Update on the Status of the IOSEA Network Site
(Version: 8 April 2024)

iSimangaliso Wetland Park

A. Date of submission (DD/MM/YYYY):
The date on which the questionnaire was completed.

17/03/2024

B. Name and address of compiler(s), if not the IOSEA Focal Point
Name and contact information (including affiliation) for the individual(s) who prepared this information.

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C. Country: *The name of the country in which the site is located.*

Republic of South Africa

D. Name of site: *The name of the site (alternative names should be given in brackets).*

iSimangaliso Wetland Park World Heritage Site

1. Have there been changes in the management authority?
Name, address and contact details of the body responsible for the direct local conservation and management of the site, if different than in original proposal.

There have been no changes in the management authority at the site. The status quo is as follows:

Body Responsible for Management of the Site:

Name: The iSimangaliso Wetland Park Authority
Address:
Simangaliso Wetland Park Authority
The Dredger Harbour
Private Bag X05, St Lucia
3936
KwaZulu-Natal
South Africa

Body Responsible for Direct Local Conservation:

Name: Ezemvelo KwaZulu-Natal Wildlife
Address:
1 Peter Brown Place
Montrose
Pietermaritzburg
3201
KwaZulu-Natal
South Africa

2. What are the current population numbers and trends for the marine turtle species present at the site?

Please insert population numbers for each species present and the year when the population was estimated, as well as the population trend (e.g. stable, increasing, decreasing, unknown)

Population Numbers and Trends for sea turtles found at the site. These are presented for nesting species only i.e. Leatherback and Loggerhead Turtles. Population numbers have only just been calculated and are presented in Table I and Figs 1 and 2. Population numbers for nesting species are based on encounters on an approximately 90km stretch of beach from Sodwana Bay to the South African/Mozambican border and population trends are based on track counts in the index beach from Bhanga Nek to the mouth of the Kosi Bay estuary.

Table 1 : Population numbers and trend for sea turtles at the iSimangaliso Site.

Species	***Population Numbers***	***Year Assessed***	***Population Trend***
Leatherback (*Dermochelys coriacea)*	80 (nesting only)	2024	Stable (Fig. 1)
Loggerhead (*Caretta caretta)*	767 (nesting only)	2024	Increasing (Fig. 2)
Green (*Chelonia mydas*)	Non-nesting, unknown	N/A	Unknown
Hawksbill (*Eretmochelys imbricata*)	Non-nesting, unknown	N/A	Unknown
Olive Ridley (*Lepidochelys olivacea*)	Non-nesting, unknown	N/A	Unknown

