



MONITORING, TAGGING AND CONSERVATION OF MARINE TURTLES IN MOZAMBIQUE: ANNUAL REPORT 2011/12

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Cover photographs

1-3: Loggerhead turtle (*Caretta caretta*), RMPPPO (Marcos A. M. Pereira 2012)

4: Loggerhead turtle carapace (*Caretta caretta*), Inhaca Island (Marcos A. M. Pereira 2012)

The opinions, positions and points of view expressed in this document, are 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.

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SUMMARY

The 2011/12 season recorded a total of 1122 nests. Of these nests, around 82% were recorded in the southern part of the country, from Cabo de São Sebastião to Ponta do Ouro, and the remaining 18% of the nests were recorded in the northern part of the country, between Vamizi and Rongui islands – Quirimbas National Park. The majority of these nests were recorded between Ponta do Ouro and Cabo de Santa Maria (75%) and in the Vamizi and Rongui Islands (17%). Once again, demonstrating the importance of these two areas as marine turtle nesting sites in Mozambique.

In terms of the number of nests laid per species, *C. caretta* (loggerhead turtle) was the dominant (845), followed by *C. mydas* (green turtle, 204) and *D. coriacea* (leatherback turtle, 61). The area from Ponta do Ouro to Cabo de Santa Maria recorded 784 nests of *C. caretta* and 56 nests of *D. coriacea*, while Vamizi and Rongui islands recorded a total of 192 *C. mydas* nests.

Marine turtle eggs and hatchlings monitoring data was not included in the present report due to the fact that it is still showing difficulties in its implementation, more precisely in the methods being applied to collect and record data.

On the other hand, tagging continues to be implemented only from Ponta do Ouro to Cabo de Santa Maria and Vamizi and Rongui islands. During the current season, a total of 201 marine turtles were tagged, of which 89% were tagged in the Ponta do Ouro to Cabo de Santa Maria area. As it happened in the last season, the most tagged species was *C. caretta* (84%), followed by *C. mydas* (11%) and *D. coriacea* (5%).

Although marine turtle slaughter continues to be a serious problem that occurs all along the coast, only 14 dead marine turtles were reported, which obviously represents an under estimation of the real number of marine turtles that are being killed annually. For the second consecutive season the area between Ponta do Ouro and Cabo de Santa Maria did not record any mortality caused by anthropogenic actions, possibly because the Ponta do Ouro Marine Partial Reserve (POMPR) considers marine turtle monitoring and conservation activities to be of a priority. The same can be said for the work that has been developed in the Vamizi and Rongui islands throughout the years. Though, nest loss due to natural causes (mainly inundation by the sea) in Vamizi and Rongui islands is still of concern (34).

The present report shows a reduction in the number of areas involved and supporting the monitoring and conservation programme. Areas like Inhaca Island and Bazaruto Archipelago National Park (BANP), which conducted marine turtle monitoring during the 2011/12 season, were not able to provide monitoring data. While in areas like Macaneta, Xai-Xai and Závora to Macanza, monitoring was not conducted due to financial restrictions.

A few of the areas that did provide monitoring data, such as Zavala, Ilhas Primeiras and Segundas and Quirimbas National Park (QNP) still show data that is deficient. Thus showing, that these valuable areas require greater support in the implementation of the monitoring and conservation programme.

Finally, one of the alternatives to surpass all the obstacles that the monitoring and conservation programme in Mozambique is currently facing, and which has been thoroughly highlighted in the last annual reports as fundamental, is to secure long-term financial support. It is believed that it will provide for greater collaboration, communication and data sharing between local communities, projects and institutions involved in the monitoring and conservation of marine turtles in Mozambique.

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INTRODUCTION

The knowledge on the biology and ecology of Mozambique's marine turtle populations is still poor. As a result, the marine turtle conservation status in Mozambique is still unknown. Although protected by law in the country for more than 45 years, it is believed that marine turtles are facing a serious decline due to the lack of education, control and enforcement of existent legal instruments. Throughout the coastline, except for a few conservation areas, the accidental capture of marine turtles in fishing nets, the search for its carapace, meat and eggs is still a common practice that, unfortunately, occurs unpunished (Louro *et al.*, 2006, Videira *et al.* 2008, Pereira *et al.*, 2009, Videira *et al.*, 2010, Videira *et al.*, 2011).

This report, the fifth annual report on Monitoring, tagging and conservation of marine turtles in Mozambique, has as its main objective to present the monitoring results of the 2011/12 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

The methodology applied for monitoring in all areas was similar. However, and comparing to the last four nesting seasons, the 2011/12 season registered a decrease in the number of monitoring areas and total length of beach patrolled. The areas not included in the current report are: Ilha da Inhaca, Macaneta, Xai-Xai, Závora – Macanza and Bazaruto Archipelago National Park (BANP). Of the 308 km covered during the last season (~11% of the total coastline length), only 135 km were monitored (~5% of the total length of the coastline). The nesting season occurred from October 2011 to March 2012, in the south, and throughout all the year, in the north.

