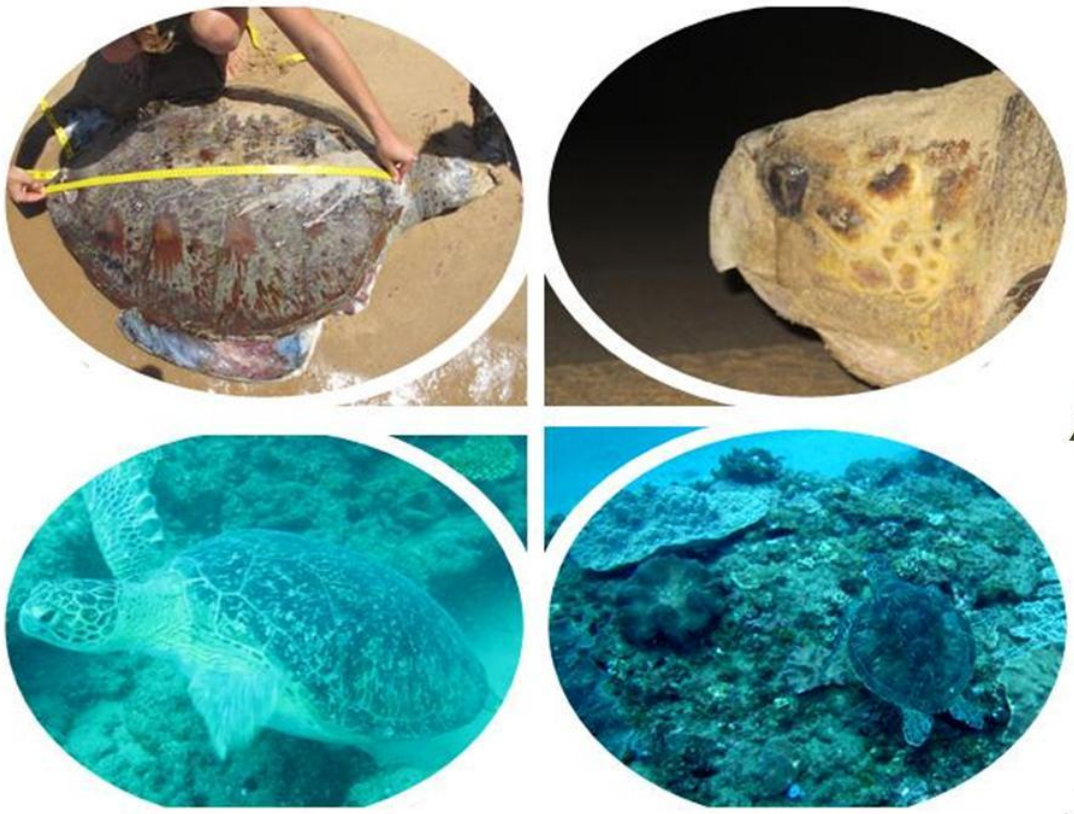
CENTRO TERRA VIVA
Estudos e Advocacia Ambiental

MONITORING, TAGGING AND CONSERVATION OF MARINE TURTLES IN MOZAMBIQUE: ANNUAL REPORT 2013/14

Edited and Compiled by:

Raquel S Fernandes, Jess Williams, Cristina M M Louro & Marcos A M Pereira



MARINE MEGAFAUNA FOUNDATION

MONITORING, TAGGING AND CONSERVATION OF MARINE TURTLES IN MOZAMBIQUE: ANNUAL REPORT 2013/14

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Cover Photographs: ①②
③④

1- Measuring the carapace length of a green turtle (*Chelonia mydas*) found dead in Manhame beach, Inhambane. Photo: Jess Williams.

2- Loggerhead turtle (*Caretta caretta*). Ponta do Ouro Marine Partial Reserve. Photo: Miguel Gonçalves.

3- Green turtle *(Chelonia mydas*). Steve's Ledge, Ponta do Ouro Marine Partial Reserve. Photo: Marcos A M Pereira.

4- Foraging green turtle (*Chelonia mydas*) . Texas, Ponta do Ouro Marine Partial Reserve. Photo: Raquel Fernandes

The opinions, positions and points of view expressed in this document, reflect only those of the authors and do not necessarily reflect those of governmental institutions, private sector or civil society which contributed to the elaboration of this report.

