

TURTLE BEACHES/CORAL REEFS OF TONGALAND

SOUTH AFRICA

Information sheet for the site designated to the

List of Wetlands of International Importance

in terms of the

Convention on Wetlands of International Importance

especially as Waterfowl Habitat

South African Wetlands Conservation Programme
Document No 24/21/3/3/3/3 (1986)

Department of Environmental Affairs and Tourism
Private Bag X447
PRETORIA 0001
South Africa

RAMSAR DATA: TURTLE BEACHES/CORAL REEFS OF TONGALAND

1. COUNTRY

South Africa

2. DATE OF COMPILATION

Originally completed: November 1984

3. REFERENCE NUMBER

1ZA005

4. COMPILER

Originally compiled by:

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Natal Parks, Game and Fish Preservation Board

P O Box 662

Pietermaritzburg

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5. NAME OF WETLAND

Turtle Beaches/Coral Reefs of Tongaland

6. DATE OF RAMSAR DESIGNATION

2 October 1986

7. GEOGRAPHICAL CO-ORDINATES

25° 51' to 28° 08' S

32° 33' to 32° 51' E

8. GENERAL LOCATION

40 km from Mtubatuba. The beaches are situated just south of the Kosi Bay estuary mouth.

9. AREA (ha)

10. WETLAND TYPE

11. ALTITUDE

Min: 0

Max:

12. OVERVIEW OF SITE

13. PHYSICAL FEATURES

13.1 Geology and geomorphology

13.2 Origins

13.3 Hydrology

13.4 Soil type and chemistry

13.5 Water quality

13.6 Depth, fluctuations and permanence

13.7 Tidal variations

13.8 Catchment area

13.9 Downstream area

13.10 Climate

14. ECOLOGICAL FEATURES

15. LAND TENURE

15.1 Legal status

16. CONSERVATION MEASURES TAKEN

16.1 Management plans

16.2 Management category

16.3 Management practices

17. CONSERVATION MEASURES PROPOSED BUT NOT YET IMPLEMENTED

18. CURRENT LAND USE

The portion of the Marine Reserve south of Sodwana Bay abuts onto the greater Lake St Lucia system, i.e. a vast area largely under nature conservation. North of Sodwana Bay lies KwaZulu, an area inhabited by peasant people.

18.1 Resource utilization

Consumptive utilization

Table 1 : Intertidal resource harvesting in kg - Maputaland Marine Reserve

Resources	93/94	94/95
Black mussels	28 705	13 598
red bait	34 687	33 360
Oysters	453	359
Barnacles	79	100
Sea urchins	2 746	1 136
Sea-lice	74 596	4 790
Ghost crabs	62 406	5 774

Table 2: Billfish caught - St Lucia Marine Reserve (North)

	90/91	91/92	92/93	93/94	94/95
Sailfish	129	87	120	18	38
Black Marlin	102	71	68	34	143
Blue Marlin	7	11	8	-	9
Striped Marlin	13	20	35	-	11
Unspecified	40	41	40	-	2
Totals:	291	230	271	52	203

19. DISTURBANCES AND THREATS INCLUDING CHANGES IN LAND USE AND MAJOR DEVELOPMENT PROJECTS

Off shore spills from oil tankers could cause pollution damage to the marine and estuarine environment. Mechanisms are in place along the entire South Africa coastline to manage oil spills arising from tanker accidents at sea. The oil spill from the tanker Karina P. In 1992 entered the northern area of the marine reserve and was successfully confined and dissipated without serious adverse effects on marine life.

20. HYDROLOGICAL AND BIOPHYSICAL FEATURES

Not available

21. SOCIAL AND CULTURAL VALUES

22. NOTEWORTHY FAUNA

Two sea turtle species nest on this stretch of coast, namely the loggerhead turtle *Caretta caretta* and the leatherback turtle *Dermochelys coriacea*.

The leatherback turtle is a valuable nesting species whose use of the Turtle Beaches has increased from five females in 1966 to 71 in the summer of 1977-78 as a result of the conservation efforts of Natal Parks Board and the KwaZulu Government.

22.1 Species counts

Site/Area	Species	Frequency of counts	Methods used	Date of last count	Results and trends
Marine reserves	Crown-of-thorns starfish	Sporadic	Search - scuba	June 95	Decline

23. NOTEWORTHY FLORA

24. SCIENTIFIC RESEARCH AND FACILITIES

A turtle research programme was initiated by the Natal Parks Board soon after an approach was made to them to protect the sea turtles that were being hunted whilst nesting on the beaches along the coast immediately south of the Kosi Bay estuary mouth. Research activities are directed from the Natal Parks Board headquarters in Pietermaritzburg and periodic visits are made by the officer responsible for research. A special team is in operation for research on, and protection of the sea turtles. It consists of a game ranger, game guards, students, labourers and KwaZulu nature conservation officials. It has been said that the programme of protection of sea turtles along this coastline is one of the finest in the world.

