REPORT OF THE 8th MEETING OF THE WESTERN INDIAN OCEAN MARINE TURTLE TASK FORCE

Moka, Mauritius

5 July 2019

Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia

8th Meeting of the Western Indian Ocean Marine Turtle Task Force
Report

Contents

1. Opening

Vice-Chair Lindsey West welcomed all present to the meeting. Even though only part of the membership of the Task Force was able to be present, both she and the MOU Coordinator, Heidrun Frisch-Nwakanma, expressed their satisfaction that it had been possible to arrange this meeting in the margins of the 11th Western Indian Ocean Marine Science Association (WIOMSA) Symposium.

Members from the Comoros, France, Mozambique, the Seychelles, South Africa and the United Republic of Tanzania attended the 8th Meeting of the Western Indian Ocean Marine Turtle Task Force (WIO-MTTF). The WIO-MTTF meeting was preceded by an open session on marine turtle research and conservation in the region that had taken place in the morning. A brief report and summaries of country presentations that were submitted can be found in Annex 3.

2. Overview: Preparations for IOSEA MOS8

The MOU Coordinator started by briefing participants about the plans for the 8th Meeting of the Signatory States (MOS8), which would take place in October 2019 in Viet Nam. One of the key expected outcomes of the MOS would be a comprehensive work programme that would serve to guide the implementation of the MOU and the Conservation and Management Plan in the coming years.

3. National country reporting to IOSEA

The Coordinator gave a brief overview of which countries in the region had started working on, or even submitted their national reports. She encouraged the Task Force Members to contact their National Focal Points and offer their support. High quality reports were an important way to understand progress in the implementation of the MOU, but perhaps even more importantly they indicated areas requiring more attention, and opportunities for countries to assist each other.

4. Review of WIO MTTF leadership processes

The Vice-Chair explained that the Chair, Peter Richardson, had already had to step down some time ago. She herself was also unable to continue as Vice-Chair due to her expected departure from the United Republic of Tanzania in September 2019, and therefore urged participants to consider whether they were able to take over.

Members discussed the potential for the Task Force leadership role to be taken on by one of the Island States, with the Chair and Vice-Chair roles to include one French and one English speaker. Ronel Nel (South Africa) offered to approach Stephane Ciccione (France) to inquire about his interest in the role of Task Force Chair. It was agreed that an election could be held via Skype or email.

5. Overview of previous mandates and recommendations for the region (Doc.2)

The Coordinator explained that since the establishment of the MOU, many issues had been identified and many activities undertaken. Past recommendations were spread over many documents, and their status was not always clear. This was also true at sub-regional level. This spread made it difficult especially for people new to the MOU to benefit fully from the wealth of discussions and resulting recommendations made and to ensure adequate follow-up. The Secretariat had therefore decided to create a synthesis collecting all recent recommendations in one reference document to facilitate continuity in the work of the MOU. A preliminary version of this synthesis, focusing on the Western Indian Ocean sub-region, had been made available as Doc.2 for this meeting.

The Coordinator sought feedback both on the structure of the document, and on the issues and priorities it identified. The syntheses for each sub-region and the entire MOU area, as well as the feedback received from this meeting, would help develop the final document to be presented to MOS8. It would also serve as the basis for the development of the draft work programme to be discussed at the MOS.

The participants made several suggestions as to the structure and content of the document. It was made clear that recommendations of the MTTFs did not require Signatory approval, but in general it was considered useful to have an overview of recommendations, as this would assist follow-up.

6. Discussion on WIO regional priorities for next triennium

In the discussion, the WIO-MTTF members identified a number of priority topics for the Western Indian Ocean region, including:

- Domestic consumption and trade
- Loss of nesting beaches through development and erosion
- DDT
- Fishing practices/bycatch

- Plastic pollution/ entanglements
- Funding, collaboration, promotion of local engagement
- Making turtle conservation and monitoring a higher priority for governments, securing long-term funding
- Capacity-building, e.g. through twinning of IOSEA Network Sites

It was emphasized that these issues needed to be addressed outside of, even if with support of, the Task Force.

Further, priorities for the future work of the Task Force were discussed, and the following suggested:

- Overview of nest temperatures throughout the region
- Linking foraging grounds of juvenile and adult turtles to nesting grounds through genetics
- Organizing a basic genetics training workshop to allow local analysis
- Inventory of samples available in the region
- Development of a protocol for collection, storing and archiving of samples (with help e.g. from Peter Dutton and Manjula Tiwari)
- Systematic sharing of flipper tag series used and flipper tag returns
- Best practices for addressing light pollution and strategies to feed into EIAs (in view of several large coastal infrastructure projects in the region).

Overall, the priority for the region was summarized as “get better at the basics”.

It had already been discussed at the previous meeting that a complete revision of the work plan for the WIO-MTTF was needed. The priorities identified at this meeting would be a useful basis for this task.

List of Participants

Comoros

Anfani MSOILI
Point Focal National IOSEA Comores (PFN/IOSEA)
Direction Générale de l'Environnement et des Forêts (DGEF)
Ministère de l'Environnement
Union des Comores
Email: amsoili@yahoo.fr

France

Ludovic HOARAU
CEDTM
Kélonia
Pointe des Châteaux
46 Rue Gral de Gaulle
Saint-Leu 97436
Réunion
Email: ludovichoarau@cedtm-asso.org

Mozambique

Cristina LOURO
Bairro da Coop
Rua C. 148
Maputo
Mozambique
Email: cristinammlouro@gmail.com

Seychelles

Jeanne A. MORTIMER
Turtle Action Group of Seychelles (TAGS)
P.O. Box 1443
Victoria, Mahé
Seychelles
Email: jeanne.a.mortimer@gmail.com

South Africa

Ronel NEL
Associate Professor
The Nelson Mandela University (NMU)
Department of Zoology
P.O. Box 77000
Port Elizabeth 6031
South Africa
Email: Ronel.Nel@mandela.ac.za

United Republic of Tanzania

Lindsey WEST
Sea Sense
P.O. Box 105044
Dar es Salaam
United Republic of Tanzania
Email: lindsey@seasense.org

Secretariat

Heidrun FRISCH-NWAKANMA
IOSEA Turtle MOU Coordinator & CMS Aquatic Species Team
UNEP/CMS Secretariat
UN Campus
Platz der Vereinten Nationen 1
53113 Bonn
Germany
Phone: +49 228 815 2491
heidrun.frisch-nwakanma@un.org

Agenda

1. Opening
2. Overview: Preparations for IOSEA MOS8
3. National country reporting to IOSEA
4. Review of WIO MTTF leadership processes
5. Overview of previous mandates and recommendations for the region
6. Discussion on WIO regional priorities for next triennium

Report of the Open Session

The 11th WIOMSA Symposium provided an important opportunity for researchers, coastal managers, conservation practitioners and students in the region with an interest in marine turtle conservation and management, to meet, share updates from their respective countries and work towards strengthening regional cooperation. Accordingly, the morning session was an open session to share information on current sea turtle research, conservation and management initiatives in the WIO region.

The WIO region hosted five species of marine turtle (Green, Hawksbill, Leatherback, Loggerhead and Olive Ridley) and multiple life stages of each species were represented (reproductive (mature adults and eggs), juveniles, sub-adults and adults). Marine turtles were highly migratory and moved across multiple national jurisdictions during their different life history stages.

Marine turtles in the WIO region faced a multitude of threats including unsustainable exploitation for meat and eggs; destruction of nesting beaches and feeding habitats; incidental mortality in fishing operations ('bycatch'); climate change, marine pollution (especially plastic); abandoned fishing nets ('ghost nets'), inappropriate beach management strategies, and natural predation.

To address these threats, ten of the eleven Western Indian Ocean countries (the exception being Somalia) had initiated significant efforts to conserve and protect marine turtles and their biodiversity-rich habitats by formally adopting and implementing the *Indian Ocean South East Asia Marine Turtle Memorandum of Understanding* (IOSEA MOU) and its integral Conservation and Management Plan (CMP). Due to the highly migratory nature of marine turtles, strong cooperation among States in the WIO region was crucial for effective implementation of the CMP.

A Regional Overview of Sea Turtle Research, Conservation and Management.

Participants from all ten Signatory States were present at the meeting (total of 16 participants) together with the Coordinator of the IOSEA MOU.

The opening presentation was given by the Coordinator of the MOU, Heidrun Frisch-Nwakanma, who provided an overview of the MOU. The Conservation and Management Plan (CMP) was explained including its six key objectives: research and monitoring; awareness and participation; reducing sea turtle mortality; protecting habitats; promoting national, regional and international cooperation; and facilitating implementation of the CMP. It was confirmed that the 8th Meeting of Signatories would be held in October 2019 in Viet Nam.

Project updates were provided by representatives from Comoros, France (Réunion), Kenya, Madagascar, Mozambique, the Seychelles, South Africa, and the United Republic of Tanzania.

Comoros – Anfani Msoili (Association pour le Développement Socio Économique d'Itsamia - A.D.S.E.I.)

Moheli was one of the most important Green Turtle nesting sites in the WIO region. Local authorities in Comoros recognized the importance of turtles and had established an MPA in Moheli. Local community members from Itsamia village had been trained as eco-guards and ecotourism in Itsamia was well established.

All marine turtle work carried out in Moheli was done in partnership with Kelonia (Réunion). The TORSOOI database was being used in Comoros to manage large volumes of marine turtle nesting data.

Poaching was still a threat in Moheli. Women did not eat turtle mean but men did. Therefore, some awareness-raising work was needed.

A copy of the presentation given can be found in Annex 4.

Kenya – Timothy Kakai (PWANI University)

Marine turtle conservation was disjointed in Kenya. Historically it was managed by KESCOM, an umbrella organization for marine turtle conservation. A recent stakeholder meeting had been held which indicated that there was considerable interest in reviving KESCOM. Kenya Wildlife Service (KWS) had identified that they needed more consistent information about marine turtle conservation efforts in Kenya.

A project by WWF Kenya had been undertaken using participatory mapping which characterized beaches and identified threats to nesting habitats along the whole coast. Major threats identified included poaching, bycatch, beach erosion, sand mining and infrastructure development (Lamu Port and the Standard Gauge Railway).

Kenyan sea turtle populations were facing several threats, which varied from direct subsistence harvesting for meat and eggs, commercial harvesting for meat, oil and shells, incidental capture in both artisanal and commercial fishing activities to habitat alteration, degradation and loss.

Despite sea turtles being protected under the Wildlife Act (Cap 376) and Fisheries Industry Act (Cap 378), legislation that prohibits and makes it an offence for any form of exploitation of the animal or its products under Kenyan laws, illegal harvesting and exploitation of the species still thrived unchecked currently. This trend was made complex by the lack of resources such as equipment, personnel and finances to implement the already established legislation. Furthermore, no legislation existed at this point to protect key sea turtle habitats such as foraging or nesting grounds except for those falling within designated marine protected areas.

Madagascar - Lalarisoa Rakotoarimino (C3 - Community Centred Conservation)

The challenges facing marine turtle conservation in Madagascar were highlighted including turtle meat trade and consumption and limited capacity amongst Marine Protected Area authorities for marine turtle conservation and management. Furthermore, due to the remoteness of many marine turtle nesting sites in Madagascar, surveys were high cost and labour intensive. There were several different organizations working on marine turtle conservation in Madagascar which were competing for the same funds which was an added challenge.

C3 was working on several projects including a youth programme in schools under the Ministry of Education which had started in 2009 and had impacted 70 schools, 20,000 students, 150 schoolteachers and 100 NGO staff, across 4 provinces. C3 was the primary partner in Madagascar for the BYCAM Project which conducted assessments of megafauna mortality as bycatch in artisanal fisheries.

Mozambique – Raquel Fernandes (Centro Terra Viva).

Four species of marine turtle nest in Mozambique (Green, Hawksbill, Loggerhead and Leatherback). There was no nesting in the central coastal zone. Due to the long coastline and lack of adequate resources, monitoring effort was not constant in several areas. In the Quirimbas National Park (PNQ), monitoring effort was inconsistent, as was the tagging effort in the Ponta do Ouro Partial Marine Reserve (POPMR). Tagging effort in the POPMR followed a constant protocol and its dependant on the monitoring effort, especially of the turtle community monitors.

Genetic work had confirmed that Mozambique's Loggerheads had a different haplotype to those in Oman but the same as Mediterranean Loggerheads. There was low genetic diversity which made Loggerheads in Mozambique vulnerable to environmental changes.

Several mortality hotspots had been identified including in and around Maputo Bay where there was heavy fishing pressure and stranded individuals had been recorded. Mortality data were collected through opportunistic reports. Due to inconsistent effort, it was difficult to compare data. Estimated mortality rates were 8 to 319 times higher than currently reported numbers (average of 35 mortalities reported per year).

Recent conservation and management efforts included a new biodiversity law which had been passed in Mozambique in 2017. The law incorporated new sanction measures; promoted participatory management of Marine Protected Areas (MPAs); and promoted the establishment of transboundary MPAs.

The importance of strengthening research and monitoring programme in Mozambique, in terms of both technical and financial aspects, was acknowledged. Suggestions included rotating monitors and rangers, collaborating with the public to promote sharing of data through social media/email, and building research partnerships with national and regional research institutions.

A number of relevant studies and projects were proposed including population estimates of nesting females; assessing and quantifying threats and impacts from fisheries interactions, oil and gas exploration and construction of the Techobanine deep water port within the POPMR; and developing a social – ecological Marine Spatial Plan for the conservation of marine turtles in the Natal – Delagoa Bay Ecoregion.

A copy of the presentation given can be found in Annex 4.

Réunion – Katia Ballorain (Centre d'Étude et de Découverte des Tortues Marines - CEDTM)

The TORSOOI regional database was introduced which was an online platform for managing marine turtle data. TORSOOI was available for all countries in the WIO to use and therefore offered opportunities to develop collaborations and facilitates exchange of information.

CEDTM was working on the preparation of a new project proposal on Hawksbill Turtles which would investigate the origin and connectivity of Hawksbill populations in the region (Réunion, Comoros, Seychelles, Madagascar, Mayotte and Éparses Islands). It was a five-year project and the application was due for submission in September 2019.

A concept note for a second new project was submitted in June 2019 and final project submission was February 2020. The duration of the project was four years (2021 to 2025) and the overall goal was to assess the conservation status of marine turtle populations. Specific objectives are to increase knowledge of unknown populations (Hawksbills and Loggerheads); reduce marine turtle mortality; protect and restore habitats; educate and raise awareness; and promote networking amongst Indian Ocean stakeholders. The project might help to answer concerns about the impacts of bycatch around Réunion on Loggerhead Turtles from Oman.