Table 1. Monitoring methods and period per monitoring area

| | Area | Method | Distance (km) | Period |
|----|---------------------|------------------------|---------------|-----------------------|
| 1 | Ponta do Ouro | Patrol on foot | 8 | 01 Out 11 – 31 Mar 12 |
| 2 | Malongane – Dobela | Patrol by car | 32 | 02 Dez 11 – 22 Jan 12 |
| | | Patrol on foot | | 01 Out 11 – 31 Mar 12 |
| 3 | Dobela – Mucombo | Patrol on foot | 30 | 01 Out 11 – 31 Mar 12 |
| 4 | Mucombo – Sta Maria | Patrol on foot | 20 | 01 Out 11 – 31 Mar 12 |
| 5 | Manhiça | Patrol by car and foot | 15 | 15 Out 11 – 31 Mar 12 |
| 6 | Bilene | Patrol on foot | 10 | 01 Out 11 – 31 Mar 12 |
| 7 | Zavala | Patrol on foot | 20 | 01 Out 11 – 31 Mar 12 |
| 8 | Tofo | Patrol on foot | N/A | N/A |
| 9 | São Sebastião | Patrol on foot | 15 | 01 Out 11 – 28 Feb 12 |
| 10 | PN Quirimbas | Patrol on foot | 10 | 04 Abr 11 – 28 Jul 11 |
| 11 | Vamizi/Rongui | Patrol on foot | 12 | 01 Jan 11 – 31 Mar 12 |

RESULTS

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

| Area | <i>Caretta Caretta</i> | <i>Chelonia mydas</i> | <i>Dermochelys coriacea</i> | <i>Eretmochelys imbricata</i> | <i>Lepidochelys olivacea</i> | NI | Total |
|---------------------|----------------------------|---------------------------|---------------------------------|-----------------------------------|----------------------------------|-----------|--------------|
| Ponta do Ouro | 116 | - | 9 | - | - | - | 125 |
| Malongane – Dobela | 808 | - | 32 | - | - | - | 840 |
| Dobela – Mucombo | 505 | - | 13 | - | - | - | 518 |
| Mucombo – Sta Maria | 397 | - | 20 | - | - | - | 417 |
| Manhiça | 15 | - | - | - | - | - | 15 |
| Bilene | 23 | - | 5 | - | - | - | 28 |
| Zavala | 42 | - | 3 | - | - | 2 | 47 |
| Tofo | 3 | - | - | - | - | - | 3 |
| São Sebastião | - | - | - | - | - | 14 | 14 |
| PN Quirimbas | - | 13 | - | - | - | - | 13 |
| Vamizi/Rongui | - | 226 | - | - | - | - | 226 |
| Total | 1909 | 239 | 82 | - | - | 16 | 2246 |

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

| Area | <i>Caretta Caretta</i> | <i>Chelonia mydas</i> | <i>Dermochelys coriacea</i> | <i>Eretmochelys imbricata</i> | <i>Lepidochelys olivacea</i> | NI | Total |
|---------------------|----------------------------|---------------------------|---------------------------------|-----------------------------------|----------------------------------|-----------|--------------|
| Ponta do Ouro | 67 | - | 9 | - | - | - | 76 |
| Malongane – Dobela | 375 | - | 29 | - | - | - | 404 |
| Dobela – Mucombo | 167 | - | - | - | - | - | 167 |
| Mucombo – Sta Maria | 175 | - | 18 | - | - | - | 193 |
| Manhiça | 15 | - | - | - | - | - | 15 |
| Bilene | 18 | - | 5 | - | - | - | 23 |
| Zavala | 25 | - | - | - | - | 3 | 28 |
| Tofo | 3 | - | - | - | - | - | 3 |
| São Sebastião | - | - | - | - | - | 9 | 9 |
| PN Quirimbas | - | 12 | - | - | - | - | 12 |
| Vamizi/Rongui | - | 192 | - | - | - | - | 192 |
| Total | 845 | 241 | 61 | - | - | 12 | 1122 |