24.1 Projects in progress

Marine Reserves (including St Lucia Marine Reserve, Maputaland Marine Reserve)

REG.NUMBER	TITLE	RESEARCHER	SUPERVISOR	CO-ORDINATOR	START	PROPOSED/ COMPLETE
CM/002/06	Invertebrate catch statistics of KwaZulu-Natal.	B J Tomalin		Taylor	01-01-74	31-12-99
CM/003/05	East Coast game fish project: Queen mackerel and elf.	R van der Elst		Taylor	01-01-80	31-12-99
CM/006/06	KwaZulu-Natal coastal inventory.	R H Taylor			01-08-83	31-12-95
CM/011/06	Marine molluscs of the KwaZulu-Natal coast.	Dr R Kilburn		Bourquin	01-07-84	?
CM/012/06	Coral reefs of the KwaZulu-Natal coast.	Dr M H Schleyer		Bourquin	01-07-84	31-12-99
CM/017/11	Sedimentation in KwaZulu-Natal estuaries and the adjacent coastal environment.	Dr T R Mason		Taylor	06-03-86	31-12-89
CM/023/11	The effect of temperature on sex determination of sea turtles and crocodiles.	J Maxwell	C Sappford	Bourquin	01-12-87	01-12-95
CM/024/04	The potential for cultivation of <i>Juncus kraussii</i> and other wetland species used for craft work in KwaZulu-Natal.	D Heinsohn	A B Cunningham	Taylor	01-07-88	31-12-94
CM/033/04	A study of the mangrove crab <i>Scylla serrata</i> in KwaZulu-Natal.	W D Robertson	Dr M H Schleyer	Taylor	08-01-91	31-12-99
CM/034/06	Mudprawn and sandprawn populations of KwaZulu-Natal.	B J Tomalin		Taylor	01-01-91	31-12-95
CM/035/05	Effects of humans on ghost crabs <i>Ocypode</i> spp. in Natal.	W D Robertson	Dr M H Schleyer	Taylor	01-01-91	31-12-95
CM/036/05	A study of the oyster, <i>Striostrea margaritacea</i> (Lamarck) in KwaZulu-Natal.	Dr M H Schleyer		Taylor	01-01-87	31-12-95
CM/037/04	A study of the brown mussel <i>Perna perna</i> in KwaZulu-Natal.	B J Tomalin	Dr M H Schleyer	Taylor	01-01-85	31-12-95
CM/043/06	Checklist and toxicological potential of sponges and tunicates on KwaZulu-Natal reefs.	Dr M H Schleyer		Taylor	17-03-92	31-07-94
CM/044/05	The biology of the crab <i>Tylodiplax bleshariskios</i> .	R K Owen	Dr A T Forbes	Taylor	01-07-92	31-12-94
CM/047/06	Zululand coral reef palaeoclimate investigation.	Dr P J Ramsay		Taylor	01-04-93	30-04-98
CM/048/06	Model for giant subaqueous dune development.	Dr P J Ramsay		Taylor	01-04-93	30-04-97
CM/049/04	KwaZulu-Natal rock lobster <i>Panulirus homarus</i> : Its biology and utilisation on the KwaZulu-natal coast.	Dr P J Fielding	Dr M H Schleyer	Taylor	01-01-92	31-12-94
CM/050/04	Does human exploitation of mussels modify intertidal community structure on rocky shores along the northern KwaZulu-Natal coast?	Dr J M Harris	Prof G M Branch	Taylor	01-11-94	31-08-95
NA/059/11	Zululand coastal erosion.	C I Wright	Dr P J Ramsay	Taylor	01-02-93	31-12-95

SM/002/05	Ecology of the ragged-tooth shark (<i>Eugomphodus taurus</i>) (Rafinesque) on the Maputaland coast.	Dr G Cliff		Taylor	01-01-87	31-12-2000
SM/004/03	Movements and seasonal occurrence of whale sharks (<i>Rhincodon typus</i>) within the St Lucia and Maputaland Marine Reserves.	M C Bouwer		Taylor	01-11-88	31-05-90
SM/006/01	A management plan for the coral reefs at Sodwana Bay (St Lucia Marine Reserve) based on coral community studies.	B Reigl	Dr P Cook	Bourquin	01-03-91	31-12-94
SL/003/03	Monitoring changes in the biotic and abiotic components of the St Lucia Estuary.	R H Taylor	01-12-83	31-12-2000		
SL/004/03	Monitoring abiotic factors in the St Lucia reserves.	R H Taylor			01-12-83	21-12-2000
SL/026/06	Sediment dynamics of St Lucia Estuary.	C I Wright		Taylor	01-08-8	31-12-2000