The COPRA project was also introduced which had been implemented in Glorieuses Marine Nature Park from January 2017 to April 2019. The project goal was to conserve seagrass beds as a support for biodiversity and the maintenance of populations of marine turtles in the Park. The project had three main objectives: to improve knowledge of seagrass beds, particularly *Thalassodendron ciliatum* formations, and their functional role for sea turtles; to initiate a regional seagrass monitoring network; to strengthen the management of the Park for a better protection of the herbarium. The project had led to the establishment of the Western Indian Ocean Seagrass Network (WIOSN).

A copy of the presentation given can be found in Annex 4.

Seychelles – Jeanne Mortimer (Turtle Action Group of Seychelles)

Both Green Turtles and Hawksbills nest in Seychelles. Recent rough estimates of mean annual numbers of egg clutches laid annually were: Hawksbill Turtles, ~5,750 egg clutches laid annually (i.e., some ~1,650 females); and Green Turtles, ~44,000 egg clutches laid annually (i.e., some ~10,000 females).

There were almost 20 long-term nesting turtle monitoring projects across the Inner and Outer Islands in the Seychelles, each with the following key objectives:

- Collection of scientific data
- Community engagement
- Anti-poaching patrols

The presentation highlighted the GOS-UNDP-GEF Outer Islands Protected Area Project (2014-2019) which had the following activities:

- Define network of protected sites in the Outer Islands
- New Conservation Centres and turtle monitoring programmes established by Island Conservation Society (ICS)
- Standardized written turtle monitoring protocols
- Seagrass surveys

The seagrass component was new for the Seychelles. Shallow and deep-water seagrass surveys had been conducted with surveyors looking for evidence of cropping by Green Turtles. Production of written protocols for mapping, baseline assessment and monitoring of seagrass habitats in the Outer Islands

Satellite tracking of post-nesting Hawksbills from the Inner Islands and Amirantes of Seychelles showed a tendency for adult females to forage on the Seychelles Bank.

A copy of the presentation given can be found in Annex 4.

South Africa – Ronel Nel and Christopher Nolte (Nelson Mandela University)

The South African Government had announced an expansion of its MPA network as of 1 August 2019 with 20 new MPAs being designated. Two of these MPAs were to target sea turtle conservation, specifically the inter-nesting habitat for both Loggerhead and Leatherback Turtles as well as the sea mounts used on route during remigration periods. The expansion also included a 30 – 40km extension of iSimangaliso Wetland Park.

Leatherback nesting populations had been increasing over the last few seasons but there was some concern about the trend in Loggerhead nesting populations.

A record number of hatchlings had stranded along the Cape coast since the beginning of the 2019 hatching season in iSimangaliso Wetland Park. On average, 10-20 Loggerhead hatchlings per year washed up onto beaches between March and June due to cold stunning. However, in 2019, already more than 300 hatchlings had been recorded. In 2015 there had also been a huge increase in stranded hatchlings, approximately 80 in Port Elizabeth and 250 in Cape Town. Evidence suggested that the wind was a major contributing factor. In 2015 and 2019 there had been an increase in south-easterly winds plus large equinox tides. Due to the high numbers in 2019, Two Oceans Aquarium in Cape Town had set up a response network to rescue stranded hatchlings.

Fossilized turtle tracks had been found near Cape Town and a study was now underway to investigate the historic distribution of Leatherback Turtles in the WIO Region.

Discussions had been held on strategies to enhance international tag returns by changing from snail mail addresses to email, text numbers or another form of social media. However, the supplier (Stockbrands) had been unable to fit an email address on the tag.

A study of marine turtle epibionts (barnacles) had provided an insight into marine turtle environments. Oxygen and temperature had been used to create an isoscape which showed marine turtle distributions.

A copy of the presentation given can be found in Annex 4.

United Republic of Tanzania – Lindsey West (Sea Sense)

An annual Green Turtle tagging programme was implemented for the eight successive seasons at the United Republic of Tanzania's two largest Green Turtle rookeries. Nesting females had been flipper tagged and counted during the peak nesting months of April and May. Information on clutch frequency, inter nesting durations and re-migration intervals was being generated and data were being analysed to produce preliminary population estimates.

Community consultations on seagrass conservation and management had been held and some initial trials of community-based seagrass habitat mapping had commenced. The United Republic of Tanzania had participated in the launch of the Western Indian Ocean Seagrass Network (WIOSN) and plans were being made to test the seagrass monitoring protocols developed by the network.

Sea Sense had an extensive education and outreach programme which included community events, school programmes, community theatre productions and marine wildlife roadshows.

Over the forthcoming year, Sea Sense had plans to take the marine wildlife roadshow to an additional 12 villages, deploy five satellite tags on post nesting females, hold a national marine turtle stakeholder workshop and develop a national conservation strategy for marine turtles in partnership with the Government.

A copy of the presentation given can be found in Annex 4.

Chagos – Jeanne Mortimer (University of Florida)

The Chagos Archipelago comprises five atolls with ~67 islands and 235 km of oceanic coastline. Both green turtles and hawksbills nest in Chagos. Most islands were uninhabited and therefore difficult to access and survey for nesting activity. Two types of survey were undertaken: (1) Rapid surveys (of total coastline) to quantify spatial distribution of nesting activity amongst atolls and relative nesting density by atoll (in 1996, 2006, 2016); (2) Long-term monitoring of Diego Garcia (index beach) to determine seasonal patterns and numbers of egg clutches produced annually.

Data from the index beach extrapolated estimates of recent mean annual egg clutch production for the entire Chagos Archipelago as: Hawksbill Turtles, ~6,300 egg clutches per which represented 40 – 53 per cent of Hawksbill nests in the entire SWIO region; Green Turtles, ~20,500 clutches per season were laid by Green Turtles which represented 15 – 20 per cent of Green Turtle clutches in the SWIO region.

Linkages between Chagos and the rest of the SWIO region have been demonstrated for hawksbills by genetic data showing linkages between Chagos and Seychelles, and by satellite tracking of post-nesting Chagos female Green Turtles to their adult foraging habitats in Seychelles and along the East African coast.

A copy of the presentation given can be found in Annex 4.

Presentations Given During the Open Session

1. Secretariat
2. Comoros
3. Mozambique
4. Réunion
5. Seychelles
6. South Africa
7. United Republic of Tanzania
8. Chagos

Introduction to the IOSEA MOU

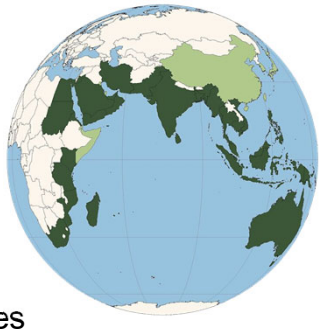
Heidrun (Heidi) Frisch-Nwakanma
MOU Coordinator

WIOMSA Special Session Marine Turtles
5 July 2019
Moka, Mauritius

1

What is the IOSEA Marine Turtle MOU?

- A contract (non-binding) signed by 35 governments in the region
- In effect since 2001
- Objective: to work together to conserve and manage marine turtles and their habitats
- Concluded under and supported by the Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- Secretariat based in Bonn, Germany (since January 2017)



2

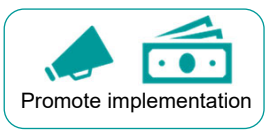
What is the IOSEA Marine Turtle MOU?

- Covers 6 of the 7 species of marine turtles

3

What is the IOSEA Marine Turtle MOU?

- Conservation and Management Plan (CMP)
  - 6 Objectives

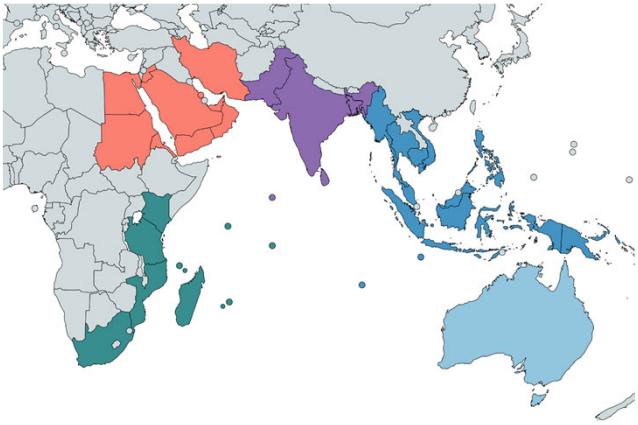


  - 24 Programmes
  - ~ 80 Activities

4

Facilitating Implementation

- Four sub-regions



- WIO
- NWIO
- NIO
- SEA+

- Two sub-regions have **Marine Turtle Task Forces**:

WIO since 2007/08

NIO since 2015

5

Upcoming Meeting

- 8th Meeting of the Signatories
  Da Nang, Viet Nam, 21-25 October 2019

  https://www.cms.int/iosea-turtles/en/meeting/MOS8

- MOS8 will
  - Review progress to date in implementing the MOU
  - Discuss challenges and the way forward
  - Aim to adopt a new work programme for the IOSEA MOU

6

To learn more:

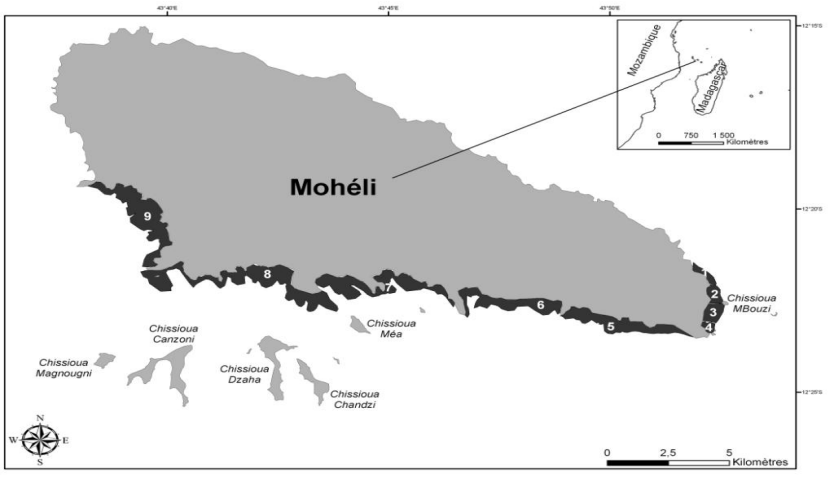
WIOMSA SYMPOSIUM

WIO MTTF MEETING
Mauritius, 5 juillet 2019

Anfani MSOILI, WIO MTTF, Comoros
amsoili@yahoo.fr

1

Localisation du site



2

Localisation du site

- Comores, Mohéli National Park

3

Localisation du site

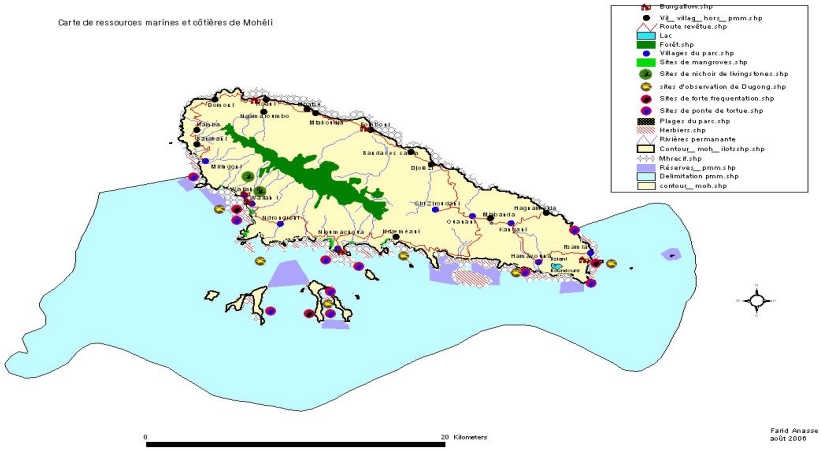
- Site ITSAMIA: Site de ponte et d'alimentation

Cohabitation entre tortue et Homme, Itsamia site habité

4

Localisation du site

MOHELI NATIONAL PARK



5

ACTION

- Suivi des pontes tortues vertes, et tortues imbriquées.
- Site ITSAMIA sur le réseau importance IOSEA.
- ADSEI/KELONIA: 2017 introduction des données de 5 plages à la base TORSOOI

6

ACTION

- Développement Ecotourisme

7

The CADRI Partnership
Capacity for Disaster Reduction Initiative

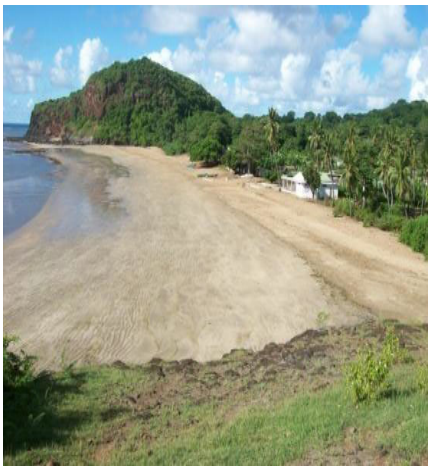
Perspectives

- Partenariat avec KELONIA
- Implication des autorités nationales par l'ouverture d'une brigade de surveillance.
- Forte mobilisation du Parc National de Mohéli par le recrutement special des ecogardes supplémentaires.