Maputo, June 2014

SUMMARY

During the 2013/14 season, monitoring effort covered 137 km of coastline (~5% of the total country's coastline), which clearly demonstrates a decrease of marine turtles nesting monitoring sites.

A total of 1077 nests were recorded, of which 91% occurred in the Ponto do Ouro Marine Partial Reserve, 6% occurred in the Vamizi and Rongui Islands and the remaining in Inhambane and Bilene. The dominant species were *Caretta caretta* (loggerhead turtle, 914 nests), *Dermochelys coriacea* (leatherback turtle, 88 nests) and *Chelonia mydas* (green turtle, 64 nests). The stretch of coastline between Ponta do Ouro and Cabo de Santa Maria recorded 906 nests of *C. caretta* and 75 nests of *D. coriacea*, while the Vamizi and Rongui islands recorded 64 nests of *C. mydas*. Titanium tagging only took place in the POMPR, totalizing 241 marine turtles, of which 95% were *C. caretta* and 5% *D. Coriacea*. The "Ponta Malongane-Dobela" stretch of coastline of the POMPR covered 85% of the tagging.

As observed in previous seasons (eg. Louro *et al*., 2012; Louro & Fernandes, 2013), the POMPR and the Vamizi and Rongui Islands continue to present greater nesting intensity. Therefore, efforts must be made to maintain the respective monitoring and tagging programmes. However, it's necessary to research on the status of conservation of the nesting female populations of these areas and the contribution potential of hatchlings (female and male proportion), at a regional level.

Several organizations have been working to sensitize local coastal communities, especially schools and community fishing centres (CCPs), on the value of protecting marine turtles. In spite of these efforts, the 2013/14 nesting season reported 29 cases of turtle mortality by anthropogenic causes, of which 19 occurred in Sena Island, Nampula province, and 15 in Inhambane province. It is important to highlight, that the number of mortality cases recorded in Nampula are far from the reality (Carlos Serra *pers. comm*., 2014) and support the fact that this matter continues to be neglected by Government authorities, placing a strong threat to marine turtle conservation in Mozambique, as before reported (Louro *et al*., 2006; Brito, 2012; Louro *et al*., 2012; Louro & Fernandes, 2013). Data on nest loss, either by natural or anthropogenic causes was not collected, except for the Vamizi and Rongui Islands where 17 nests were destroyed by natural causes.

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INTRODUCTION

The knowledge on the biology and ecology of Mozambique marine turtle populations is still deficient. Current studies are only focused in two important nesting grounds, the Ponta do Ouro Marine Partial Reserve, of which Inhaca Island is an integral part, and the Vamizi and Rongui Islands.

Marine turtles are protected by the Mozambican legislation currently in place, namely the Forestry and Wildlife Regulation (Decree 12/2002, of June 6), the Prevention of Pollution and Degradation of the Coastal and Marine Environment Regulation (Decree 45/2006, of 30 of November) and the Recreational and Sporting Fisheries Regulation (Decree 51/1999, of 31 of August). However, all along the entire coastline, with exception of a few conservation areas, the incidental capture in fishing nets and the search for the carapace, meat and eggs is still a common practice and, unfortunately, occurs impugned (Louro *et al*., 2006; Videira *et al*., 2008; Pereira *et al*., 2009; Videira *et al*., 2010, 2011; Louro *et al*., 2012; Brito, 2012 e Louro & Fernandes, 2013).

The current report, the seventh annual report on monitoring, tagging and conservation of marine turtles in Mozambique, presents the monitoring results of the 2013/14 nesting season.

The authors recognize that the data extracted from the information made available by the different monitoring programmes might contain a few gaps, thus its recommended caution in further analyses.

METHODOLOGY

Data collection was made through night patrols, by foot or by car, for female observation and day patrols for hatchling observations (Table 1). The patrols in the areas of Závora (Praia de Inharrime), Tofo (Paindane), São Sebastião and Bazaruto Archipelago National Park were not made daily. Monitoring data on eggs and hatchlings is only consistent for the areas of Mucombo to Santa Maria, where the identification of individual nests is made and the nests are monitored. Therefore, in this area 62% of loggerhead and 38% of leatherback nests were monitored.

