

**SOUTH AFRICAN PROGRESS REPORT ON CETACEAN RESEARCH, JANUARY
2004 TO DECEMBER 2004, WITH STATISTICAL DATA FOR THE CALENDER
YEAR 2004**

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This report summarizes information obtained from: Mammal Research Institute Whale Unit, University of Pretoria (**MRIWU**); Natal Sharks Board (**NSB**); University of KwaZulu-Natal (Westville) (**UKZNW**); Centre for Dolphin Studies (**CDS**); Department of Mathematics and Applied Mathematics, University of Cape Town (**UCT**); Port Elizabeth Museum (**PEM**); Branch Marine and Coastal Management, Department of Environmental Affairs and Tourism (**DEAT**) and Richards Bay Humpback Dolphin Project, Endangered Wildlife Trust (**EWT**).

1. Species and stocks studied

Common name	Scientific name	Area/stock(s)	Items referred to
Antarctic minke whale	<i>Balaenoptera bonaerensis</i>		2.2; 9
Atlantic Ocean bottlenose dolphin	<i>Tursiops truncatus</i>	South Africa	2.1.1; 2.1.2
Blue whale	<i>Balaenoptera musculus</i>	South Africa	11.1
Bryde's whale	<i>Balaenoptera edeni</i>	South Africa	2.1.1; 2.1.2; 3.1.1
Common dolphin	<i>Delphinus spp.</i>	South Africa	4.3
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	South Africa	4.3
Dusky dolphin	<i>Lagenorhynchus obscurus</i>	South Africa	3.1.3; 4.1; 4.3; 11.1
False killer whale	<i>Pseudorca grassidens</i>	South Africa	2.1.1; 2.1.2
Gray's beaked whale	<i>Mesoplodon grayi</i>	South Africa	4.3
Heaviside's dolphin	<i>Cephalorhynchus heavisidii</i>	South Africa	2.1.1; 3.1.3; 4.1; 4.3; 9
Humpback whale	<i>Megaptera novaeangliae</i>	Western Indian Ocean and Southern Atlantic	2.1.1; 2.1.2; 3.1.1; 4.1; 4.3; 6.1; 9
Indo-Pacific humpback dolphin	<i>Sousa chinensis</i>	South Africa	2.1.1., 2.1.2., 3.1.1., 7.1., 11
Indian Ocean bottlenose dolphin	<i>Tursiops aduncus</i>	South Africa	2.1.1; 2.1.2; 3.1.1; 4.3; 7.1
Killer whale	<i>Orcinus orca</i>	South Africa	2.1.1; 2.1.2; 4.3
Long-beaked common dolphin	<i>Delphinus capensis</i>	South Africa	2.1.1; 7.1
Minke whale	<i>Balaenoptera acutorostrata</i>		9; 11.1

Pygmy Killer whale	<i>Feresa attenuata</i>	South Africa	4.3
Pygmy sperm whale	<i>Kogia breviceps</i>	South Africa	4.3
Southern right whale	<i>Eubalaena australis</i>	South Africa and Namibia	2.1.1; 3.1.1; 3.1.3; 3.2; 4.1; 4.3; 6.1; 9; 11.1
Sperm whale	<i>Physeter macrocephalus</i>	South Africa	9
Striped dolphin	<i>Stenella coeruleoalba</i>	South Africa	4.3
True's beaked whale	<i>Mesoplodon mirus</i>	South Africa	4.3

2. Sightings data

2.1 Field work

2.1.1 Systematic

MRIWU

Between 9 and 22 October 2004, the coastline between Nature's Valley, Plettenberg Bay, on the south coast and Lamberts Bay on the west coast was searched from the air by helicopter and 752 right whales (including 211 calves), 2 humpback whales and 1 Bryde's whale were seen in 35 h 30 min of flying. All right whale cow-calf pairs were photographed for individual ID purposes.