8

LES DEFIS

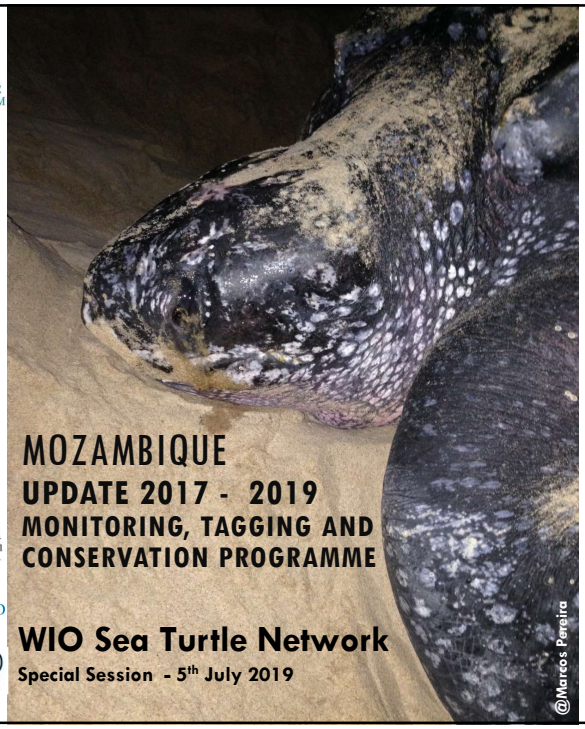
- Lutte contre le braconage, Sensibilisation, JTM



- Partenariat avec d'autres acteurs

9

WIOMSA 11TH SCIENTIFIC SYMPOSIUM



MOZAMBIQUE
UPDATE 2017 - 2019
MONITORING, TAGGING AND CONSERVATION PROGRAMME

WIO Sea Turtle Network

Special Session - 5th July 2019

CENTRO TERRA VIVA
Estudos e Advocacia Ambiental

UNIVERSIDADE LÚRIO
Ciência. Desenvolvimento. Compromisso

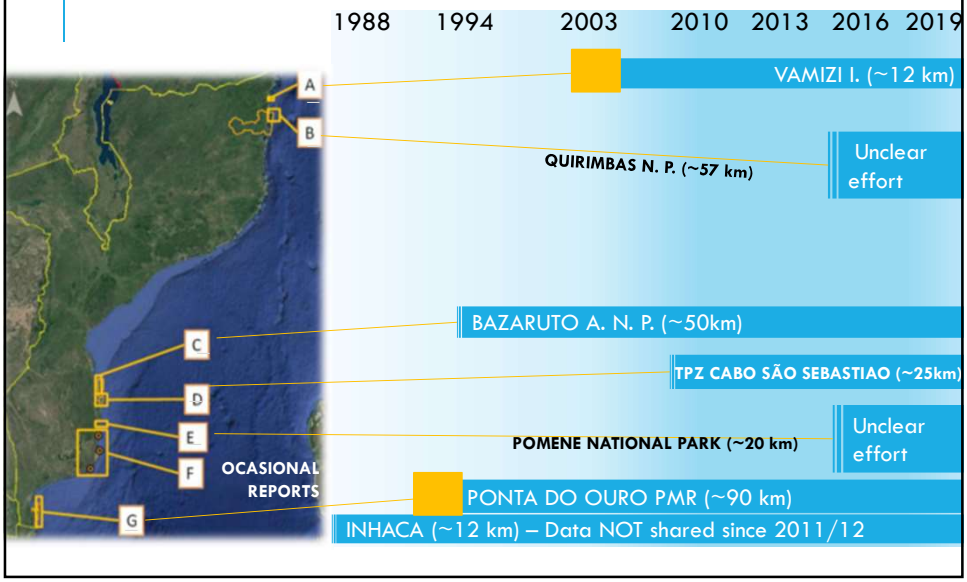
VAMIZI ISLAND
MOZAMBIQUE

Raquel S. Fernandes

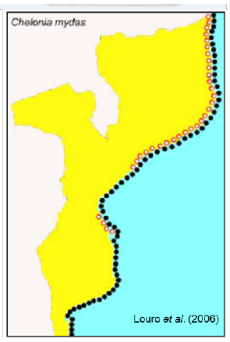
Contributors:
Cristina M. M. Louro
Marcos A. M. Pereira

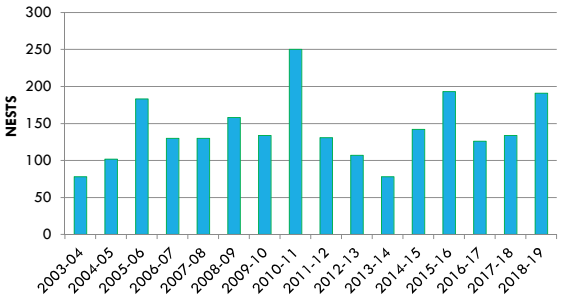
Gélica Inteca
Isabel M. da Silva

BACKGROUND ON MONITORING PROGRAMS/ACTIONS

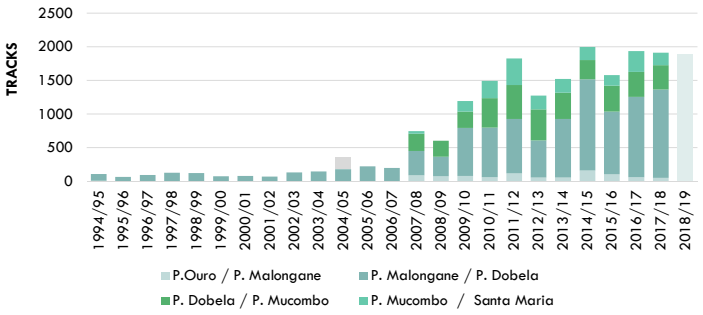


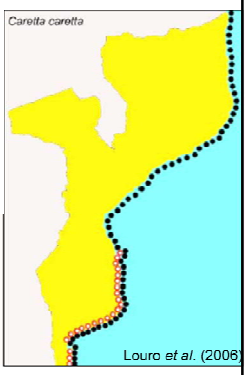
VAMIZI ISLAND: GREEN TURTLES

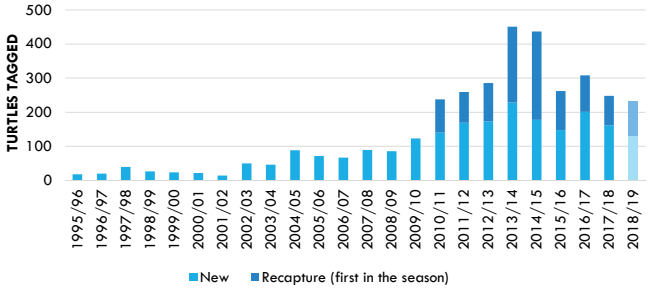




POPMR: LOGGERHEADS







GENETIC STUDIES

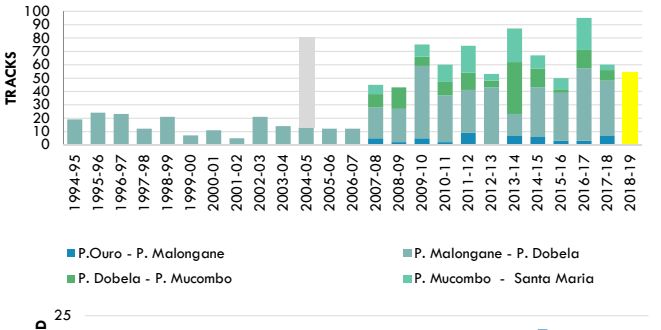
Low genetic variability:

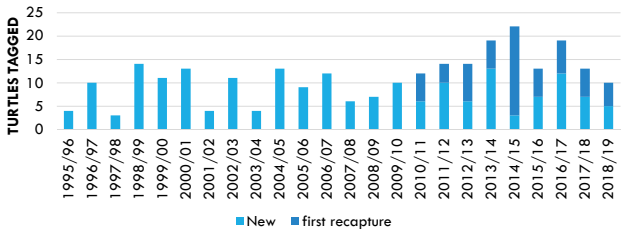
- mDNA (Two haplotype 2.1 and a new haplotype)
- nuclear DNA (Microsatelites)

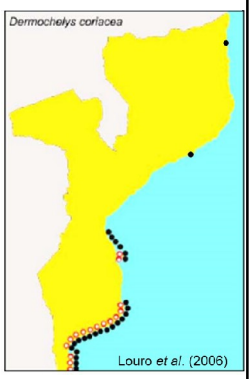
Fernandes (2015)

POPMR: LEATHERBACKS

CENTRO TERRA VIVA
Estudos e Advocacia Ambiental

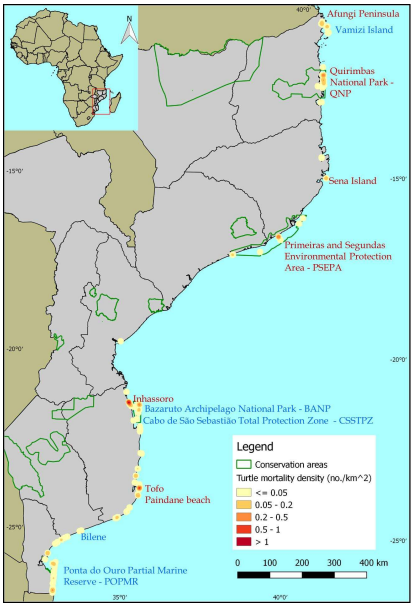






MORTALITY

Estimated mortality numbers is eight to 319 times higher than the currently reported numbers (average of 35 mortalities reported per year)



Fernandes & Pereira, 2019 WIOMSA

TAGS DISTRIBUTION

Year	Series	# Tags	Inst.
2003	MO 801 - 1550	750	GTT
2004	MZ 001 - 400	400	GTT
2008	MZ 401- 950	550	GTT
	MZ 951 - 1200	250	CTV/AICM
2014	MZ 1201 - 1751	550	RMPPO
	MZ 1752 - 2350	598	RMPPO
2016	MZ 2351 - 3150	800	RMPPO
2018	MZ3151 – MZ 3350	150	Vamizi Island

Practical challenges:

- ❑ Tag code per monitoring area or unique sequence for Mozambique(MZ)?
- ❑ How to find a foreign tag?

CONSERVATION AND MANAGEMENT EFFORTS

Legal instruments:
Biodiversity Law
(5/2017, 11 May)

- New **sanction measures;**
- Promote **participatory management** of MPAs (local communities);
- Promote the establishment of transboundary MPAs;

Marine protected areas:

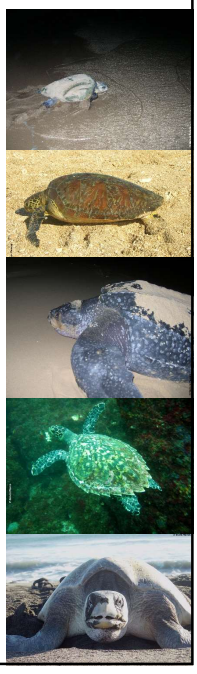
- Management partnerships: financial and tecnical support
- MoU for research and monitoring

ANAC · FNDS · CENTRO TERRA VIVA Estudos e Advocacia Ambiental · WWF

CHALLENGES AND OPPORTUNITIES

CENTRO TERRA VIVA Estudos e Advocacia Ambiental

Monitoring "nesting season"	Financial and technical support Recycling of monitors and rangers
Ocasional records	Engage people to collaborate in sharing ocasional occurrences through social media/emails…
Research	Strengthen research partnerships with national and regional research institutions Suggest relevant studies



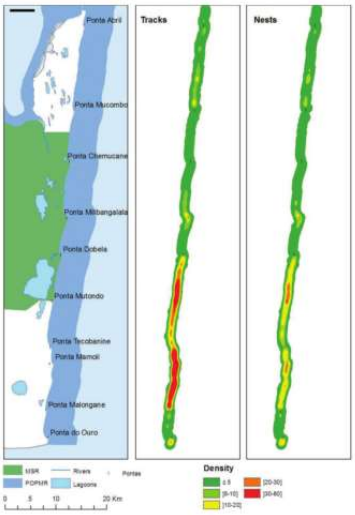
CENTRO TERRA VIVA
Estudos e Advocacia Ambiental

RELEVANT STUDIES

- Female nesting population estimates

- Assess and quantify threats and impacts
  - Fisheries
  - Oil and gas
  - Techobanine deep water port (POPMR)

- ´Social – ecological marine spatial plan for the conservation of sea turtles in the Natal – Delagoa Bay Ecoregion:´
  - Social - economic importance (values and perceptions)
  - Conservation target setting
  - Scenario planning to assess trade-offs : values and conservation



Fernandes *et al.*, 2016

PARTNERS

Sea turtle research and conservation in the region

WIOMSA Special Session – 5 July, 2019

WIO Sea Turtle Network

11TH SCIENTIFIC SYMPOSIUM

In French territories of the Indian Ocean

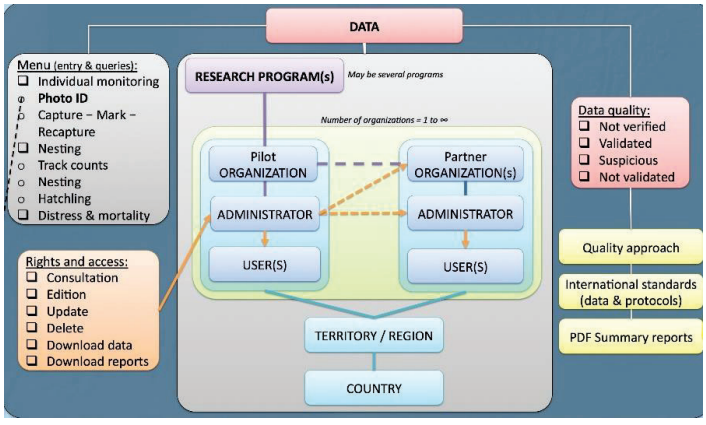
CEDTM
Centre d'Étude et de Découverte des Tortues Marines

KELONIA
l'observatoire des tortues marines

Katia BALLORAIN, CEDTM
katiaballorain@cedtm-asso.org

torsooi A regional database

- ✓ A unique database
- ✓ Online Access
- ✓ Multi-users
- ✓ Private space
- ✓ Ownership and confidentiality maintained
- ✓ Data control and quality
- ✓ Automated reports / exports



=> Secure data, develop collaborations & facilitate exchange

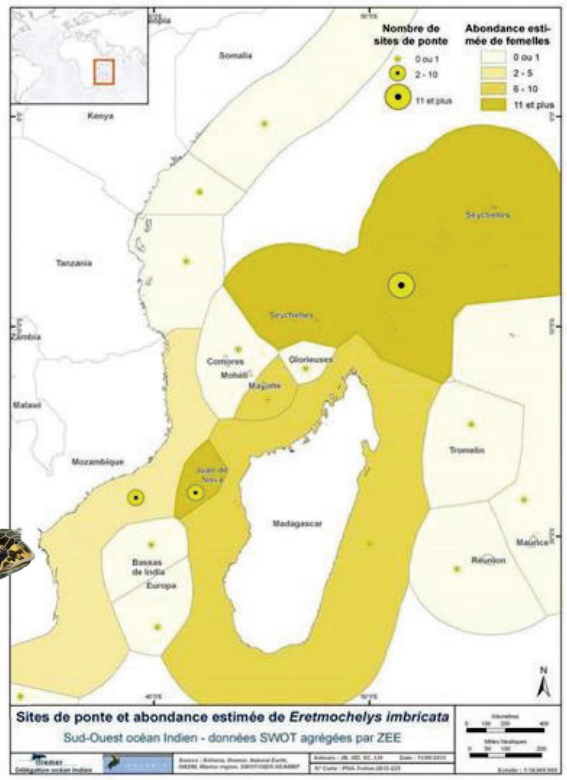
TIMOI-1 : Hawksbill

Submission : September 2019 (2020-2021)

Objectives:

- ✓ **origin & connectivity of hawksbill populations**
- ✓ **develop & consolidate regional cooperation**