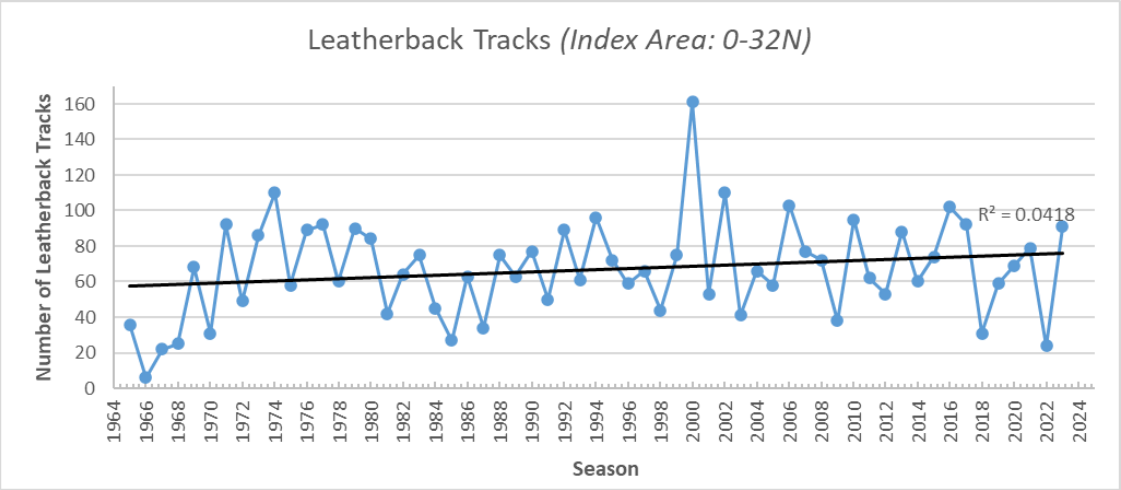

Figure 1 : Nesting population trend for leatherbacks from inception of the monitoring programme to the 2023/2024 nesting season

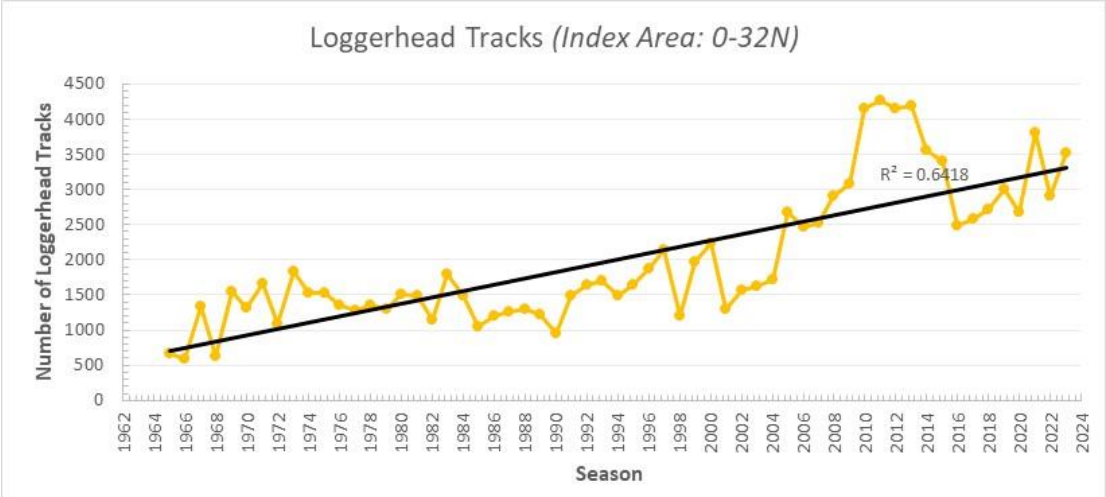

Figure 2 : Nesting population trend for loggerheads from inception of the monitoring programme to the 2023/2024 nesting season

3. Have there been any changes in land/sea ownership, protected status, legislation and/or governance framework, which affect the site?

Describe any changes to legislation / regulations relevant to the protection / conservation of marine turtles and their habitats at this site, and comment on their effectiveness.

Mention any changes in nationally relevant protected area status, international conservation designations and, in the case of transboundary sites, bilateral or multilateral conservation measures which pertain to all or part of the site since 2019. If a protected area or reserve has been established (at a national/regional level), give the date of its establishment and size. If only a part of the site is included within a protected area, the area of marine turtle habitat that is protected should be noted.

New International designations since 2019 may include sites listed under the UNESCO/World Heritage Convention, Man and Biosphere Reserve Network, Ramsar Convention, other site conservation networks, etc. Where appropriate, list the IUCN (1994) protected areas management category(ies) that apply to the site.

There have there been no changes in land/sea ownership, protected status, legislation and/or governance framework at the site since 2019.

4. What are currently the most important threats to marine turtles and their habitat at the site?

Describe the human and natural factors negatively affecting the ecological character of the site, both within and in the vicinity of the site. These may include new or changing activities/uses, major development projects etc., which have had, are having, or may have a detrimental effect on the natural ecological character of the site. For example, describe in terms of the

percentage of coastline (or other area) modified/affected by a particular threat; for egg collection, describe in terms of number of nests, per species, per year. Mention also data-deficient threats, where a threat is known to be present but is not quantified. Collectively, this information should provide a basis for monitoring of ecological character of the site.