Between September 2004 and January 2005, 49 days were spent at sea in the St Helena Bay area of the west coast in a study of a summer feeding ground for right whales. In total, 214 sightings of 574 right whales and 23 sightings of 40 humpback whales were made. Between October and January, 44.1% of right whales seen were exhibiting behaviour believed to be associated with feeding, and 23 faecal samples were collected. CTD and plankton hauls were made next to feeding whales on 9 occasions, and a line of 5 oceanographic stations through the centre of the putative feeding ground was successfully completed on 7 occasions.

DEAT

During a Heaviside's dolphin telemetry study (15- 25th November) onboard the R.S. *Sardinops*, a two day survey of Humpback whales was undertaken together with MRIWU off the west coast. During this cruise a total of 31-34 humpback whales in 14 groups were sighted. Using a RIB a total of 70 photo-id frames were taken of 18 humpback whales and genetic biopsy samples were collected from 6 humpback whales.

NSB & UKZNW

NSB undertook long-shore aerial surveys along the coast of KwaZulu-Natal south from Durban to Port St. Johns in the Eastern Cape to investigate Indian Ocean bottlenose and long-beaked common dolphin distribution and abundance patterns associated with winter migrations of sardines (*Sardinops sagax*). They undertook four long-shore aerial surveys along the coast of KwaZulu-Natal north of Durban to Kosi Bay (Mozambique border) recording cetacean sightings during a whale shark survey.

EWT

Thirty-nine boat-based searches were undertaken, 21 of which were successful. They followed 30 different groups of Indo-Pacific humpback dolphins and collected population, spatial and behavioural data. Photo-id data were collected with both a digital video camera

(1239 images) and a digital SLR camera (1203); 149 positive identifications were made of 53 individuals.

CDS

During 2004 CDS ran two main research projects, photo identification of Bryde's whales and a land based study examining habitat use and behaviour of Indian Ocean bottlenose dolphins. In total 33 research trips were launched from Plettenberg Bay (81hr 45min). During these trips the following species were photographed: Bryde's whales, humpback whales, southern right whales, Indo-Pacific humpback dolphins, Indian Ocean bottlenose dolphins, humpback whales, Atlantic Ocean bottlenose dolphins, false killer whales and killer whales.

2.1.2 Opportunistic, platforms of opportunity

DEAT

During 2004 a BBWW operator based in St Lucia, KZN photographed 422 dorsal fins and 310 tail flukes of humpback whales migrating through his area. Additionally a further 42 sloughed skin was collected by this operator. These photographs has been scanned but not catalogued.

EWT

39 sightings of Indo-Pacific humpback dolphins were reported to us by the general public and the National Sea Rescue Institute; excluding photo-id data but including spatial and temporal data. In addition, four sightings of 38 of Indian ocean bottlenose dolphins and 2 sightings of 6 humpback whales were recorded during humpback dolphin boat-based surveys.

CDS

Photographs of killer whales, false killer whales, Atlantic Ocean bottlenose dolphins Bryde's whales, and Indo-Pacific humpback dolphins were taken from commercial whale and dolphin watching vessels in Plettenberg Bay and Knysna.

2.2 Analyses/development of techniques

UCT

Applying the direct duplicate method for estimating $g(0)$ to simulated Antarctic minke whale survey data.

3. Marking data

3.1 Field work

3.1.1 Natural marking data

Species	Feature	Area/ stock	Number photograph ed	Catalogued (Y/N)	Cat. Total	Contact person/institut e
Southern right whale	Callosities (aerial)	S & W coast, RSA	211 cow- calf pairs	N	793 ad females	MRIWU
Southern right whale	Callosities (boat)	W coast, RSA	~2,000 frames	N	?	MRIWU
Humpback whale	Dorsal fin, flukes	W coast, RSA	~250 frames	N	429 left d 451 right d 280 tail fl	MRIWU
Indo- pacific	Dorsal fin and hump	Richards Bay	53	Y	124	EWT