→ Reunion, Comores, Seychelles, Madagascar, Mayotte, Eparses Islands



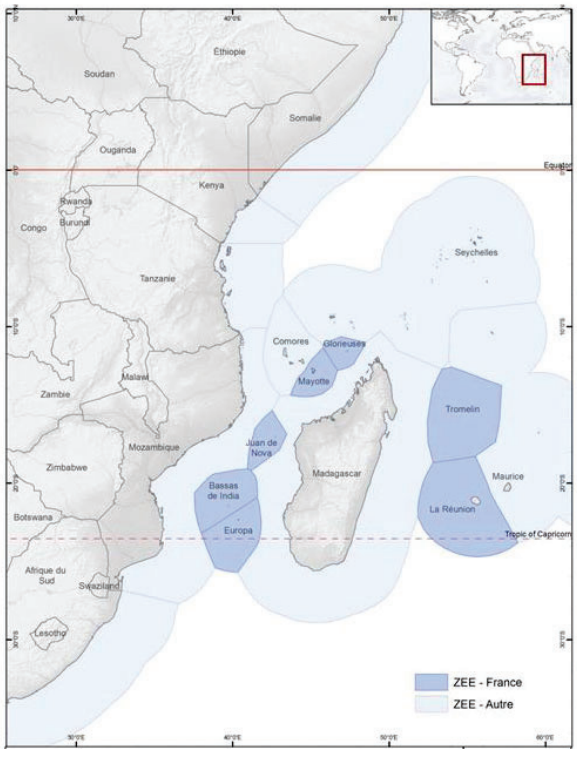
Pilot:

LIFE CHEL-IDEE

Concept Note: submitted in June 2019
1st selection: 31/10/19
Final project: submission in February 2020
Duration: 2021-2025

Objectives :

- ✓ Assess the conservation status of populations
- ✓ Increase knowledge on unknown populations & habitats
  (hawksbill, loggerhead…)
- ✓ Reduce sea turtle mortality
  (bycatch, care center...)
- ✓ Protect & restore habitats
- ✓ Educate and raise awareness
- ✓ Networking of Indian Ocean stakeholders



Pilots:

ROOM CHANGE → G5
16:00 – 18:00

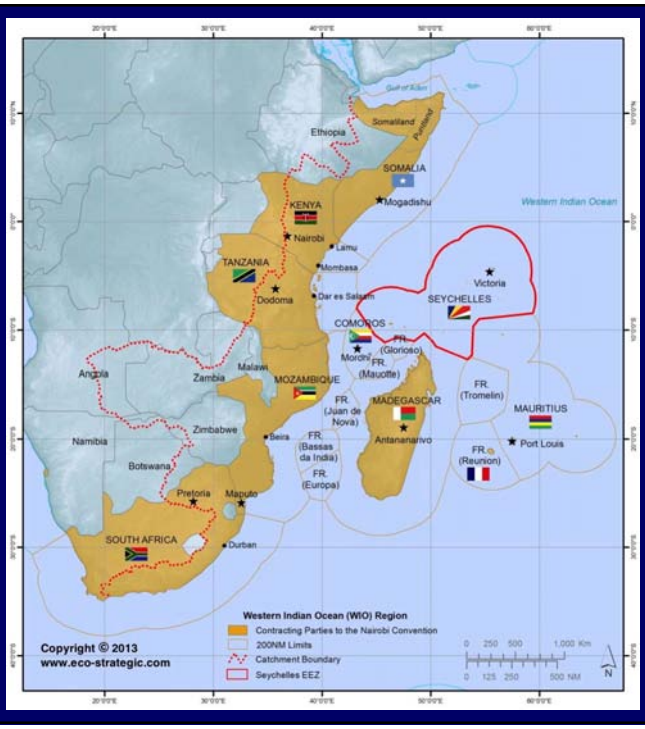
Sea Turtle Status & Management in the Republic of Seychelles

Turtle Action Group of Seychelles (TAGS)

Jeanne A. Mortimer

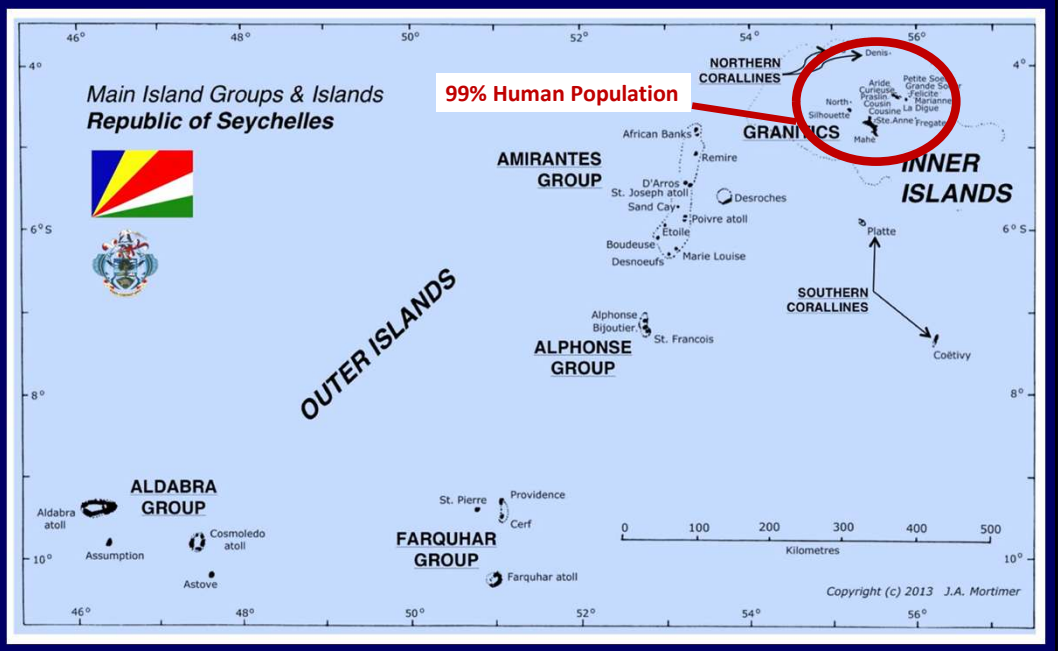
Turtle Action Group of Seychelles (TAGS)

1



2

- **>115 Islands**
- **1.4 million km² EEZ**



3

Two Sea Turtle Species Nest in Seychelles

Hawksbill Turtle
Eretmochelys imbricata

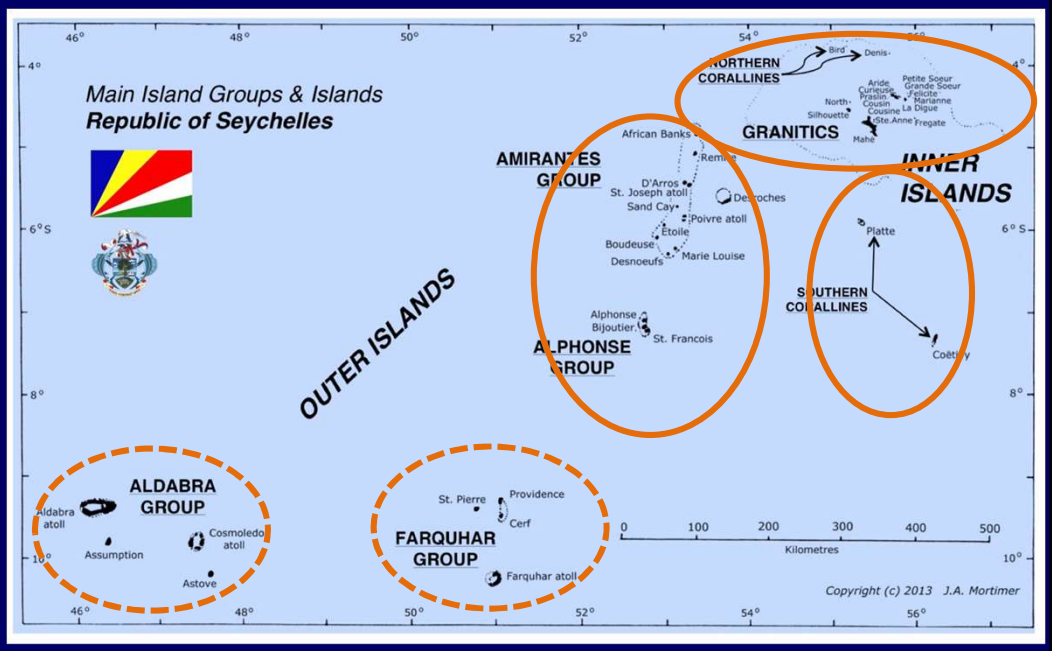
Green Turtle
Chelonia mydas

4

Hawksbill Nesting

~5,750 Clutches/yr

= ~1,650 females

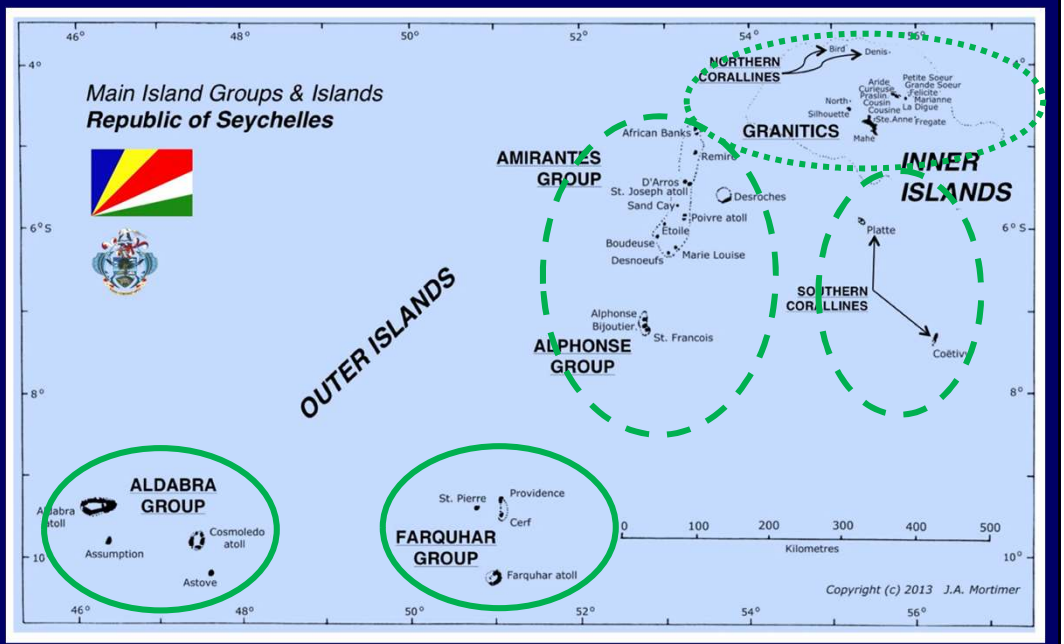


5

Green Turtle Nesting

~44,000 Clutches/yr

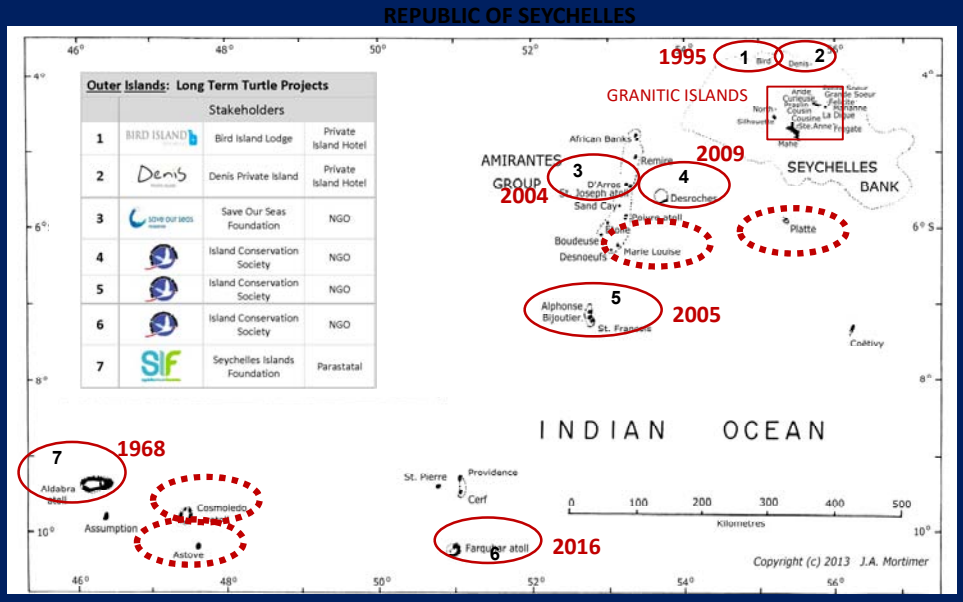
= ~10,000 females



6

Outer Islands: 7 Long Term Turtle Projects

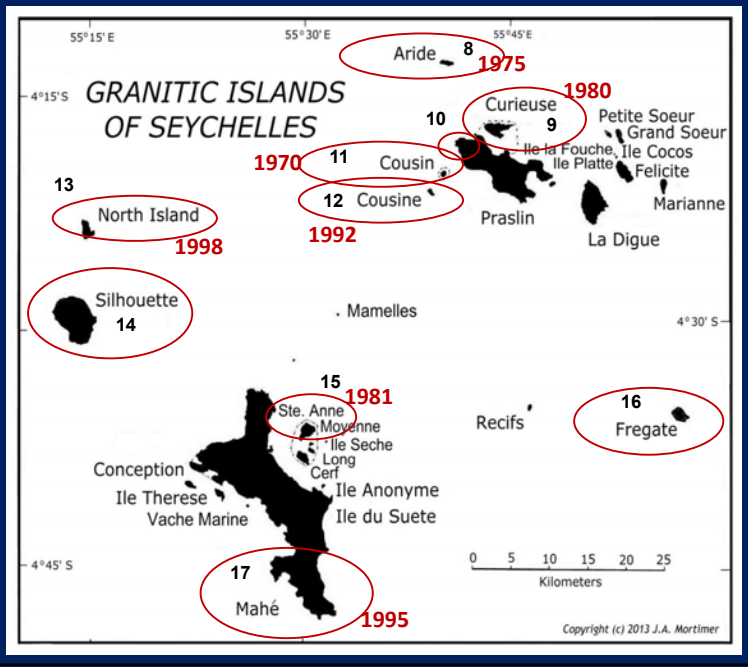
4 new planned during 2019



7

Granitic Islands: 11 Long Term Turtle Projects

Granitic Islands: Long Term Turtle Projects			
	Stakeholders		
8		Island Conservation Society	NGO
9		Seychelles Nat'l Parks Authority	Parastatal
10	gvi / CONSTANCE Lémuria SEYCHELLES	Global Vision International / Constance Lémuria Resort	NGO / Hotel
11	NATURE SEYCHELLES	Nature Seychelles	NGO
12		Cousine Island	Private Island Hotel
13		North Island	Private Island Hotel
14		Island Conservation Society / Seychelles Nat'l Parks Authority	NGO / Parastatal
15		Seychelles Nat'l Parks Authority / Ste Anne Resort	Parastatal / Hotel
16		Fregate Island Private	Private Island Hotel
17		Marine Conservation Society Seychelles / Dept of Environment	NGO / Government



8

Turtle Action Group of Seychelles (TAGS)

