH (eds), The Sea II. John Wiley and Sons. pp 29–68

IUCN 2017. The IUCN Red List of Threatened Species. Version 2017-3. . Downloaded on 05 December 2017

Kirkman SP, Oosthuizen, WH, Meyer MA, Kotze PGH, Roux J-P, Underhill LG. 2007. Making sense of censuses and dealing with missing data: trends in pup counts of Cape fur seal *Arctocephalus pusillus pusillus* for the period 1927-2004. Afr Jour Mar Sci 29(2): 161-176

Roberson L. 2015 Results Of The First Baited Remote Underwater Video System (Bruvs) Study Of Fish In The Dyer Island Conservation Area. Report To Cape Nature And The Dyer Island Conservation Trust. 16 Pp.

Schwartzlose RA, Alheit J, Bakun A, Baumgartner TR, Cloete R, Crawford RJM, Fletcher WJ, Green-Ruiz Y, Hagen E, Kawasaki T, Lluch-Belda D, Lluch-Cota SE, Maccall AD, Matsuura Y, Nevarez-Maryinez MO, Parrish H, Roy C, Serra R, Shust KV, Ward MN, Zuzunaga JC. 1999. Worldwide large-scale fluctuations of sardine and anchovy populations. South African Journal of Marine Science. 21: 289–347.

Shannon LV. 1985. The Benguela ecosystem.1. Evolution of the Benguela, physical features and processes. Oceanography and Marine Biology Annual Review 23: 105–182.

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

<no file available>

vi. other published literature

<1 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Cape cormorants and artificial penguin nests(1) (CapeNature, 2017)



Cape cormorants and artificial penguin nests(2) (CapeNature, 2017)



Aerial photo of Dyer and Geyser Islands (Dyer Island Conservation Trust, 2011)



Cape fur seals on Geyser Island (CapeNature, 2011)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation 2019-03-29