Sea turtle poaching

Poaching of both adults and nests for eggs does occur but at very low levels. Thissyte is fortunate to have dedicated nightly patrols during the nesting season that effectively deters poaching. For the period spanning 2006-2021, there have been an average of 1.4 adult loggerheads per year poached and 1.8 nests per year for the same 15-year period (although this might be under-reported). These took place between Sodwana Bay and the South African/Mozambican border[1]. In 2023, there was an attempted poaching of a loggerhead that was thwarted by volunteer and Ezemvelo staff. Poaching at the site remains at very low levels for the following reasons:

- Protected Area – World Heritage Site status confers the highest levels of protection to nesting turtles. Additionally, the extended offshore iSimangaliso Marine Protected Area offers additional protection during the inter-nesting periods in the nesting season;
- The 60-year monitoring and protection programme has been instrumental in protecting these marginal sub-populations with by providing a direct on-the-ground presence that deters poachers.
- A positive and strong relationship with local communities within and surrounding the park contributes an additional layer of protection. Local communities are cognisant of the economic benefits that nesting turtles bring to an impoverished area via the provision of employment opportunities as turtle monitors as well as spinoff from tourism based on nesting turtles.

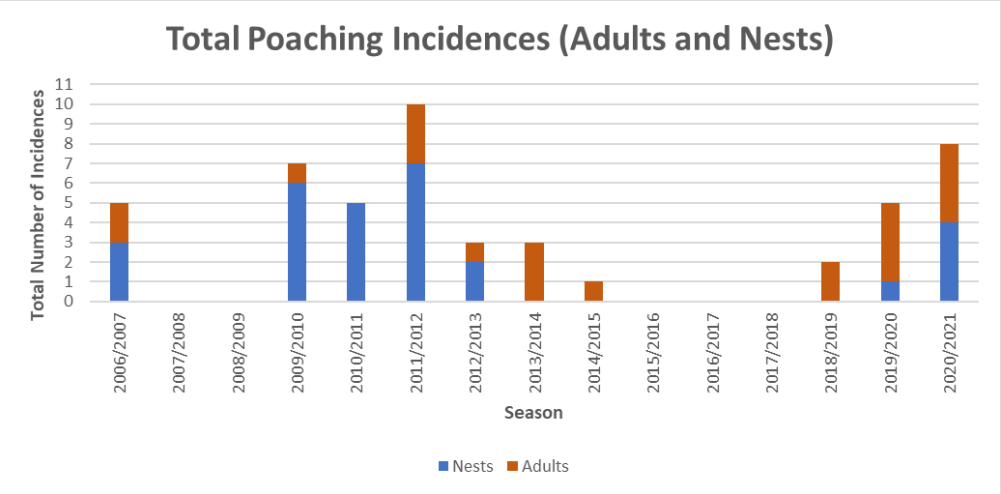

Figure 3: Turtle poaching (adults only) incidences from 2009-2021

Pollution

Plastic pollution (both macro and microplastics) are a threat along all the beaches at the site as well as offshore. Beach plastic pollution is primarily derived from areas outside of the park, with efforts constantly applied to reduce the level of this threat. The iSimangaliso Authority coordinates beach cleanups at the site where plastic pollution is collected via the implementation of the CoastCare programme. It has been found that twenty-four of 40 (60%) loggerhead turtle *Caretta caretta* post-hatchlings died within two months of stranding on southern Cape beaches in April 2015 as a result of ingested plastic debris[2].

Natural Hazards

Natural hazards applicable here include coastal erosion that damage nesting habitats as well as destroy nests already laid. The cyclone season for the Southwest Indian Ocean area is officially from 15 November to 30 April with 80% of storms and cyclones typically taking place between

[1] Bachoo, S. 2022. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2021/2022 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa.