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

| Area | Jan | Fev | Mar | Abr | Mai | Jun | Jul | Ago | Set | Out | Nov | Dez |
|---------------------|------------|-----------|-----|-----|-----|-----|-----|-----|-----|----------|------------|------------|
| Ponta do Ouro | 19 | 1 | - | - | - | - | - | - | - | - | 25 | 22 |
| Malongane – Dobela | 130 | 1 | - | - | - | - | - | - | - | 3 | 35 | 206 |
| Dobela – Mucombo | 30 | - | - | - | - | - | - | - | - | - | 51 | 86 |
| Mucombo – Sta Maria | 48 | - | - | - | - | - | - | - | - | 1 | 60 | 66 |
| Manhiça | 4 | 2 | - | - | - | - | - | - | - | 1 | 2 | 6 |
| Bilene | 7 | 1 | - | - | - | - | - | - | - | - | 1 | 9 |
| Zavala | 5 | 7 | - | - | - | - | - | - | - | - | 1 | 12 |
| Tofo | 1 | - | - | - | - | - | - | - | - | - | 1 | 1 |
| Total | 244 | 12 | - | - | - | - | - | - | - | 5 | 176 | 408 |

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

| Area | Jan | Fev | Mar | Abr | Mai | Jun | Jul | Ago | Set | Out | Nov | Dez |
|---------------------|-----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----------|-----------|
| Ponta do Ouro | - | 1 | - | - | - | - | - | - | - | - | 5 | 3 |
| Malongane - Dobela | 8 | 1 | - | - | - | - | - | - | - | - | 2 | 18 |
| Dobela - Mucombo | - | - | - | - | - | - | - | - | - | - | - | - |
| Mucombo – Sta Maria | 4 | - | - | - | - | - | - | - | - | - | 9 | 5 |
| Manhiça | - | - | - | - | - | - | - | - | - | - | - | - |
| Bilene | - | 1 | - | - | - | - | - | - | - | - | 3 | 1 |
| Zavala | - | - | - | - | - | - | - | - | - | - | - | - |
| Tofo | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 12 | 3 | - | - | - | - | - | - | - | - | 19 | 27 |

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

| Area | Jan | Fev | Mar | Abr | Mai | Jun | Jul | Ago | Set | Out | Nov | Dez |
|---------------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|
| PN Quirimbas | - | - | - | 2 | 2 | 5 | 3 | - | - | - | - | - |
| Vamizi/Rongui | 22 | 7 | 47 | 47 | 37 | 13 | 10 | 9 | 3 | - | - | - |
| Total | 22 | 7 | 47 | 49 | 39 | 18 | 28 | 18 | 7 | 1 | 8 | 0 |

Table 7. Hawksbill turtle (*Eretmochelys imbricata*): number of nests laid per monitoring area.

| Area | Jan | Fev | Mar | Abr | Mai | Jun | Jul | Ago | Set | Out | Nov | Dez |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| PN Quirimbas | - | - | - | - | - | - | - | - | - | - | - | - |
| Vamizi/Rongui | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | - | - | - | - | - | - | - | - | - | - | - | - |

Table 8. Olive ridley turtle (*Lepidochelys olivacea*): number of nests laid per monitoring area.

| Area | Jan | Fev | Mar | Abr | Mai | Jun | Jul | Ago | Set | Out | Nov | Dez |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| PN Quirimbas | - | - | - | - | - | - | - | - | - | - | - | - |
| Vamizi/Rongui | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | - | - | - | - | - | - | - | - | - | - | - | - |

Table 9. Unidentified marine turtle species: number of nests laid per monitoring area.

| Area | Jan | Fev | Mar | Abr | Mai | Jun | Jul | Ago | Set | Out | Nov | Dez |
|---------------------|----------|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|
| Ponta do Ouro | - | - | - | - | - | - | - | - | - | - | - | - |
| Malongane – Dobela | - | - | - | - | - | - | - | - | - | - | - | - |
| Dobela - Mucombo | - | - | - | - | - | - | - | - | - | - | - | - |
| Mucombo – Sta Maria | - | - | - | - | - | - | - | - | - | - | - | - |
| Manhiça | - | - | - | - | - | - | - | - | - | - | - | - |
| Bilene | - | - | - | - | - | - | - | - | - | - | - | - |
| Zavala | 2 | - | - | - | - | - | - | - | - | - | - | 1 |
| Tofo | - | - | - | - | - | - | - | - | - | - | - | - |
| São Sebastião | 1 | - | - | - | - | - | - | - | - | 2 | 1 | 5 |
| PN Quirimbas | - | - | - | - | - | - | - | - | - | - | - | - |
| Vamizi/Rongui | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 3 | - | - | - | - | - | - | - | - | 2 | 1 | 6 |