Nonetheless, and comparing with the last nesting season, the 2013/14 season recorded a reduction in the number of monitoring sites and the distance of beach patrolled, from 222 km (~8 % of the total coastline) to 137 km (~5% of the total coastline). In the south of the country, the nesting season started from October 2013 to March 2014, while in the north occurred from July 2013 to April 2014.

Table 1 Methods and period per monitoring area

Area	Method	Distance (km)	Period
Ponta do Ouro - Malongane	Patrol on foot	8	01 Oct 13 – 31 Mar 13
Malongane – Dobela	Patrol by car Patrol on foot	32	01 Dec 13 – 24 Jan 13 01 Oct 13 – 31 Mar 13
Dobela – Mucombo	Patrol on foot	30	01 Oct 13 – 31 Mar 13
Mucombo – Sta Maria	Patrol on foot	20	01 Oct 13 – 31 Mar 13
Bilene	Patrol on foot	10	01 Out 13 – 29 Dec 14
Závora – Praia Manhame	Patrol on foot	*	01 Out 13 – 30 Apr 14
Tofo -Paindane	Patrol on foot	*	01 Oct 13 – 30 Apr 14
São Sebartião	Patrol on foot	25	14 Nov 13 – 04 Feb 14
PNA Bazaruto	Patrol on foot	*	01 Oct 13 – 30 Apr 14
Vamizi/Rongui	Patrol on foot	12	July 13 – April 14

*Occasional patrols

RESULTS

Table 2 Marine turtle tracks per species and per monitoring area (NI = not identified).

Area	*Caretta caretta*	*Chelonia mydas*	*Dermochelys coriacea*	*Eretmochelys Imbricate*	*Lepidochleys olivacea*	NI	Total
Ponta do Ouro - Malongane	54	-	7	-	-	0	61
Malongane–Dobela	870	-	16	-	-	0	886
Dobela – Mucombo	392	-	39	-	-	0	431
Mucombo–Sta Maria	202	-	25	-	-	0	227
Bilene	4	-	4	-	-	0	8
Závora–Praia Manhame*	0	-	2	-	-	0	2
Tofo-Paindane*	3	-	1	-	-	0	4
São Sebastião	-	-	-	-	-	7	7
PNA Bazaruto*	0	0	0	0	-	0	0
Vamizi/Rongui	-	65	-	0	0	0	65
Total	1525	65	94	0	0	7	1691

*Occasional patrols

Table 3 Number of nests pert species and per monitoring area (NI = not identified).

Area	*Caretta caretta*	*Chelonia mydas*	*Dermochelys coriacea*	*Eretmochelys imbricata*	*Lepidochleys olivacea*	*NI*	Total
Ponta do Ouro - Malongane	48	-	6	-	-	0	54
Malongane–Dobela	453	-	16	-	-	0	469
Dobela–Mucombo	290	-	24	-	-	0	314
Mucombo–Sta Maria	115	-	29	-	-	0	144
Bilene	4	-	4	-	-	0	8
Závora–Praia Manhame*	0	-	7	-	-	1	8
Tofo–Paindane*	5	-	2	-	-	1	7
São Sebastião	-	-	-	-	-	4	4
PNA Bazaruto*	-	-	-	-	-	5	5
Vamizi/Rongui	-	64	-	0	-		64
Total	914	64	88	0	0	11	1077

*Occasional patrols

Table 4 Loggerhead turtle (*Caretta caretta*): number of nests laid per area.

Area	Jul	Ago	Set	Out	Nov	Dez	Jan	Fev	Mar
Ponta do Ouro - Malongane					10	18			
Malongane–Dobela					122	213			
Dobela–Mucombo	1	1		5	102	101			
Mucombo–Sta Maria				2	36	43			
Bilene					1	3			
Tofo-Paindane*					1		2	1	1
Total	1	1	0	7	272	378	2	1	1

*Occasional patrols

Table 5. Leatherback turtle (*Dermochelys coriacea*): number of nests laid per area.