[2] Peter G Ryan, Georgina Cole, Kevin Spiby, Ronel Nel, Alexis Osborne and Vonica Perold. 2016. Impacts of plastic ingestion on post-hatchling loggerhead turtles off South Africa. Marine Pollution Bulletin 107(1). DOI: 10.1016/j.marpolbul.2016.04.005

December and March[3]. These generate significant high waves and storm surges with high beach run up that erode beaches and wash away nests with clutches in various stages of development. This can be expected to worsen with climate change where these events are likely to increase with respect to frequency and intensity.

Illegal fishing in the area: coral damage and bycatch

The site is both a World Heritage Site with an expanded Marine Protected Area i.e. the iSimangaliso MPA. Recreational and subsistence fishing is only allowed with no large-scale commercial fishing operations permitted. While there are incidences of cross-border illegal fishing in the marine protected area, these are not expected to affect nesting turtles as they are reportedly small-scale operations working from small boats or kayaks. Ghost nets are an issue with discarded nets from fishing vessels on the high seas that can trap turtles and hatchlings. There was one instance of a non-nesting species (green turtle) that was caught in a ghost net at the site beaches and was successfully released. The threat of ghost nets remains unquantified.

Habitat destruction/modification

The expansion of the towns of Mbazwana and eManguzi is creating artificial night light pollution that will affect both nesting but more so the hatchlings if it impacts their ability to orientate with the sea. The protection dune systems are therefore of paramount importance,

Socio economic factors

The area around the iSimangaliso Wetland Part WHS is generally characterised by high unemployment and poverty. This was exacerbated during the COVID-19 lockdown that further affected livelihoods. This was potentially a contributing factor that led to a resurgence of poaching[4] (Fig 3) of mainly adults from 2018-2021.

5. New conservation and management interventions taken since 2019 and measures planned for near future

Describe conservation and management interventions taken at the site to address threats since 2019. Any application of coastal and marine spatial planning, or integrated coastal/marine zone management planning, involving or affecting the site should be noted.

Describe any other new conservation measures taken at the site, such as restrictions on development, management practices beneficial to wildlife, closures of fishing, etc. (Note that information on any monitoring schemes and survey methods should be given under point 19, below.)

Where applicable, describe public outreach and communication activities. In addition, if applicable, describe any new developments in the involvement of local communities and indigenous people in the participatory management of the site, including co-management activities, surveillance and enforcement, and performance evaluation since 2019.

The NGO WildOceans (a programme of the WildTrust), in partnership with iSimangaliso Wetland Park Authority and Ezemvelo KZN Wildlife, have developed resource centres/hubs at three sites directly adjacent to the nesting beaches. These are based at eNkovukeni, KwaDapha and Mabibi and provides a platform for local communities for engaging with management authorities. These hubs provide support for the communities for key initiatives such as building ocean awareness, training, micro-enterprise development, employment opportunities for youth, support for community involvement in conservation activities and tourism opportunities, facilitate access to amenities (e.g. library, play area for children, cell-phone charging stations, printers, computers, and internet access), promote craft production and sales, and demonstrate projects linked to nature-based solutions and climate-smart agriculture.

This partnership also realised the upgrading of management infrastructure and assets that further increased the effectiveness of on the ground management at the site.

Community Turtle Monitors also act as “eyes on the ground”. During night patrols, they report suspicious activities to Ezemvelo KZN Wildlife Conservation managers who try to intervene as soon as possible.

[3] http://www.meteo.fr/temps/domtom/La_Reunion/webcmrs9.0/anglais/faq/FAQ_Ang_G.html

[4] Bachoo, S. 2022. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2021/2022 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa.

In 2022, the NGO Endangered Wildlife Trust (EWT) teamed up with Ezemvelo and turtle expert from the Nelson Mandela University to develop a Species Impact Statement to aid wildlife prosecutors involved in cases of poached loggerhead turtles. This statement provides all of the necessary information required by prosecutors and courts to try cases involving poached loggerhead turtles and elevate the seriousness of these crimes.