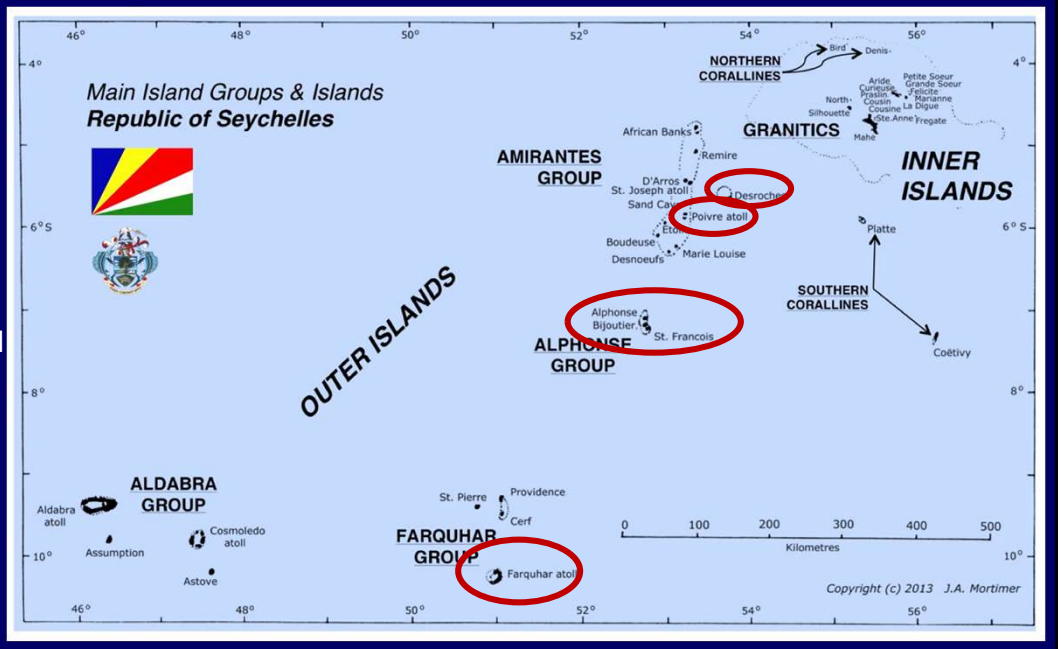
Turtle Action Group of Seychelles (TAGS)

- Nationally registered association
- 20 member organizations (currently)
  - doing Turtle monitoring;
  - -- doing Public awareness
- Forum for data sharing
- Website (in prep)
  - Funding Save our Seas
- Training materials (in prep)
  - Funding UNDP-GEF Outer Island Project

9

GEF UNDP Outer Island Project

- Desroches atoll
- Poivre atoll
- Alphonse/ St Francois
- Farquhar



10

New Initiatives for the Outer Islands

- GEF Outer Islands Protected Area Project (5 years): 2014-2019
  - Define Network of Protected Sites in outer islands
  - New Island Conservation Society (ICS) Conservation Centres:
  - Formalize Turtle Monitoring Protocols with written materials and films – to be used on TAGS website
  - Seagrass surveys

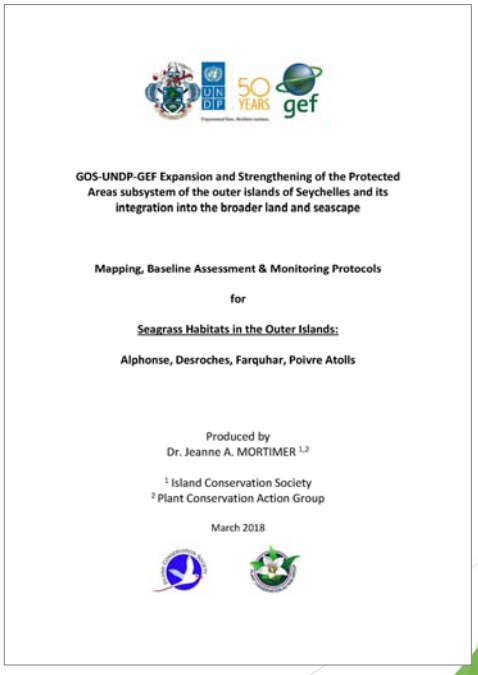
11

GOS-UNDP-GEF OIP

ICS Tasked to:

--Produce protocols for Mapping, Baseline Assessment & Monitoring Seagrass Habitats in the Outer Islands:

--Collect seagrass data at:
- Alphonse/St. Francois
- Desroches
- Farquhar
- Poivre atolls



GOS-UNDP-GEF Expansion and Strengthening of the Protected Areas subsystem of the outer islands of Seychelles and its integration into the broader land and seascape

Mapping, Baseline Assessment & Monitoring Protocols

for

Seagrass Habitats in the Outer Islands:

Alphonse, Desroches, Farquhar, Poivre Atolls

Produced by
Dr. Jeanne A. MORTIMER [1,2]

[1] Island Conservation Society
[2] Plant Conservation Action Group

March 2018

12

Documents Produced under GEF OIP project:

1. Protocol to assess health & status of seagrass beds (Mortimer, 2018)
   - Based on "Seagrass Watch" programme (www.seagrasswatch.org)
2. Keys to seagrass ID (Mortimer & Beaver, 2017)
3. Preparation of seagrass herbarium specimens (Beaver & Mortimer, 2017)
4. With assistance from WIO-Seagrass Network

13

Poivre Atoll: shallow water surveys

--early Dec 2017
--low spring tides

-- 3 spp seagrass
-- evidence of turtle cropping

14

Poivre reef-flat seagrass survey

15

Farquhar Atoll: Deeper water seagrass surveys

22-28 March 2018

Large atoll:
20 km across,
lots of open water

Requires:
mask & snorkel,
boat cover

16

Farquhar: Snorkel surveys with boat cover

Complemented by:

-- Satellite tracking data
-- Locations where turtles hunted in 1982-83
-- Gut content analysis

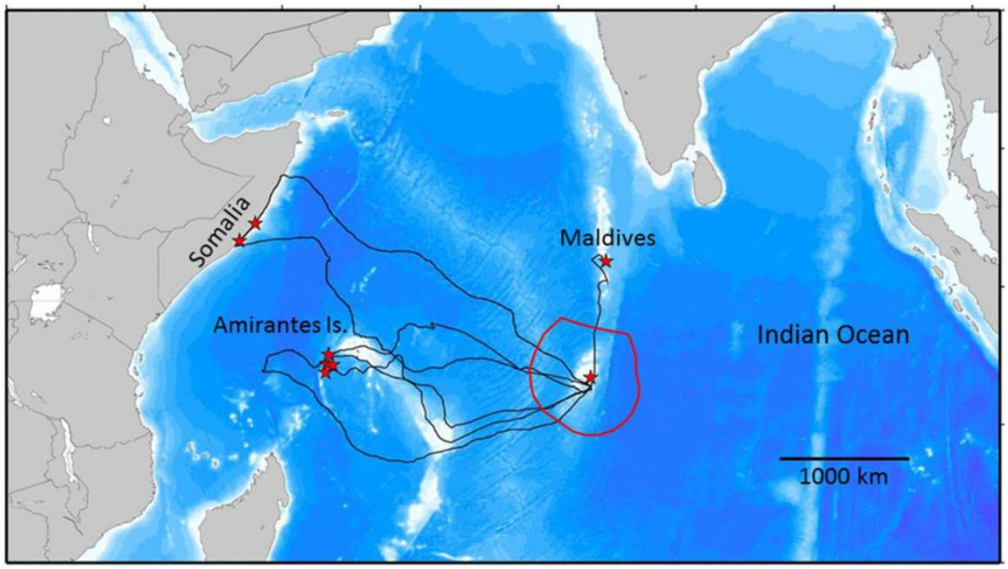
17

Satellite Tracking of Post-nesting female green turtles from Diego Garcia, Chagos

2014:
8 green turtle tracks

as of July 2018:
34 total green turtle devices deployed

~40% migrate to Seychelles **(including one to Farquhar Atoll**



Hays GC, **Mortimer** JA, **Ierodiaconou** D, & **Esteban** N. **2014.** Use of long-distance migration patterns of an endangered species to inform conservation planning for the world's largest marine protected area. ***Conservation Biology***.

18

Farquhar Atoll: Deeper water seagrass surveys

March 2018

GPS Points of Chagos satellite tracked turtle foraging sites

19

1981-1984: Lived with turtle hunters in Outer Islands

Collected 50 gut contents from slaughtered turtles:
-- =seagrass

2016-2017:
Swansea University
MSc student, Holly Stokes
conducted detailed analysis

MS accepted ***Marine Biology***

20

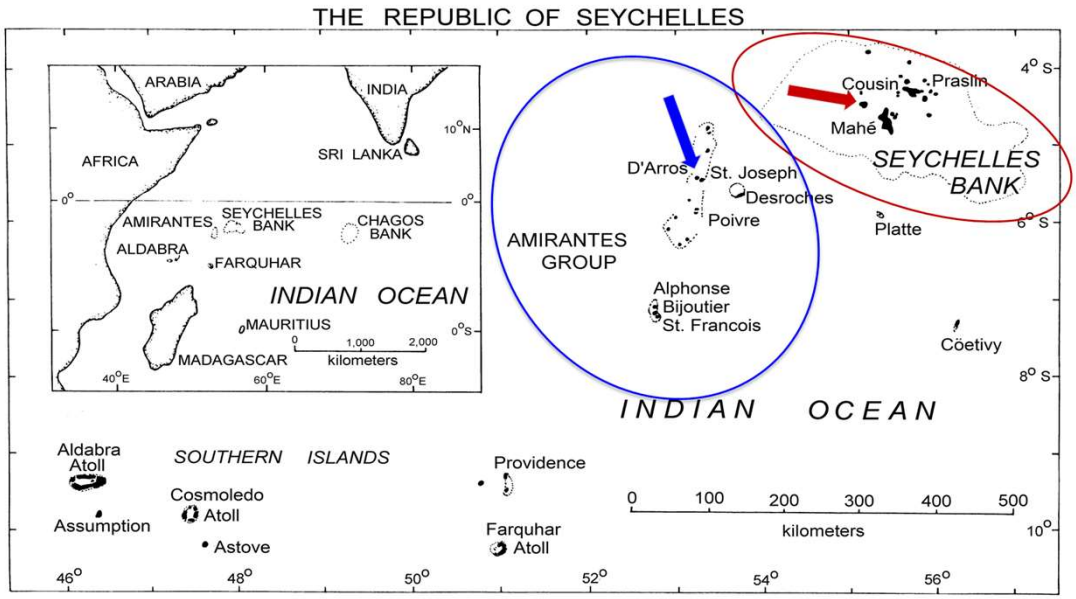
Farquhar Atoll: Deeper water seagrass surveys

March 2018

Locations where turtles were harpooned In 1982-83

March 2018 Surveyed seagrass Habitats Compared to gut contents

21



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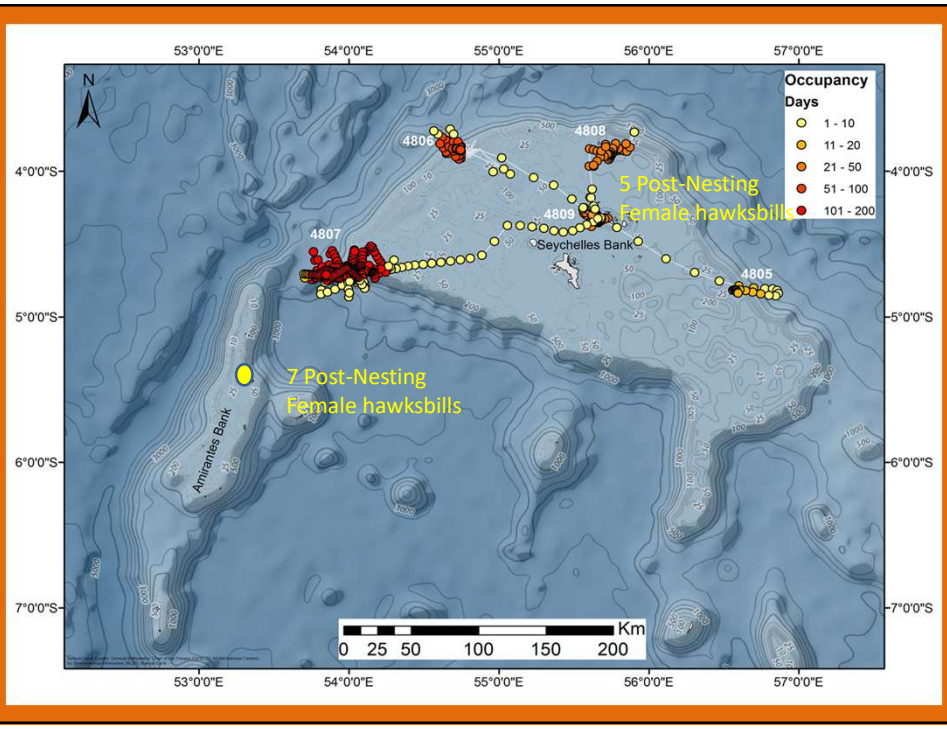
23

Satellite Tracking of post-nesting female hawksbills:

- 5 from Cousin Island
- 7 from D'Arros Island

Foraging habitat for all 12 females:

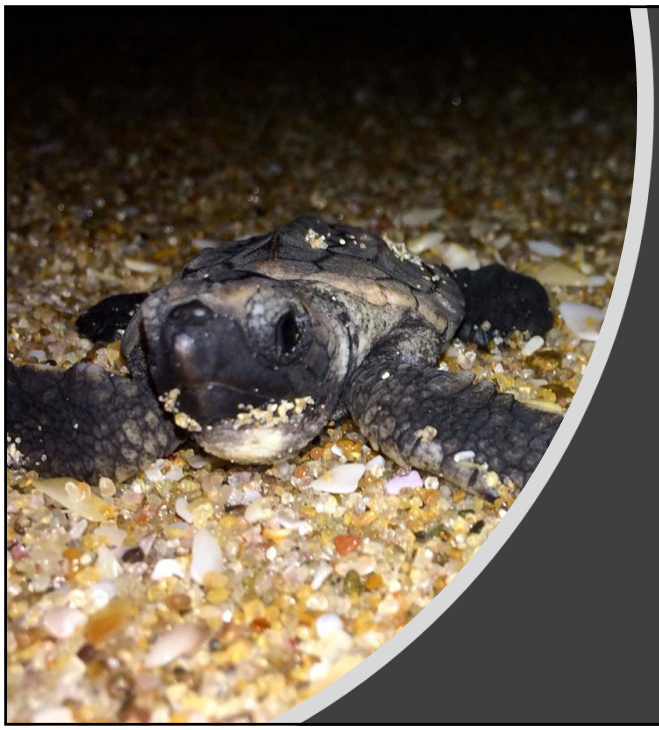
- Seychelles Bank



24


Thank you!
Republic of Seychelles:
Symposium attendance:
WIOMSA
11TH SCIENTIFIC SYMPOSIUM
air seychelles
Flying the Creole Spirit
Turtle Action Group of Seychelles (TAGS)
Green Islands FOUNDATION
save our seas FOUNDATION
Denis PRIVATE ISLAND
north island
WIOSN
BIRD ISLAND SEYCHELLES
FREGATE ISLAND PRIVATE
NATURE SEYCHELLES
Wildlife Clubs of Seychelles
ISLAND CONSERVATION SOCIETY
WiseOceans
aldabra atoll
Sea Turtle Friends Seychelles

25



ZAF National Report

Ronel Nel & Christopher Nolte

1

THURSDAY
1 August 2019

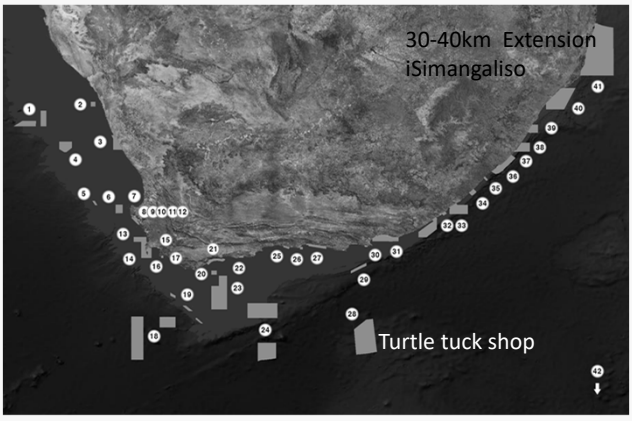
THE NEWS

No. 3874 | 12

www.turtlenews.com

20 NEW MPAS FOR SA

The South African government declared twenty new marine conservation areas that will come into effect on the 1st of August 2019. Two of these MPAs are to target sea turtle conservation, specifically the inter-nesting habitat for both loggerhead and leatherback sea turtles as well as the sea mounts used on route during the remigration periods.



