



**OLIVE RIDLEY
PROJECT**

Registered Charity in the UK #1165905

ANNUAL REVIEW 2022

Protecting sea turtles and their habitats



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ABOUT THE OLIVE RIDLEY PROJECT



A Hawksbill Sea Turtle going up for air

Introduction

Sea turtles have existed on Earth for over 120 million years and there are currently seven species left in the world. These incredible animals grace the waters of all the world's oceans except the Arctic. As a "keystone" species, they play a vital role in ensuring the health of our oceans and marine ecosystems.

Humans rely on the ocean for many things including food, fresh water and oxygen. Saving our ocean is a question of human survival. If sea turtles become extinct, the whole marine ecosystem — the planet's largest — will weaken.

Sea turtles face many threats to their survival. Some of the biggest threats to sea turtles include: entanglement in marine debris, poaching, bycatch, and destruction of feeding and nesting habitats.

Our Mission

ORP is on a mission to protect sea turtles and their habitats through rescue and rehabilitation, scientific research, education and outreach.

Our Vision

Our vision is a world where sea turtles can roam free from human induced threats.

Olive Ridley Project (ORP) is a registered charity in: England & Wales (1165905)
Maldives (CR/04/2022)

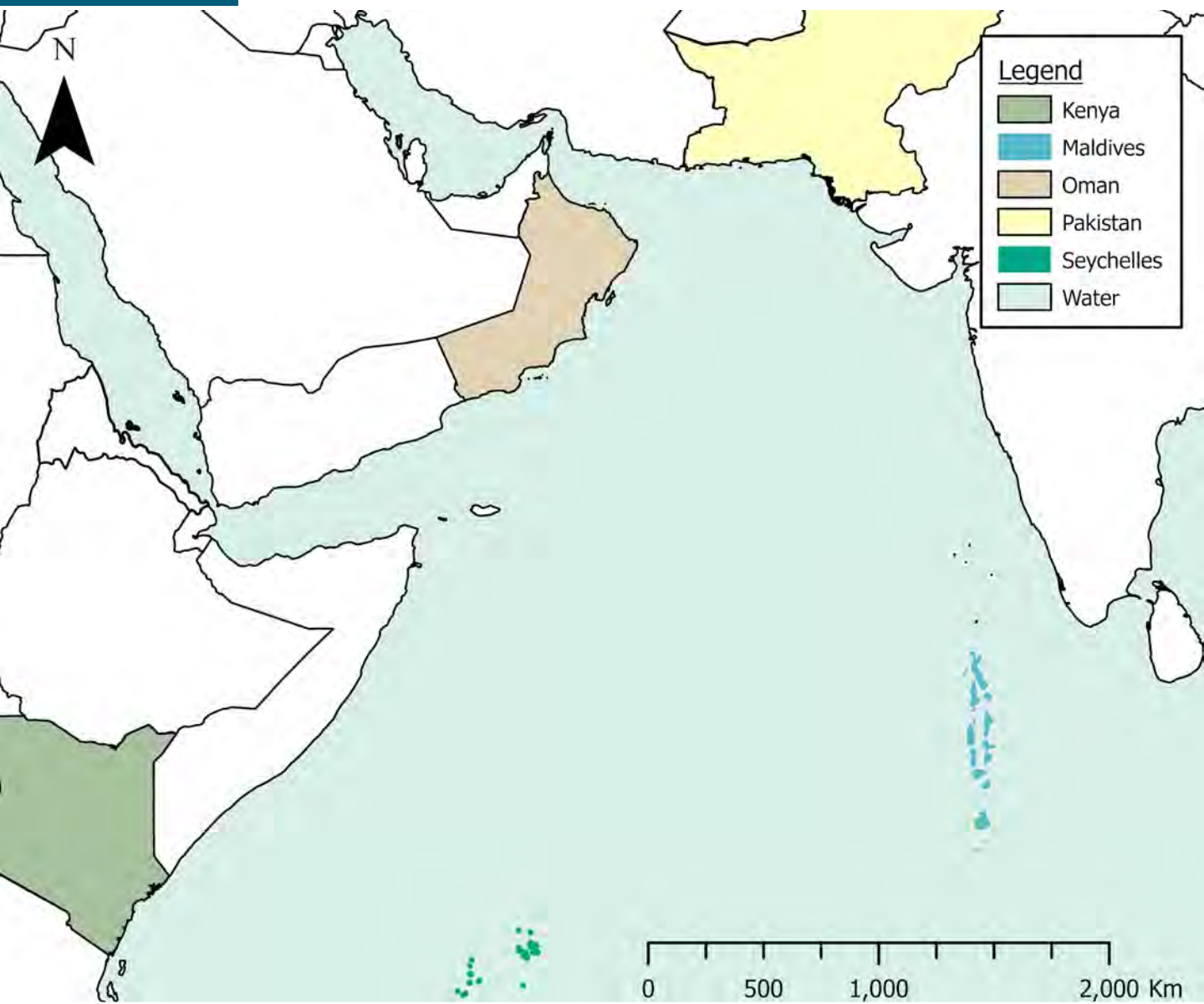
Our Story

ORP was founded in 2013 by Dr Martin Stelfox. During his time working as a biologist in the Maldives, he encountered an alarming number of olive ridley turtles entangled in ghost nets (abandoned or lost fishing gear). Curious to understand why this was happening and where the nets were coming from, he enlisted the help of other biologists and citizen scientists to help answer these questions. Since then, ORP has expanded its mission and take a multifaceted and holistic approach to protecting sea turtles and their habitats globally. The name remains as a reminder of our humble beginnings and how it all started.

At the core of our work is a passionate and dedicated team of scientists, veterinarians, conservationists, citizen scientists and volunteers. We also collaborate with NGOs, governments, research institutions, industries and other essential stakeholders to achieve our joint vision of sea turtle conservation.