humpback dolphin						
Humpback whale	Left dorsal	West Coast, RSA	219	N		DEAT
Humpback whale	Right dorsal	West Coast, RSA	203	N		DEAT
Humpback whale	Tail Fluke	West Coast, RSA	310	N		DEAT
Humpback whale	Left dorsal	West Coast, RSA	13	N		DEAT & MRIWU
Humpback whale	Right dorsal	West Coast, RSA	12	N		DEAT & MRIWU
Humpback whale	Fluke	West Coast, RSA	14	N		DEAT & MRI
Southern Right Whale (Ship)	Callosit/ dorsal	West Coast, RSA	8	N		DEAT & MRIWU
Southern Right Whale (Aerial)	Callosit/ dorsal	East Coast, RSA	3 cow/calf pairs	N		DEAT
Indian Ocean bottlenose dolphins	Dorsal fin	East Coast, RSA	13	N		DEAT
Indo-pacific humpback dolphin	Dorsal fin	East Coast, RSA	51			CDS
Indian Ocean bottlenose dolphins	Dorsal fin	East Coast, RSA	655			CDS
Humpback whale	Dorsal fin & flukes	East Coast, RSA	32			CDS
Bryde's whale	Dorsal fin	East Coast, RSA	226			CDS

- Number of frames exposed

3.1.2 Artificial marking data

None

3.1.3 Telemetry data

Species	Tag type	No. successfully deployed	Maximum time transmitting	Contact person/institute
Southern right whale	VHF	9	2 months	MRIWU
Heaviside's dolphin	Satellite	1	11 days	MRIWU
Dusky dolphin	Satellite	1	1 day	MRIWU
Heaviside's dolphin	Satellite PTT	5	55 days	DEAT

3.2 Analyses/development of techniques

MRIWU

Work continued with the computerised matching system for right whale callosity patterns, based on the Hiby/Lovell method. A database was designed and all data relevant to the photographs entered. The best frame for each whale on each year's survey was selected and scanned in, for the years 1979 to 2001, representing some 2,658 frames. Extracts have been completed for nearly all these pictures.

4. Tissue/biological samples collected

4.1 Biopsy samples

Species	Area/stock	Number collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Humpback whale	West Coast	29	N	0	182	MRIWU
Southern right whale	West Coast	2	N	0	~650	MRIWU
Humpback whale	East Coast	42 slough skin	N	?		DEAT
Humpback Whale	West Coast	6	N	None		DEAT & MRIWU
Heaviside's dolphin	West Coast	9	N	None		DEAT & MRIWU
Dusky dolphin	West Coast	1	N	None		DEAT & MRIWU

4.2 Samples from directed catches or bycatches

Species	Area/stock	Calendar year / Season total	Archived	Tissue types	Contact person
None					

S=skin, B=blubber, T=teeth, W=baleen, G=gonads, C=ext parasites, P=internal parasites, K=skeletal remains, A=pathology samples, CV=cardiovascular systems, ST=Stomach

4.3 Samples from stranded animals

Species	Area/stock	No	Archived	Tissue tyoe	Contact
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		.			person/inst.
Humpback whale	West coast	1		S,C	MRIWU
Pygmy sperm whale	South coast	1		S,B,T,G,P,K, ST	MRIWU
Southern right whale	South coast	1		S	MRIWU
Pygmy killer whale	Namibia	1		K	MRIWU
Southern right whale	West coast	1		S	MRIWU
Humpback whale	South coast	1		S,C	MRIWU
True's beaked whale	West coast	1		K	MRIWU
Dusky dolphin	West coast	1		S,B,T,G,ST	MRIWU
Indian Ocean bottlenose dolphin	South coast	1		K	MRIWU
Killer Whale	East Coast	1	Y	T; K	PEM
Common Dolphin	East Coast	1	N		PEM
Cuvier's Beaked Whale	East Coast	1	Y	S,T,G,K,ST	PEM
Bottlenose dolphin	East Coast	1	N	S,T,G,K	DEAT
Heaviside dolphin	West Coast	1	N	S,T,G,P, K	DEAT
Common Dolphin	West & East Coasts	4	N	S, T, G,P,K	DEAT
Dusky dolphin	West Coast	1	N	S,T,G,K	DEAT
Striped dolphin	East Coast	1		K,T,ST	CDS
Gray's beaked whale	East Coast	1		K,ST	CDS
Indian ocean bottlenose dolphin	East Coast	1			CDS
Beaked whale	East Coast	1		K	CDS
Pygmy sperm whale	East Coast	1		G,K,T,ST	CDS