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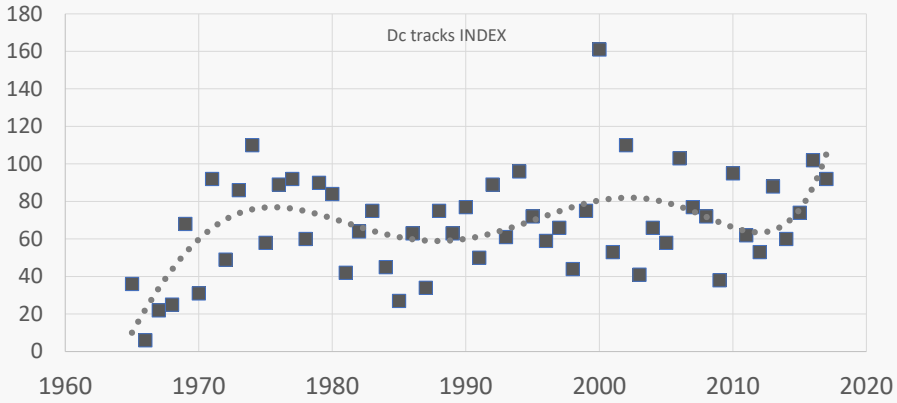
Dc DOING WELL IN SA IN LAST SEASONS



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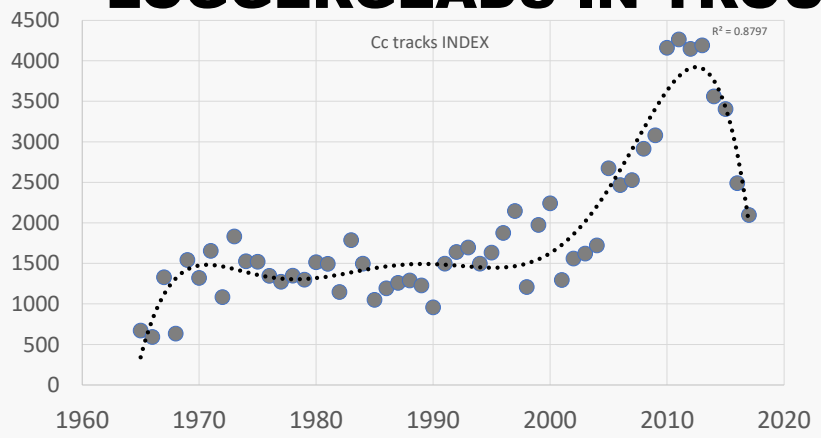
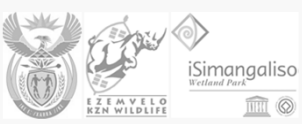
LOGGERGEADS IN TROUBLE IN SA?





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HATCHLINGS STRAND ON MASS ALONG CAPE COAST

A record number of hatchlings have stranded along the Cape coast since the beginning of the hatching season in iSimangaliso Wetland Park.

Mr. Dylan Bailey, Chief Aquarist and the Bayworld Oceanarium in Port Elizabeth has reported that more than 300 hatchlings have been collected and rehabilitated at various provincial aquaria. The cause for the strandings is unknown.

Two Oceans Aquarium being kept busy rescuing stranded hatchlings

NEWS / 3 MAY 2019, 2:52PM / SUPPLIED

The Two Oceans Aquarium's Turtle Rescue Programme team are being kept busy by huge numbers of stranded loggerhead turtle hatchlings being rescued. Picture: AP Photo/Marco Longari

5

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1 August 2019

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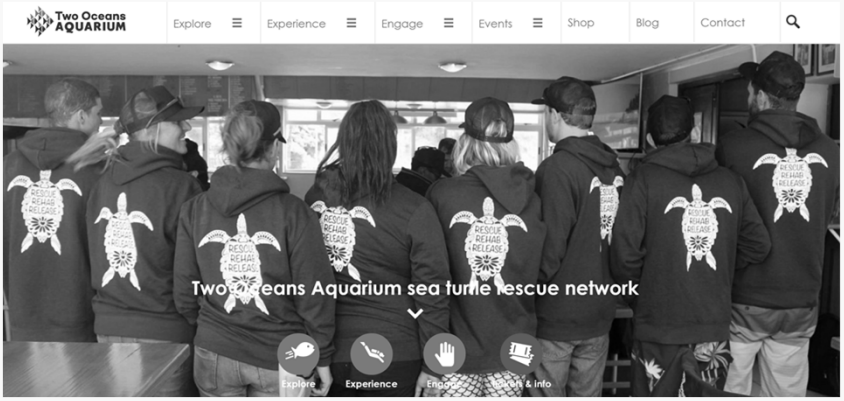
AQUARIUM SETS UP STRANDINGS NETWORK



In response to the large number of turtle hatchling that have stranded along the southern Cape Coast, Two Oceans Aquariums, based in Cape Town has set up a response network to rescue and collect stranded hatchlings.

6

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1 August 2019

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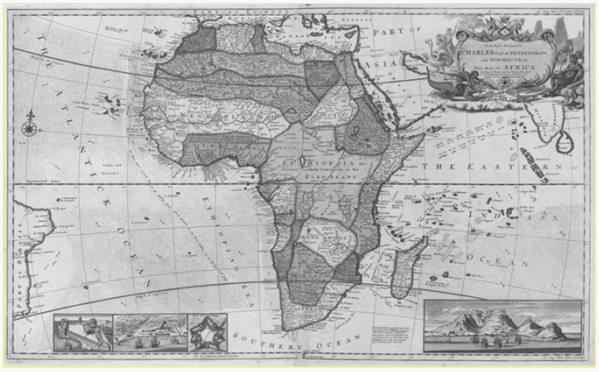
PEW FELLOW DESPERATE FOR DC DATA

Prof. Ronel Nel from Nelson Mandela University is investigating the historic distribution of leatherback sea turtles in the Western Indian Ocean.

Any one with information can contact her at

Ronel.Nel@mandela.ac.za



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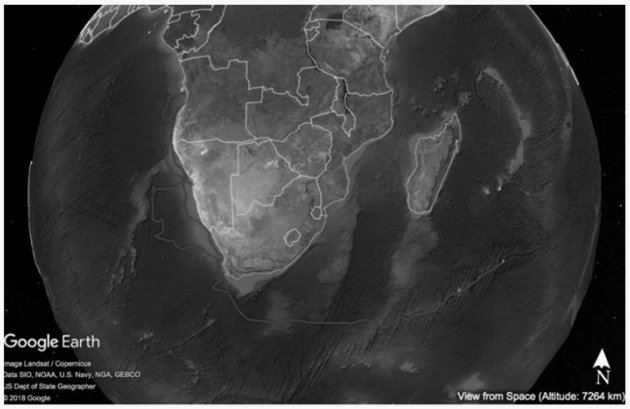
AQUARIA DISCOVER VALUE OF SAT-TAGS



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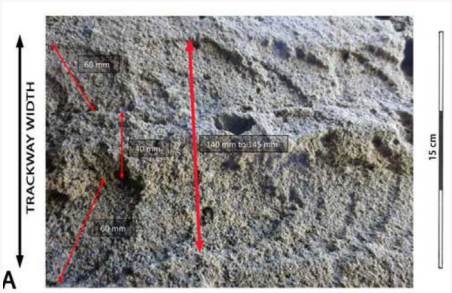
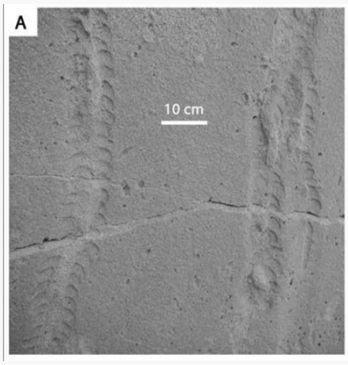
New fossil sea turtle trackway from the Pleistocene





Quaternary Research (in review)

9

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SOCIAL MEDIA ENHANCES TAG RETURNS?

Mr Santosh Bachoo from Ezemvelo recently posed the question if we can enhance the tag returns by changing from snail mail address to email, text no or another form of social media? But Stockbrands, the supplier of tags were unable to fit an email address on the tag.

10

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1 August 2019

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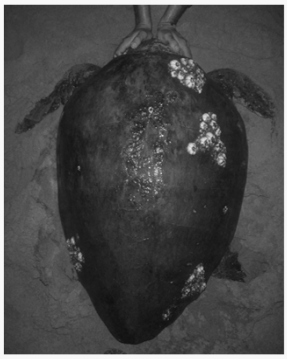
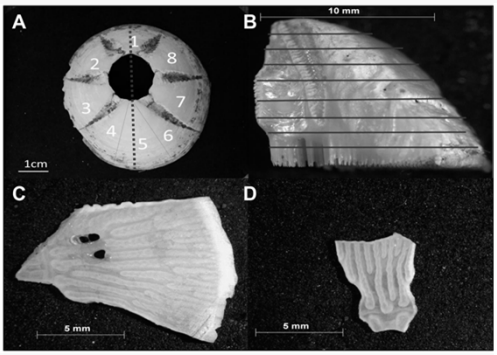
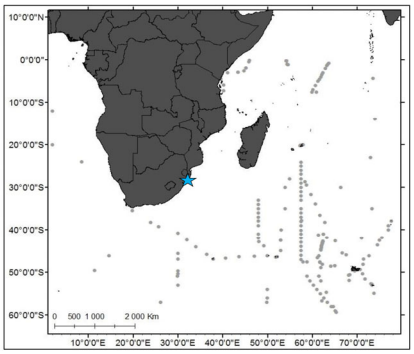
BARNACLES CAPTURE TURTLE ENVIRONMENT







11

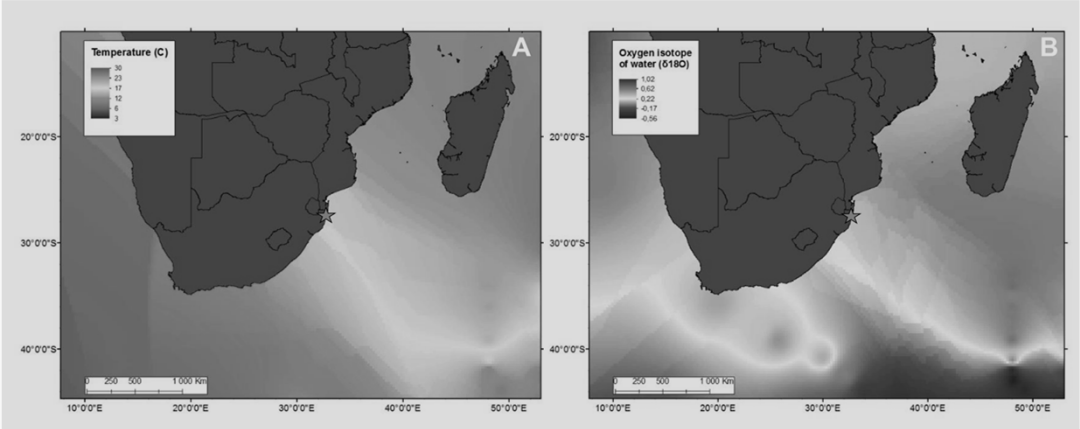
THURSDAY
1 August 2019

THE NEWS

No. 3874 | 12

www.turtlenews.com

OXYGEN AND TEMPERATURE USED FOR ISOSCAPE



12

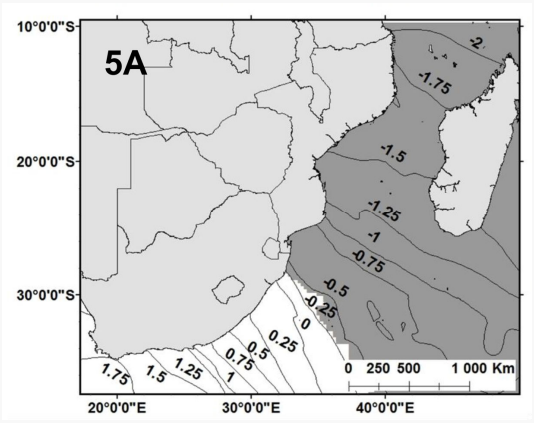
THURSDAY
1 August 2019

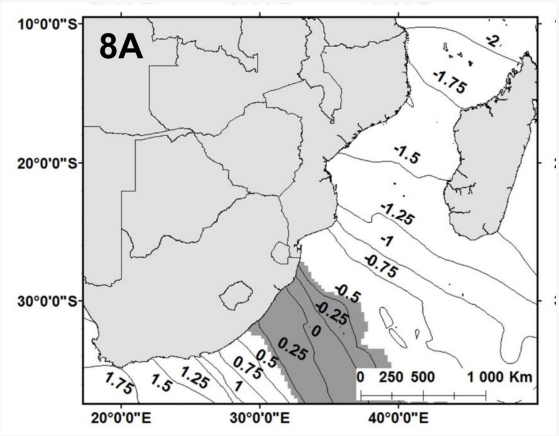
THE NEWS

No. 3874 | 12

www.turtlenews.com

BARNACLES SHOW TURTLE DISTRIBUTION





13

UPDATE ON SEA TURTLE STATUS AND CONSERVATION EFFORTS IN UNITED REPUBLIC OF TANZANIA

11th WIOMSA Symposium
WIO Sea Turtle Network
5th July 2019

1

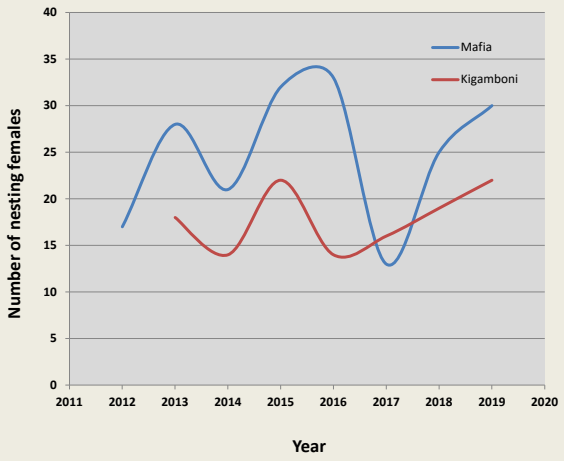
NESTING POPULATION ASSESSMENT

- Intensive flipper tagging programme during two month peak nesting season (April & May).
- 8 year dataset in Juani (2012 to 2019).
- 7 year dataset in Kigamboni (2013 to 2019).
- Conservation Officers patrol beaches every night from 6pm to 6am.
- Numbered tags applied to flippers to enable identification of individual females.