For the 2023/2024 Nesting Leatherback and Loggerhead Nesting Season, turtle monitors were issued with smartphones together with an EarthRanger-developed interface that allows for direct-data capture and near instantaneous transmission to cloud storage for retrieval. This allows for the rapid acquisition of high-quality turtle nesting data with GPS-based locations. This not only ensures the security of nesting data, but also allows us to keep track of the turtle monitors and ensure that they carry out their patrols diligently as per protocol.

6. Current / proposed scientific research and monitoring since 2019

Name current and/or proposed scientific research projects and their start and end dates, relating to marine turtles and their habitats. Please describe monitoring activities (e.g., tagging, satellite tracking, genetic sampling, nesting and foraging ground surveys, ongoing beach monitoring, etc.). Cite relevant published papers in support of the submission.

Monitoring Programme

The long-term nesting leatherback and loggerhead turtle monitoring programme continues to be implemented annually. This has been in place since 1963 and has just exceeded 60 years of implementation! This programme encapsulates flipper tagging and beach monitoring during the nesting season. Since 2019, the following reports are available:

- Bachoo, S. 2024. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2022/2023 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa.
- Bachoo, S. 2022. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2021/2022 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa.
- Bachoo, S. 2021. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2020/2021 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa.
- Bachoo, S. 2020. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2019/2020 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa.

Research since 2019

- Diane Le Gouvello. 2019. Investigating the fitness of sea turtles nesting in South Africa (PhD).
- Ryan Rambaran. 2020. Defining the potential ecological roles of three sea turtle species (Caretta caretta, Chelonia mydas and Eretmochelys imbricata) along the eastern seaboard of South Africa (MSc).
- Michaela King. 2023. Nest site selection and nest site fidelity in sea turtles (MSc).

Proposed Research (2024 – onwards)

- Evaluating the Sustainability of Sea Turtle Conservation Approaches (Amanda Robbins)

7. Briefly describe current financial as well as capacity-building needs

Identify fundraising and capacity building needs for the site (e.g. in relation to monitoring, management interventions, surveillance and enforcement, and performance evaluation).

Monitoring

- The flagship nesting leatherback and loggerhead nesting turtle monitoring programme costs approximately R1000000.00 to implement annually.
- Ezemvelo has been extremely fortunate in having strong support from management authorities especially the National Department of Forestry, Fisheries and the Environment as well as the iSimangaliso Wetland Park Authority that provided the bulk of the funding for the monitoring programme over the past 2 seasons.

- Support (financial and in-kind) from Non-Governmental Organisations (NGO's) like the WildTrust as well as The Turtle Trust has also been critical in helping Ezemvelo fulfil its mandate of turtle protection and endangered species monitoring.

Management Interventions, Surveillance and Enforcement

- Staff vacancies and critical posts not being filled remain a challenge and as such, management interventions, surveillance and enforcement becomes difficult to implement. This is due to reduced subsidies and cutback in government spending with the fiscus being redirected to other priorities like healthcare, education etc. Fundraising is critically needed to recruit staff to the site.
- Surveillance and enforcement has been bolstered though due to partnerships with NGO's like WildOceans (a programme of the WildTrust) where funding has been raised to equip stations with vehicles and upgraded facilities that are capable of undertaking these activities.

8. References since 2014

List any new references relevant to marine turtle records and to the site, including management plans, major scientific reports, scientific articles and bibliographies. When a large body of published material on the site is available, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies. Reprints or copies of the most important literature should be appended whenever possible. Provide website addresses of references where available.

- Pilar Santidrián Tomillo, Vincent S. Saba, Claudia D. Lombard, Jennifer M. Valiulis, Nathan J. Robinson, Frank V. Paladino, James R. Spotila, Carlos Fernández, Marga L. Rivas, Jenny Tucek, Ronel Nel & Daniel Oro. 2015. Global analysis of the effect of local climate on the hatchling output of leatherback turtles. Scientific Reports. 5:16789. DOI: 10.1038/srep1678.