Area	Out	Nov	Dez	Jan	Fev
Ponta do Ouro - Malongane	-	1	2	1	2
Malongane-Dobela	-	5	7	4	-
Dobela - Mucombo	-	9	9	8	-
Mucombo–Sta Maria	1	11	14	3	-
Bilene	-	2	2	-	-
Závora–Praia Manhame*	-	1	1	1	3
Tofo-Paindame*	-	1	-	-	-
Total	1	30	35	17	5

*Occasional patrols

Table 6. Green turtle (*Chelonia mydas*): number of nests laid per area

Area	Jan	Fev	Mar	Abr	Mai	Jun	Jul	Ago	Set	Out	Nov	Dez
Vamizi/Rongui	22	12	12	18	-	-	15	9	6	9	4	7
Total	22	12	12	18	-	-	15	9	6	9	4	7

Table 7. Unidentified marine turtle species: number of nests laid per area

Area	Jan	Fev	Mar	Abr	Mai	Jun	Jul	Ago	Set	Out	Nov	Dez
Závora–Praia Manhame*	-	-	-	-	-	-	-	-	-	-	-	1
Tofo–Paindane*	-	-	1	-	-	-	-	-	-	-	-	-
São Sebastião	1	-	-	-	-	-	-	-	-	-	1	2
PNA Bazaruto*	1	-	-	-	-	-	-	-	-	-	-	
Total	2	0	1	0	0	0	0	0	0	0	2	3

*Occasional patrols

Table 8. Number of eggs and hatchlings of *C. caretta* e *D. coriacea* per area.

	Caretta caretta					*Dermochelys coriacea*				
Number / Area	Nests*	Eggs Laid	Unhatched Eggs	Hatchlings	Dead Hatchlings	Nests*	Eggs Laid	Unhatched Eggs	Hatchlings	Dead Hatchlings
Ponta do Ouro - Malongane	1	-	8	-	2	0	-	-	-	-
Malongane–Dobela	65	-	1217	469	101	4	-	124	-	8
Mucombo–Sta Maria	72	-	1209	6695	78	11	-	263	833	29
Závora–Praia Manhame	-	-	-	-	-	2	196	33	122	42
Tofo-Paindane	3	276	46	167	7	-	-	-	-	-
Total	141	276	2480	7331	188	17	196	420	955	79

Table 9. Number of hatchlings and eggs laid of *L. olivacea* and non identified species (NI) per area.

	Lepidochelys olivaea					NI				
Number	Nests*	Eggs	Unhatched	Hatchlings	Dead Hatchling	Nests*	Eggs	Unhatched	Hatchlings	Dead Hatchling
Ponta do Ouro -	-	-	-	-	-	14	-	217	48	4
Malongane –	-	-	-	-	-	27	-	51	1587	-
Total	-	-	-	-	-	41	-	268	1635	4

* Number of nests with data on eggs and/or hatchlings

Table 10. Number of nests destroyed by natural causes per area

Area	*C. caretta*	*D. coriacea*	*C. mydas*	*E. imbricata*	*L. olivacea*	*N.I.*
Vamizi/Rongui	-	-	17	-	-	-
Total	-	-	17	-	-	-

Table 11. Reported adult marine turtle mortality per monitoring area

Area	Species/Causes	Total
Macaneta	2 Juvenile CM being sold in January. The seller informed that were captured in artisanal fishing nets	2
Bilene (Praia da Rocha – Miradouro)	1 CM (50 cm de CCC e 44 cm de LCC) moderately decomposed on the beach. The monitor reported that might have been through a natural cause (6.10.2013)	1
Závora (Praia Manhame)	1 DC captured on the beach (24.01.14) 3 DC with no obvious signs of the cause of death (27.11.13, 3 and 25.02.14 and 1 CM).	4
Tofo -Paindane	1 CC captured on the beach (without additional information)	1
Norte de Inhambane	10 carapaces (3 CC/CM? and 7 NI) on the beach (reported with photographic evidences by the Travessia Beach Lodge (without additional information)	10
PNA Bazaruto	2 NI without signs of cause of death (January)	2
Nampula (Ilha de Sena)	19 carapaces and other marine turtle remains on the beach in January (reported with photographic evidences provided by the activist Carlos Serra)	19
Total		29

Table 12. Number of marine turtles tagged by species

Area	*C. caretta*	*D. coriacea*	*C. mydas*	*E. imbricata*	*L. olivacea*
Ponta do Ouro - Malongane	2	0	-	-	-
Malongane - Dobela	197	8	-	-	-
Dobela - Mucombo	16	1	-	-	-
Mucombo – Sta Maria	13	4	-	-	-
Total	228	13	0	0	0

NB: In the absent areas the tagging programme was not implemented

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