2

SUMMARY OF RESULTS

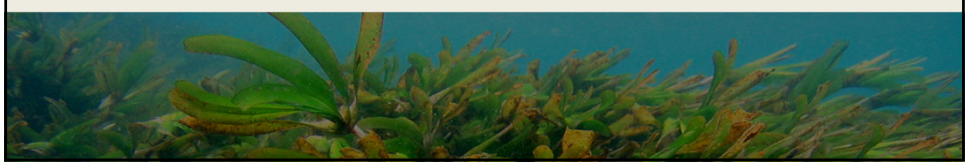
- Clutch frequencies ranged from one to six.
- Mean re-migration interval was 3 years.
- Higher nest site fidelity in Mafia than Kigamboni.
- Working towards estimated population sizes.
- Important information for EIAs – industrialization agenda.



3

COMMUNITY CONSULTATIONS ON SEAGRASS CONSERVATION

- Persistent illegal fishing practices e.g. blast fishing, use of beach seine nets and poisons.
- High fishing pressure in seagrass habitat.
- Limited understanding amongst coastal communities of the importance of seagrass conservation.
- Inadequate capacity amongst stakeholders to manage seagrass habitat.
- Access to education on seagrass conservation and protection.
- Low priority given to seagrass conservation and management.
- Weak cooperation between stakeholders e.g. communities and district authorities.



4

INVOLVEMENT OF TANZANIA IN THE WIO SEAGRASS NETWORK

5

EDUCATION AND OUTREACH

Community events on World Fisheries Day, World Sea Turtle Day and World Oceans Day

6

EDUCATION AND OUTREACH

Marine Wildlife Road-show

7

EDUCATION AND OUTREACH

School Education Campaigns

8

EDUCATION AND OUTREACH

Community Theatre

9

FORTHCOMING ACTIVITIES

- Marine wildlife roadshow in an additional two districts (12 villages)
- Deployment of five satellite tags on post nesting females
- Capacity building for women fish workers (TAWFA)
- National sea turtle stakeholder workshop
- Development of national conservation strategy for sea turtles

10

Thank You


USAID
FROM THE AMERICAN PEOPLE


UKaid
from the British people

BORN FREE

WWF

Songas

INTERNATIONAL SEAFOOD
SUSTAINABILITY FOUNDATION

Minara
Foundation

BCG
BRITISH CHELONIA GROUP

THANDA ISLAND

CMS

11

Sea Turtles of Chagos

Graeme Hays, Nicole Esteban
Jeanne A. Mortimer

Swansea University
Prifysgol Abertawe

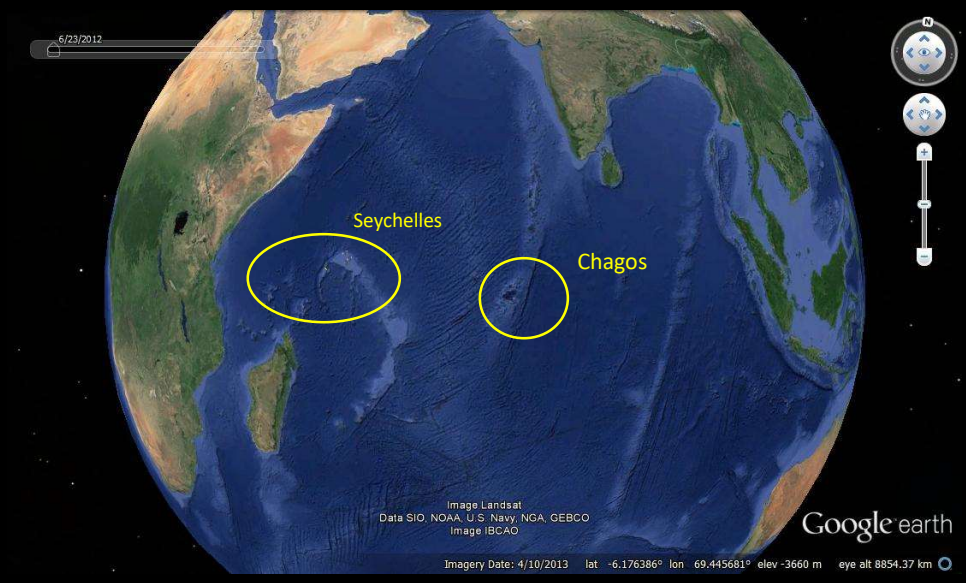
fondation bertarelli

UF UNIVERSITY of FLORIDA

DEAKIN UNIVERSITY AUSTRALIA

1

Indian Ocean



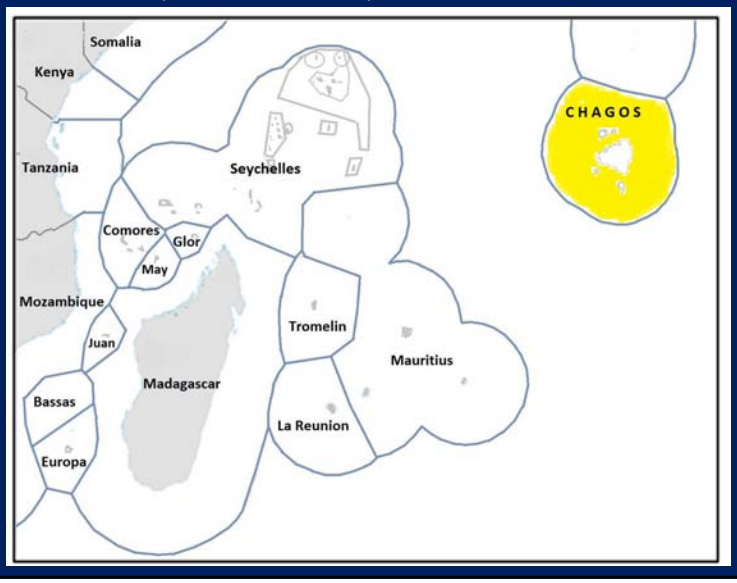
2

Southwest Indian Ocean Region (SWIO)

Identified as Regional Management Unit (RMU)
by IUCN Marine Turtle Specialist Group

Wallace et al. **2010**. Regional management units for marine turtles… **PLoS ONE** 5(12)

Regional Management Units for Marine Turtles: A Novel Framework for Prioritizing Conservation and Research across Multiple Scales



3

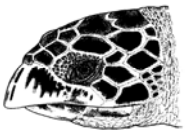
Two Sea Turtle Species Nest in Chagos

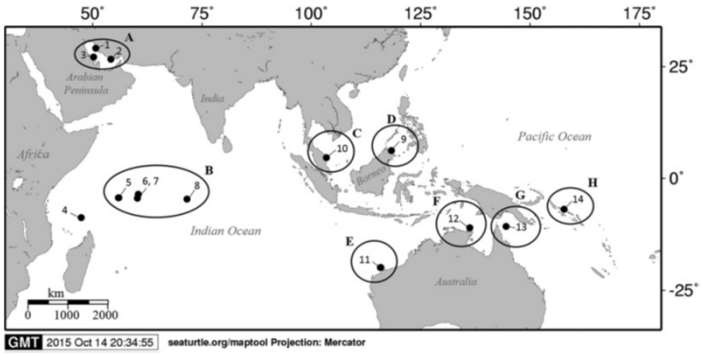
Hawksbill Turtle
Eretmochelys imbricata

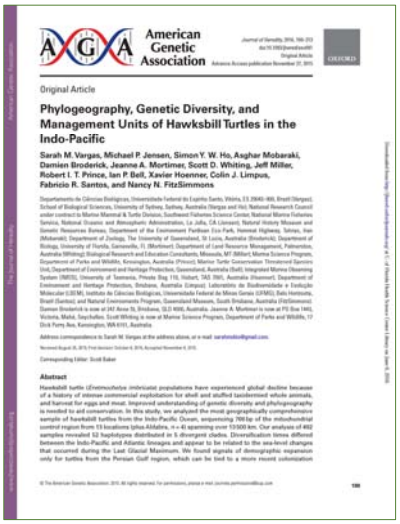
Green Turtle
Chelonia mydas

4

Genetics: *Eretmochelys imbricata*







Phylogeography, Genetic Diversity, and Management Units of Hawksbill Turtles in the Indo-Pacific

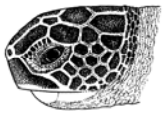
Sarah M. Vargas, Michael P. Jensen, Simon Y. W. Ho, Asghar Mobaraki, Damien Broderick, Jeanne A. Mortimer, Scott D. Whiting, Jeff Miller, Robert I. T. Prince, Ian P. Bell, Xavier Hoenner, Colin J. Limpus, Fabricio R. Santos, and Nancy N. FitzSimmons

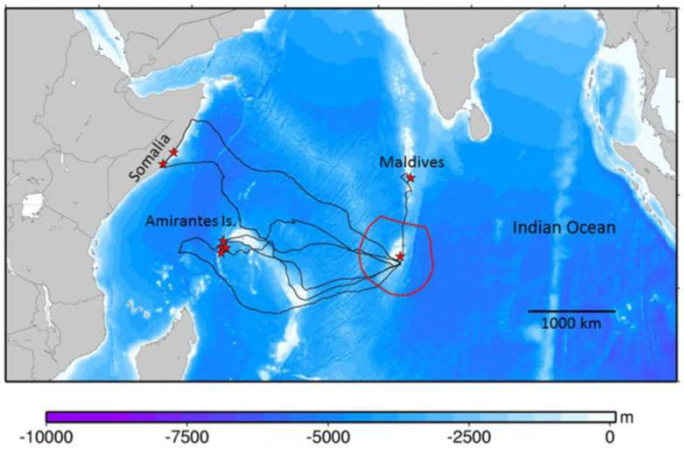
Seychelles & Chagos Hawksbills = Genetic Stock "B"

Journal of Heredity **2016**:199-213.

5

Satellite Tracking: Post-nesting *C. mydas* from Chagos





Use of Long-Distance Migration Patterns of an Endangered Species to Inform Conservation Planning for the World's Largest Marine Protected Area

Currently **~35 Post-nesting Green Turtles** satellite tracked from Diego Garcia, Chagos by G Hays & N Esteban:

~ 50% migrated to forage in **Seychelles waters**

Conservation Biology. **2014.** 28 (6), 1636-1644.

6

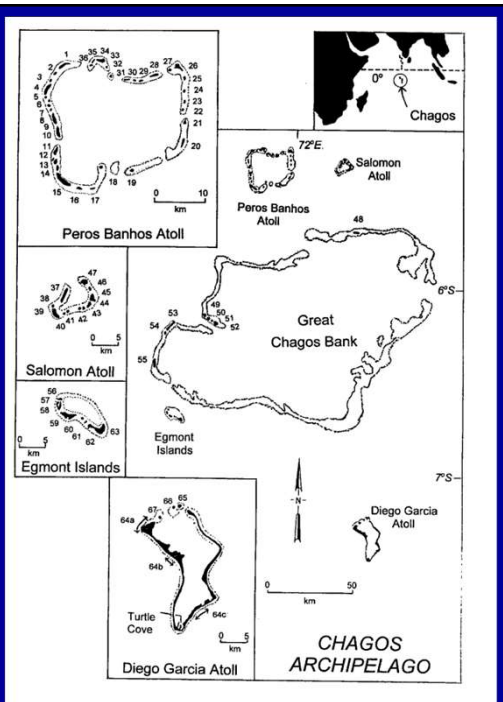
5 post-nesting Hawksbills Satellite Tracked in Nov-Dec 2019

7

Chagos Archipelago

Most islands uninhabited
-- so difficult to survey
1st systematic turtle survey in 1996

- **5** atolls
  - Peros Banhos (36 islands)
  - Salomon (11)
  - Great Chagos Bank (8)
  - Egmont Islands (8)
  - Diego Garcia (4)
- **67** islands
- **235 km** oceanic coastline



8

Two Types of Survey Data Collected

1. "Snapshot" Rapid Surveys (of total coastline):
   - Quantify **spatial distribution** of nesting activity amongst atolls
   - Relative nesting **density** by atoll
2. Long-term Monitoring (of Index Beach):
   - **Seasonal** patterns
   - **Numbers** of egg clutches produced annually

9

1.
Spatial Distribution
"Snapshot"
Rapid-Surveys:

Map distribution of:
-- **tracks**
-- **body pits** (in bushes)