- Peter G Ryan, Georgina Cole, Kevin Spiby, Ronel Nel, Alexis Osborne and Vonica Perold. 2016. Impacts of plastic ingestion on post-hatchling loggerhead turtles off South Africa. Marine Pollution Bulletin 107(1). DOI: 10.1016/j.marpolbul.2016.04.005

- Linda Rozanne Harris, Ronel Nel, Herman Oosthuizen, Michael Meyer, Deon Kotze, Darell Anders, Steven McCue and Santosh Bachoo. 2015. Paper-efficient multi-species conservation and management is not always field-effective: the status and future of Western Indian Ocean leatherbacks. Biological Conservation. Vol. 191

- Nathan J. Robinson, Roksana Majewska, Eric A. Lazo-Wasem, Ronel Nel, Frank V. Paladino, Lourdes Rojas, John D. Zardus & Theodora Pinou. (2016) Epibiotic Diatoms Are Universally Present on All Sea Turtle Species. PLoS ONE 11(6): e0157011. DOI:10.1371/journal.pone.0157011

- Nathan J. Robinson, Stephen J. Morreale, Ronel Nel & Frank V. Paladino.2016. Coastal leatherback turtles reveal conservation hotspot. Scientific Reports 6:37851. DOI: 10.1038/srep37851

- Diane. Z. M. Le Gouvello, Ronel Nel, Linda Rozanne Harris and Karien Bezuidenhout. 2017. The response of sandy beach meiofauna to nutrients from sea turtle eggs. Journal of Experimental Biology and Ecology. 487: pp 94-105. DOI: 10.1016/j.jembe.2016.11.017

- Nathan J. Robinson, Kelly R. Stewart, Peter H. Dutton, Ronel Nel, Frank V. Paladino & Pilar Santidrián Tomillo. 2017. Standardising curved carapace length measurements for leatherback turtles, *Dermochelys coriacea*, to investigate global patterns in body size. Herpetological Journal. Volume 27, 231–234.

- Nathan J. Robinson, S.J Morreale, Ronel Nel, Frank V Paladino. 2017. Movements and diving behaviour of inter-nesting leatherback turtles in an oceanographically dynamic habitat in South Africa. Marine Ecology Progress Series 571: pp 221-237. DOI:10.3354/meps12136

- Diane. Z. M. Le Gouvello, Ronel Nel, Linda Rozanne Harris, Karien Bezuidenhout & Stephan Woodborne. 2017. Identifying potential pathways for turtle-derived nutrients cycling through beach ecosystems. Marine Ecology Progress Series 583. DOI: 10.3354/meps12351

- Marinus Du Preez, Ronel Nel, Hindrik Bouwman. 2018. First report of metallic elements in loggerhead and leatherback turtle eggs from the Indian Ocean. Chemosphere 197(5). DOI: 10.1016/j.chemosphere.2018.01.106

- Linda R. Harris, Ronel Nel, Herman Oosthuizen, Mike Meyer, Deon Kotze, Darrel Anders, Steven McCue and Santosh Bachoo. 2018. Managing conflicts between economic activities and threatened migratory marine species toward creating a multiobjective blue economy. Conservation Biology. Vol. 32, No. 2, 411-423

- Nathan J. Robinson, Darell Anders, Santosh Bachoo, Linda Harris, George R. Hughes, Deon Kotze, Seshnee Maduray, Steven McCue, Michael Meyer, Herman Oosthuizen, Frank V. Paladino & Paolo Luschi. 2018. Satellite Tracking of Leatherback and Loggerhead Sea Turtles on the Southeast African Coastline. Indian Ocean Turtle Newsletter. No 28

- Deidre de Vos, Ronel Nel, David S Schoeman, Linda Rozanne Harris and Derek Richard du Preez. 2019. Effect of introduced Casuarina trees on the vulnerability of sea turtle nesting beaches to erosion. Estuarine Coastal and Shelf Science 223. DOI: 10.1016/j.ecss.2019.03.015