Table 10. Number of nests destroyed by natural causes per monitoring areas (NI = not identified)

| Area | <i>C. caretta</i> | <i>D. coriácea</i> | <i>C. mydas</i> | <i>E. imbricata</i> | <i>L. olivacea</i> | N.I. |
|---------------------|-------------------|--------------------|-----------------|---------------------|--------------------|------|
| Ponta do Ouro | - | - | - | - | - | - |
| Malongane - Dobela | - | - | - | - | - | - |
| Dobela - Mucombo | - | - | - | - | - | - |
| Mucombo – Sta Maria | - | - | - | - | - | - |
| Manhiça | - | - | - | - | - | - |
| Bilene | - | - | - | - | - | - |
| Zavala | - | - | - | - | - | - |
| PN Quirimbas | - | - | - | - | - | - |
| Vamizi/Rongui | - | - | 34 | - | - | - |
| Total | - | - | 34 | - | - | - |

Table 11. Number of reported cases of stolen eggs per monitoring area (NI = not identified)

| Area | <i>C. caretta</i> | <i>D. coriácea</i> | <i>C. mydas</i> | <i>E. imbricata</i> | <i>L. olivacea</i> | N.I. |
|---------------------|-------------------|--------------------|-----------------|---------------------|--------------------|------|
| Ponta do Ouro | - | - | - | - | - | - |
| Malongane - Dobela | - | - | - | - | - | - |
| Dobela - Mucombo | - | - | - | - | - | - |
| Mucombo – Sta Maria | - | - | - | - | - | - |
| Manhiça | 3 | - | - | - | - | - |
| Bilene | - | - | - | - | - | - |
| Zavala | - | - | - | - | - | - |
| Tofo | 1 | - | - | - | - | - |
| Vamizi/Rongui | - | - | - | - | - | - |
| Total | 4 | - | - | - | - | - |

Table 12. Number of marine turtles tagged per monitoring area.

| Área | <i>C. caretta</i> | <i>D. coriácea</i> | <i>C. mydas</i> | <i>E. imbricata</i> | <i>L. olivacea</i> |
|---------------------|-------------------|--------------------|-----------------|---------------------|--------------------|
| Ponta do Ouro | 4 | - | - | - | - |
| Malongane - Dobela | 128 | 9 | - | - | - |
| Dobela - Mucombo | 30 | - | - | - | - |
| Mucombo – Sta Maria | 7 | 1 | - | - | - |
| Manhiça | - | - | - | - | - |
| Bilene | - | - | - | - | - |
| Zavala | - | - | - | - | - |
| PN Quirimbas | - | - | - | - | - |
| Vamizi/Rongui | - | - | 22 | - | - |
| Total | 169 | 10 | 22 | - | - |

Table 13. Reported adult marine turtle mortality per monitoring area

| Area | Species/Causes | Total |
|----------------------|---|-----------|
| Ponta do Ouro | - | - |
| Malongane - Dobela | - | - |
| Dobela - Mucombo | 1 CC – natural causes | 1 |
| Mucombo – Sta Maria | - | - |
| Manhiça | - | - |
| Bilene | 2 CM – natural causes 1 CC – killed by locals | 3 |
| Zavala | 1 CC – carapace with signs of being killed with a hatchet 1 CC – caught stranded in fishing net 1 DC - caught stranded in fishing net | 3 |
| Primeiras e Segundas | 8 LO - caught stranded in fishing net 2 NI - caught stranded in fishing net | 10 |
| PN Quirimbas | - | - |
| Vamizi/Rongui | - | - |
| Total | | 17 |

BIBLIOGRAPHIC REFERENCES

Louro, C. M. M., M. A. M. Pereira & A. C. D. Costa (2006). Relatório sobre o estado de conservação das tartarugas marinhas em Moçambique. 42 pp. Xai-Xai, CDS-ZC/MICOA.

Pereira, M. A. M., E. J. S. Videira & D. A. Narane (2009). Monitoria, marcação e conservação de tartarugas marinhas em Moçambique: Relatório anual 2008/09. 4pp. Maputo, AICM/GTT.

Videira, E. J. S., M. A. M. Pereira, C. M. M. Louro & D. A. Narane (eds.) (2008). Monitoria, marcação e conservação de tartarugas marinhas em Moçambique: dados históricos e relatório anual 2007/08. 85 pp. Maputo, Grupo de Trabalho Tartarugas Marinhas de Moçambique (GTT).

Videira, E. J. S., M. A. M. Pereira, D. A. Narane & C. M. M. Louro (2010). Monitoria, marcação e conservação de tartarugas marinhas em Moçambique: Relatório anual 2009/10. 7 pp. Maputo, AICM/GTT.

Videira, E. J. S., M. A. M. Pereira & C. M. M. Louro (2011). Monitoria, marcação e conservação de tartarugas marinhas em Mozambique: relatório anual 2010/11. 10 pp. Maputo, AICM/GTT.