Surveyed as much of 235 km coastline as possible

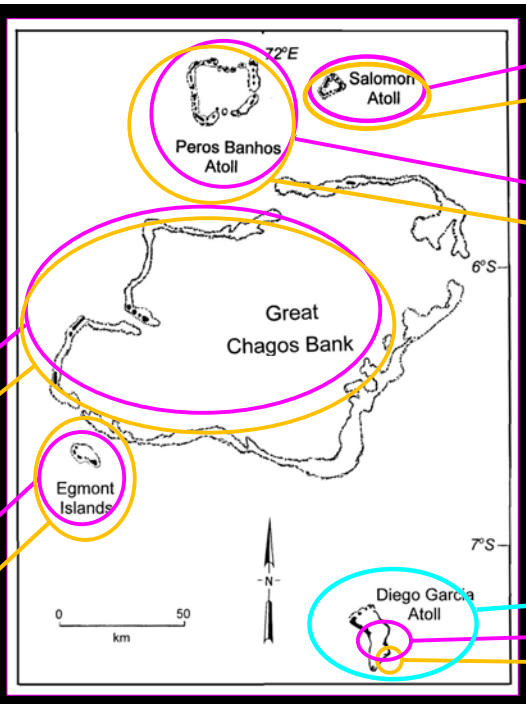



10

Outer Islands = 163 km
Diego Garcia = 72 km
Total = 235 km

Yacht-based Surveys (all atolls):
-- Feb, Mar 1996
-- Feb, Mar 2006

Outer Island Coverage			
	1996	2006	Combined
Km	98	119	140
%	60%	73%	86%



26 km 100%
26 km 100%
100%

31 km 38%
43 km 53%
75%

100%
30 km 92%
30 km 92%

88%
10 km 45%
20 km 86%

Diego Garcia Coverage				
	1996	1999	2006	
Km	11	72	3	
%	16%	100%	4%	

Land-based Survey (DG only):
-- Jan, Feb 1999

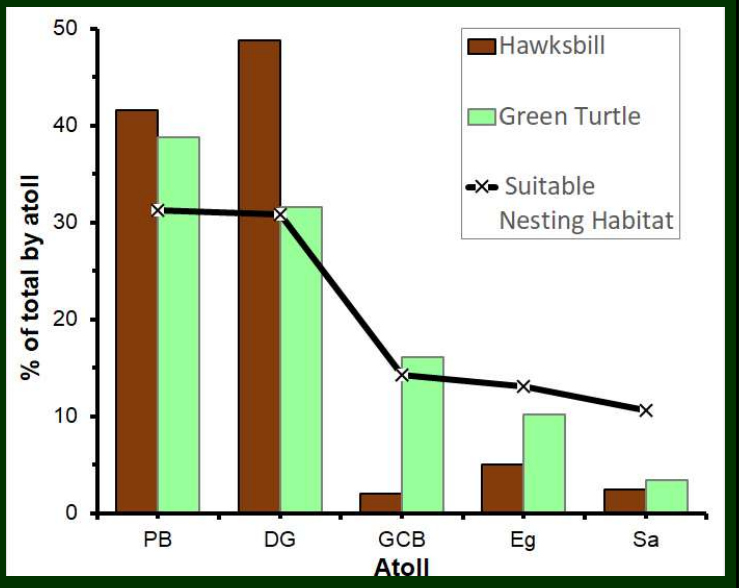
72 km 100%
11 km 16%
3 km 4%
100%

11

Relative Distribution & Density by Atoll

- Available habitat
- Green turtle nesting
- Hawksbill nesting

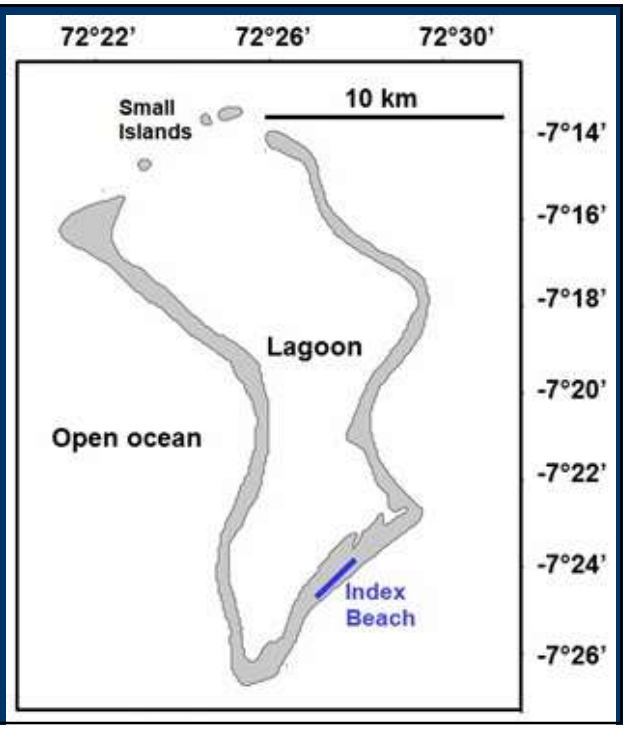
Presented as % of Total



12

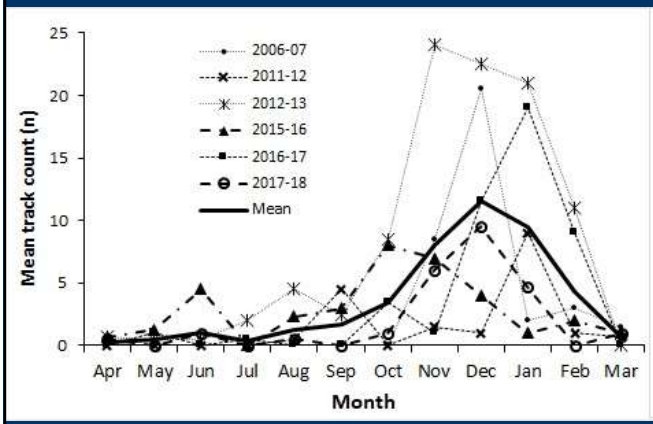
2.
Long Term Monitoring of Diego Garcia **Index Beach**

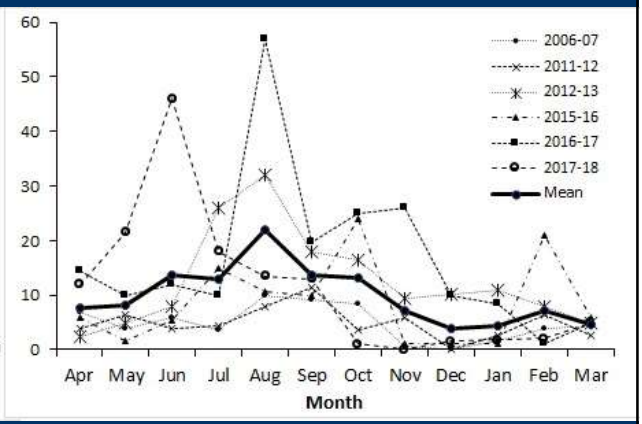
- 2.8 km long
- High density nesting site
- Monitored by on-site base personnel
- 2x per month / year-round 2006-2018
- Had been rapid-surveyed 1996, 1999, 2006 (Enables extrapolation from Index Beach to entire Chagos Archipelago)



13

Index Beach: Nesting Seasonality





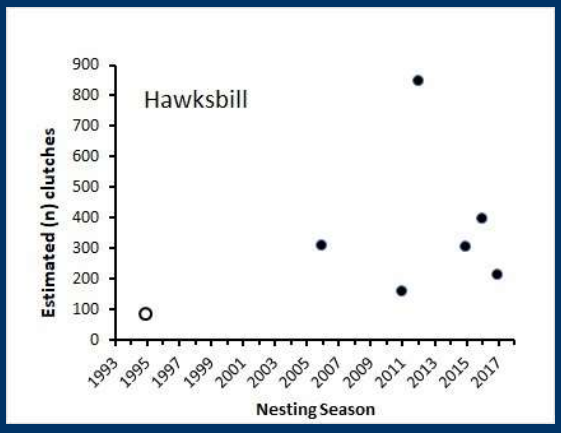
HAWKSBILL: ***Eretmochelys imbricata***

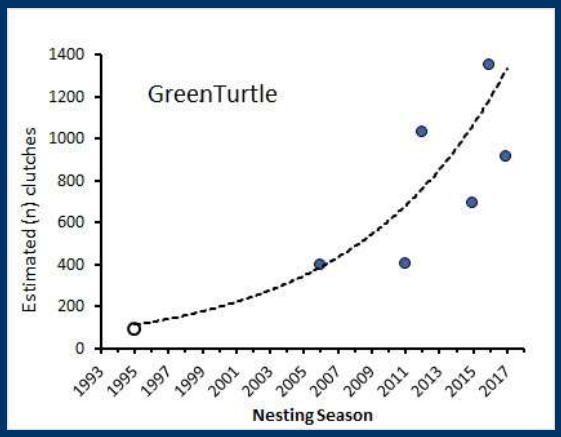
GREEN TURTLE: ***Chelonia mydas***

14

Index Beach: Estimated Egg Clutch Production / Season

Index Beach data used to extrapolate to the entire Chagos Archipelago





HAWKSBILL: ***Eretmochelys imbricata***
~**6,300** clutches

GREEN TURTLE: ***Chelonia mydas***
~**20,500** clutches

15

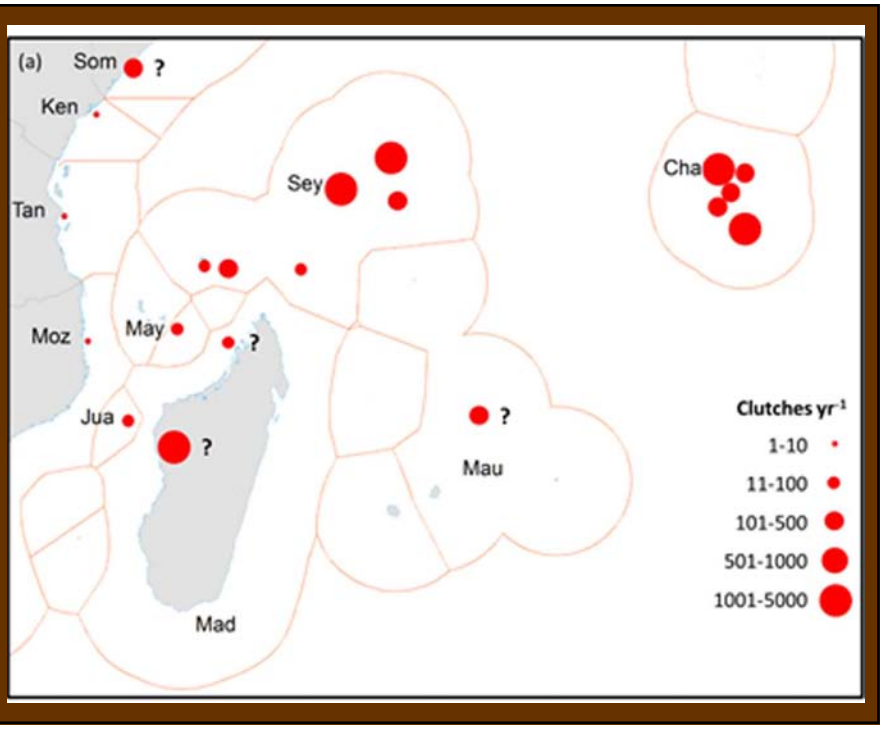
Estimated Hawksbill Clutches in the SWIO

Est. SWIO total
~ 12,000-16,000 clutches

Est. Chagos:
~ 6,300 clutches: ~40-53%

Est. Seychelles: ~35-46%

Together
Seychelles & Chagos: ~ **87%**



16

Estimated Green Turtle Clutches in the SWIO

Est. SWIO total

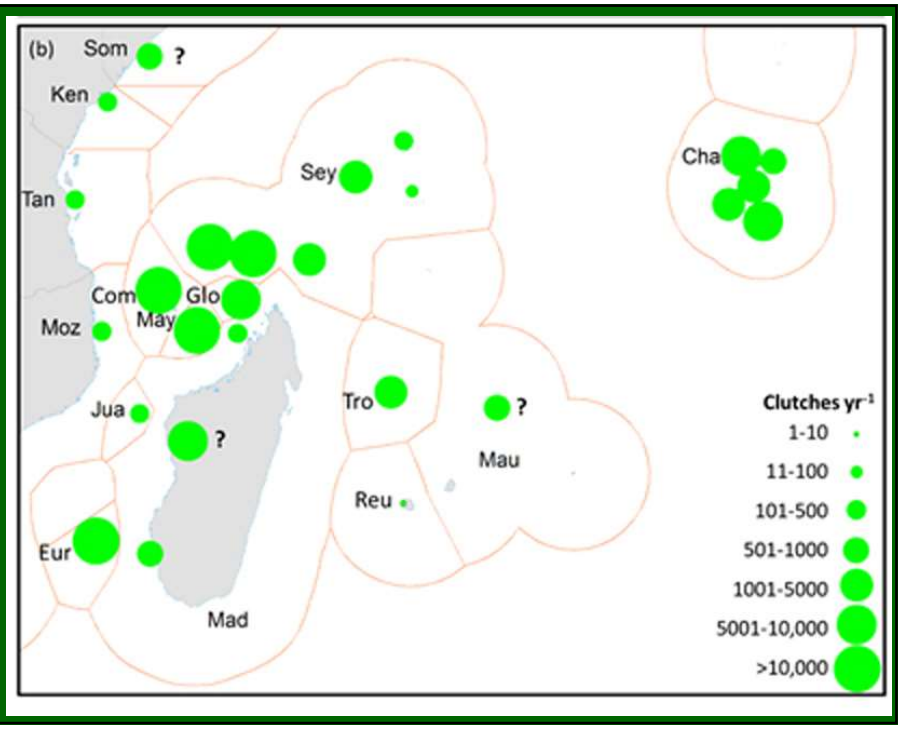
~ 104,000-143,000 clutches

Est. Chagos

~ 20,500 clutches: ~15-20%

Est. Seychelles: ~35%

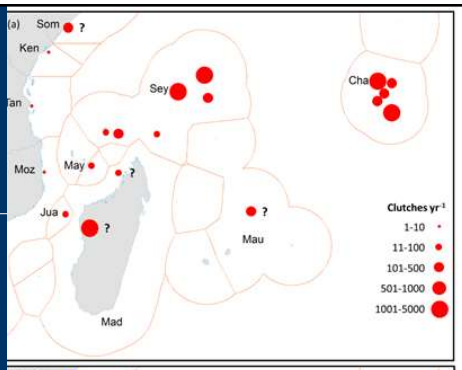
Est. Iles Eparses: ~27%

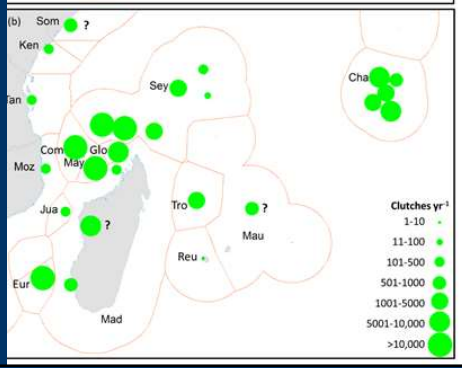


17

Green Turtles vs Hawksbills

- ~10 X more Green Turtle clutches overall
- But… Green Turtles may lay ~2 X more clutches per female






PROCEEDINGS B

How numbers of nesting sea turtles can be overestimated by nearly a factor of two

Research

THE ROYAL SOCIETY PUBLISHING

18

Turtle Cove at Diego Garcia

19

Turtle Viewing Platforms at Turtle Cove

- Ph

20

21

>20 juvenile hawksbills satellite Tracked in Turtle Cove

22

23

Thank you!

Chagos:

CRC Sheppard & members of 1996 & 2006 Chagos Research Expeditions

Symposium attendance:

24