- Jonathan R. Monsinjon, Jeanette Wyneken, Kirt Rusenko , Milagros López-Mendilaharsu, Paulo Lara , Alexsandro Santos, Maria A.G. dei Marcovaldi, Mariana M.P.B. Fuentes, Yakup Kaska, Jenny Tucek, Ronel Nel, Kristina L. Williams, Anne-Marie LeBlanc, David Rostal, Jean-Michel Guillon & Marc Girondot. 2019. The climatic debt of loggerhead sea turtle populations in a warming world. Ecological Indicator : August 2019.

- Roksana Majewska, Käthe Robert, Bart Van de Vijver & Ronel Nel (2019): A new species of *Lucanicum* (Cyclophorales, Bacillariophyta) associated with loggerhead sea turtles from South Africa, Botany Letters, DOI: 10.1080/23818107.2019.1691648

- Diane. Z. M. Le Gouvello, Marc Girondot, Santosh Bachoo, Ronel Nel. 2020. The good and bad news of long-term monitoring: an increase in abundance but decreased body size suggests reduced potential fitness in nesting sea turtles. Marine Biology. 167: 112

- Roksana Majewska, Matt P. Ashworth, Suncica Bosak, William E. Goosen, Christopher Nolte, Klara Filek, Bart Van de Vijver, Jonathan C. Taylor, Schonna R. Manning & Ronel Nel. 2020. On Sea Turtle-Associated *Craspedostauros* (Bacillariophyta), with Description of Three Novel Species. Journal of Phycology · October 2020. DOI: 10.1111/jpy.13086

- Christopher R Nolte, Maya C. Pfaff, Ander M. de Lecea Diane le gouvello & Ronel Nel. 2020. Stable isotopes and epibiont communities reveal foraging habitats of nesting loggerhead turtles in the South West Indian Ocean. Marine Biology 167(162). DOI: 10.1007/s00227-020-03767-x

- Ronel Nel, Linda R. Harris, Kerry J. Sink, Santosh Bachoo, Sarika Singh and Laurenne Snyder. 2020. Tamsyn the Leatherback Turtle Validates Locations of New MPAs in South Africa. Indian Ocean Turtle Newsletter. Number 32

- Dalleau M., Bourjea J., Nel R. (Eds.) (2020). Sea Turtles in the East Africa and the West Indian Ocean Region: MTSG Annual Regional Report 2020. Report of the IUCN-SSC Marine Turtle Specialist Group, 2020.

- Bachoo, S. 2020. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2019/2020 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa.

- Bachoo, S. 2021. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2020/2021 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa

- Casper H. van de Geer, Jérôme Bourjea, Annette C. Broderick, Mayeul Dalleau, Raquel S. Fernandes, Linda R. Harris, Gelica E. Inteca, Fikiri K. Kiponda, Cristina M. M. Louro, Jeanne A. Mortime, Daudi Msangameno, Lily D. Mwasi, Ronel Nel, Gladys M. Okemwa, Mike Olendo, Marcos A. M. Pereira, Alan F. Rees, Isabel Silva, Sonal Singh, Lindsey West, Jessica L. Williams, Brendan J. Godley. 2022. Endangered Species Research. Vol. 47: 297–331.

- Bachoo, S. 2022. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2021/2022 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa.

- Bachoo, S. 2024. Sea Turtle Conservation and Monitoring in KwaZulu-Natal – A Report on Activities during the 2022/2023 Season. Ezemvelo KZN Wildlife Internal Report, Pietermaritzburg, South Africa.

Please describe how the official designation as an IOSEA Network Site supports conservation efforts. Please also suggest how benefits of inclusion in the Network could be maximized.

This does need to be explored further both in how this can be used to support conservation effort as well as maximising benefits of inclusion as a Network site. It is not apparent at grassroot levels and materials from the Secretariat espousing the benefits would be most welcome.