24.2 Projects just completed

Marine Reserves (including St Lucia Marine Reserve, Maputaland Marine Reserve)

REG.NUMBER	TITLE	RESEARCHER	CO-ORDINATOR	START	PROPOSED/ COMPLETE
CM/001/05	The sea-turtle monitoring and protection programme.	Dr G R Hughes	Bourquin	05-09-89	01-04-89
CM/004/05	Sexual differentiation of <i>Caretta caretta</i> with special reference to culture conditions.	J Maxwell	Hughes	01-03-84	13-11-86
CM/005/05	A study of the mangrove crab <i>Scylla serrata</i> .	W D Robertson	P.Bourquin	01-08-84	01-07-90
CM/007/06	Study of KwaZulu-Natal coral reefs.	Prof A P Bowmaker	Bourquin	01-10-84	01-10-90
CM/008/04	National marine linefish catch statistics.	R van der Elst	Taylor	01-06-79	01-03-90
CM/009/06	Seaweeds of KwaZulu-Natal.	Dr R E Norris	Taylor	01-07-84	04-08-94
CM/010/06	Photographic checklists of marine fauna: Leadsman shoal.	F J Junor		03-07-84	25-11-92
CM/013/06	Sport fishing and the angling industry on the coast of Natal.	Dr M O Sutcliffe	Junor	01-06-86	01-05-89
CM/014/10	Tagging of demersal fish by spear gun.	W R Roxburgh	Junor	01-08-86	09-03-87
CM/015/04	Biology and management of prawn stocks at St Lucia and Richards Bay.	Dr P J Fielding	Bourquin	01-10-89	10-08-94
CM/016/06	Sedimentation distribution and zonation of Two-Mile Reef, Sodwana Bay.	Dr P J Ramsay	Junor	12-01-87	01-02-88
CM/018/05	The ecology of two black parrotfish species, <i>Oplegnathus conwayi</i> and <i>O. robinsoni</i> along the KwaZulu-Natal coast. S ChatertCoke01-06-8701-09-93CM/019/05 Aspects of the biology of surgeon-fish, and seabreams in the St Lucia Marine Reserve.	P Garrat	Junor	01-06-87	01-06-89

CM/020/06	Distribution and structure of marine angiosperm stands in KwaZulu-Natal.	C J Ward	Junor	01-01-88	21-01-94
CM/022/02	Phytophagous insect fauna associated with Chrysanthemoides monilifera in KwaZulu-Natal.	Dr J K Scott	Bourquin	01-09-87	01-02-91
CM/025/05	Migration of east coast humpback whales off the KwaZulu-Natal coast	K Findlay	D Junor	01-06-88	31-01-94
CM/026/05	Tree climbing as a predator avoiding strategy by the mangrove whelk (<i>Cerithidea decollata</i>).	J F Cullinane	D Junor	02-08-89	29-03-89
CM/027/02	Relationship between <i>Scylla serrata</i> and <i>Cerithidea decollata</i> and possible effects on whelk behaviour.	Z M Lees	D Junor	18-08-88	29-03-89
CM/028/05	Ecology and conservation of bottlenosed dolphins off KwaZulu-Natal.	H W Richards	P Junor	15-11-88	21-01-94
CM/029/01	Effect of clearing mussels at Salt Rock.	B Filday	Junor	01-01-89	21-01-94
CM/030/03	Benthic community structure as a function of physical conditions in lagoons.	E C Cerff	Junor	01-07-89	17-05-91
CM/031/06	Survey of fauna of the Treasure Beach rocky shore.	T Stewart	Junor	01-08-89	04-06-91
CM/038/05	KwaZulu-Natal red bait <i>Pyura stolonifera</i> : Population biology and exploitation in KwaZulu-Natal.	Dr P J Fielding	D Junor	01-01-89	21-01-94
CM/039/05	Reproductive cycles in seabreams (Pisces: Sparidae) in KwaZulu-Natal.	P Garrat	R Coke	01-01-89	07-09-94
CM/040/06	Population status of humpback dolphins off KwaZulu-Natal.	B Durham	Junor	01-03-91	04-08-94
CM/042/06	Checklist and toxicological potential of tunicates of KwaZulu-natal coral reefs.	Dr M H Schleyer	Junor	17-03-92	17-06-94
CM/045/10	Effects of exploitation regimes on the sizes and structure of populations of brown mussels in Zululand.	J Culverwell	Bourquin	01-06-92	27-10-92
SM/001/04	Monitoring of resource utilisation in the Maputland Marine Reserve.	Dr S Kyle	Junor	01-01-88	14-02-94
SM/003/09	The sedimentology of Zululand coral reef systems: Two-mile reef, Leadsman Shoal, Red Sands reef.	Dr P J Ramsay	D Junor	14-02-88	16-02-89
SM/005/06	Ancient versus modern sedimentary environments along the Zululand coast.	D J Muir	D Junor	01-12-88	31-03-92