S=skin, B=blubber, T=teeth, W=baleen, G=gonads, C=ext parasites, P=internal parasites, K=skeletal remains, A=pathology samples, CV=cardiovascular systems, ST= stomach

4.4 Analyses/development of techniques

None

5. Pollution studies

None

6. Statistics for large cetaceans

6.1 For the calendar year 2004

Species	Area/stock	Directed catch		Incidental catch			Source*
		Reported	Est. total	Reported	Est. total	Released alive	
Humpback whale	KwaZulu-Natal	0		3	3	2	Shark nets
Southern right whale	KwaZulu-Natal	0		0	0	0	Shark nets
Suspected whale* (unknown species)	KwaZulu-Natal	0		26	26	26	Shark nets

* These data are for holes found in the shark nets that are attributed to possible whale damage.

6.2 Other non-natural mortality for the calendar year 2001

None

7. Statistics for small cetaceans

7.1 For the calendar year 2001

Species	Area/stock	Directed catch		Incidental mortality			Live-capture
		Reported	Est. total	Reported	Est. total	Source*	Reported
Indian Ocean bottlenose dolphin	KwaZulu-Natal	0		27	27	Shark nets	
Indo-Pacific humpback dolphin	KwaZulu-Natal	0		10	10	Shark nets	
Long-beaked common dolphin	KwaZulu-Natal	0		40	40	Shark nets	

8. Strandings

The MRI Whale Unit, c/o South African Museum, Box 61, Cape Town, and the Department of Environmental Affairs and Tourism, P. Bag X2, Cape Town, attend strandings in the Western and Northern Cape; the Port Elizabeth Museum and Centre for Dolphin Studies attend strandings in the Eastern Cape; and Natal Sharks Board, P. Bag 2, Umhlanga Rocks, and Durban Sea World, P.O. Box 10712, Marine Parade, attend strandings in Kwa-Zulu Natal.

9. Other studies and analyses

DEAT

Collaborative study on Heaviside's dolphin with MRIWU; Range and movements of Heaviside's dolphin results from ARGOS linked PTT's.

NSB

The NSB continues to experiment with bycatch mitigation measures using active acoustic devices (pingers), ellipsoidal air-filled floats (sonar reflectors), time-area closure of the nets and drum-lines (baited hooks) to reduce cetacean captures in the shark nets. In 2004 locally manufactured whale alarms were attached to the shark net installations at three beaches to reduce large cetacean entanglements in the shark nets. On two days these alarms were deliberately deployed in the paths of humpback whales to determine their reactions. Three response behaviours were observed, namely avoidance, attraction and no change in course.

UCT

Analyzing simulations of Antarctic surveys for minke whales using standard line transect methods – Branch

Analyzing simulations of Antarctic surveys for minke whales using direct duplicate methods – Branch, Butterworth

Providing updated circumpolar estimates for Antarctic minke whales using standard line transect methods – Branch

Illustrative Korean minke whale population trajectories under an effort-related model for by-catch and CPUE data – Brandão, Butterworth

Simulation examination of the behaviour of the Boundary rank algorithm for greater sample sizes – Brandão, Butterworth

Updated evaluation of the Southern Hemisphere sperm whale foetal records for evidence of regional seasonality in breeding – Brandão, Butterworth, Best

Updated demographic parameters of southern right whales off South Africa – Brandão, Butterworth, Best

Estimating Southern Hemisphere humpback whale population dynamics - Johnston, Butterworth

Estimating the natural mortality, trends in abundance, and recruitment for Antarctic minke whales using VPA methods – Mori, Butterworth

Investigating the possibility of changes in carrying capacity of minke whales in Areas IV and V – Mori, Butterworth

Multispecies modeling of predator-prey interactions between krill and its major predators in the Antarctic – Mori, Butterworth

10. Literature cited

11. Publications

11.1 Published or Inpress papers only

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