1. Seaweeds of KwaZulu-Natal

CM/009/06 Dr R E Norris; U NATAL (PMB)

(F J Junor)

This project started in May 1984 with the primary objective being the collection and identification of marine benthic algae of Natal. To this end numerous dives were made to depths varying from 10 m to 56 m by members of the South African Police Reserve diving team as well as Natal Parks Board staff. In addition collections were made from drifting algae and also the intertidal zone. Thirty papers, many of which describe species of seaweeds new to South Africa, have been published to date. By combining results obtained in this survey and those of Jackson (1976), Lambert (1976), Siegfried (1980) and Siegfried (1984) a checklist and locality record of the recommendations arising from the project. There is, however, still a need for an identification manual for the common seaweeds of Natal. The possibility of sponsoring someone to do so should be examined.

2. Reproductive cycles in seabreams (Pisces: Sparidae) in KwaZulu-Natal.

CM/039/05 Mr P Carrat; ORI

(M M Coke)

Gonad development in sparids was studied in the estuaries and coastal waters of KwaZulu-Natal. This was related to their population structure and spawning behaviour, with a view to making management recommendations. A major discovery of the project was that KwaZulu-Natal's exploited seabream species exhibit sex-change. This phenomenon has drawn considerable world-wide scientific interest. The bi-potentiality of sparid gonads was considered to be a pre-adaption for sequential hermaphroditism, and sex-change was thus an alternative reproductive style extending the reproductive success of the individual. The spawning behaviour of the santer *Cheimerius nufar* was described from captive specimens, and the spawning habits of riverbream *Acanthopagrus berda* at Kosi Estuary mouth were described. The growth rate of the slinger *Chrysoblephus puniceus* was investigated and was found to accelerate at the time of sex-change. Recruitment of the KwaZulu-Natal slinger stock was examined and it was postulated that, if male abundance was a limiting factor, the exploitation of stocks in the St Lucia Marine Reserve and off southern Mozambique could cause a collapse of not only the KwaZulu-Natal stock but also the entire resource. It should continue to be monitored carefully, particularly in view of the increasing pressure on the Mozambican stocks, so as to determine whether the fishery can be maintained satisfactorily under existing regulations.

3. Population status of humpback dolphins off KwaZulu-Natal.

CM/040/06 Mr B Durham; PEM

(F J Junor)

Two of the recommendations made dealt with the reduction of the effects of shark nets on the dolphins. There were (i) the removal, or reduction of the number of shark nets in those areas where humpback dolphins are resident; Richards Bay south to Tinley Manor and possibly Ramsgate south of Mzamba; and (ii) as an alternative to the reduction in permanently set nets it was suggested that nets in these areas be removed, or the number reduced, in peak capture months (July to August and December to January). These recommendations were being dealt with by members of NPB, ORI, Natal Sharks Board and Dr Begg of Environment Services.

4. Checklist and toxicological potential of tunicates of KwaZulu-natal coral reefs.

CM/042/06 Dr M H Schleyer; ORI

(F J Junor)

Project was amalgamated with CM /043/06 - Checklist and toxological potential of sponges (and tunicates) on Natal reefs.

5. The coralline algae of the Sodwana Bay reef system.

SB/003/06 Dr D W Keats; U WESTERN CAPE

(Dr O Bourquin)

The main aim was determine the taxonomy of the ecologically-important coralline algae on the Sodwana Bay reef system. At least ten genera represented by 24 to 26 species were recorded, and the recommendation was to increase the awareness and understanding of coral reefs amongst the public. A poster has been produced for this purpose.

24.3 New findings

24.4 Proposed new projects

25. CONSERVATION EDUCATION

26. RECREATION AND TOURISM

27. MANAGEMENT AUTHORITY

28. JURISDICTION

29. REFERENCES

BUXTON, C.9, TINLEY, R.L. & P.C. HEEMSTRA. 1994. Ichthyofaunal survey of the littoral fishes of Natal. Department of Ichthyology & Fish Science Research Report. 8: 1-31.

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30. REASONS FOR INCLUSION

The turtle beaches hosts the only nesting populations of leatherback turtles *Dermochelys corioacea* in the Indian Ocean south of Sri Lanka on the western half of the ocean and south of Sumatra on the eastern side. The loggerhead turtle *Caretta caretta* also nests on this coast. The nearest loggerhead nesting ground is in south-east Madagascar and this population is seriously threatened. The only other known populations are in Burma and Oman. Therefore this coastline is unique in acting as home to two species of marine reptiles that wander half of the Indian Ocean.

31. OUTLINE MAP OF SITE

(To be appended)