ORP's work fits within the United Nations (UN) Sustainable Development Goals (SDGs) numbers 13 (Climate Action), 17 (Global Partnership for Sustainable Development) and 14 (Life Below Water), which aims to: 'Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution' and 'Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration.'

OUR BASES



Kenya

Established: 2018
Base: Diani Beach
Main Activities: Sea turtle population research and habitat connectivity.

The Maldives

Established: 2013
Bases: Baa, Laamu, Lhaviyani, North Malé, Noonu, Raa, Shaviyani atolls
Main Activities: Sea turtle rescue and rehabilitation, sea turtle ecology research, ghost gear recovery, mitigation and research, educational outreach.
Facilities: Martine Turtle Rescue Centre, Baa Atoll and Sea Turtle Rehabilitation Centre, North Malé Atoll.

Oman

Established: 2015
Base: Musandam
Main Activities: Sea turtle population research, ghost gear recovery, research and mitigation, educational outreach.

Pakistan

Established: 2015
Bases: Abdul Rehman Goth & Kakapir, Karachi
Main Activities: Ghost gear recovery, mitigation and repurposing and educational outreach.

Seychelles

Established: 2021
Base: Félicité Island
Main Activities: Sea turtle population research, habitat connectivity and threats.

THE ORP TEAM 2022



Dr. Michael Sweet
Trustee



Cliona Kirby
Trustee



Lee Cannan
Trustee/Treasurer



Amanda Costain
Trustee



Zacari Edwards
Trustee



Dr Martin Stelfox
Founder & CEO



Jannicke C Hallum
COO



Dr Stephanie Köhnk
Senior Project Scientist



Dr Claire Petros
Lead Veterinary Surgeon



Dr Jillian Hugins
Scientific Advisor



Dr Max Polyak
Scientific Advisor



Anadya Singh
Communications Officer



Risha Ali Rasheed
Volunteer & Educational
Outreach Officer



Susie Gibson
Graphic Designer



Rushan bin Abdul Rahman
Spatial Ecology Researcher



Jane Lloyd
GIS Ecologist Researcher



Ibrahim Shameel
Liaison Officer



George Evans
Education & Outreach
Assistant



Dr. Joana Hancock
Project Manager
KENYA



Jenni Choma
InField Supervisor
KENYA



Leah Mainye
Project Coordinator
KENYA



Juma Gwerenya
Research Assistant
KENYA



Tom Osborne
Sea Turtle Biologist
OMAN



Usman Iqbal
Project Manager
PAKISTAN



Asif Baloch
Project Coordinator
PAKISTAN



Waqar J Khan
Community Leader
PAKISTAN



Muhammad Hanif
Field Coordinator
PAKISTAN



Lara Kalish
Sea Turtle Biologist
SEYCHELLES

THE ORP TEAM 2022



Dr Mariana Fragoso
Resident Veterinary Surgeon
MALDIVES



Dr June Ang
Resident Veterinary Surgeon
MALDIVES



Dr Minnie Liddell
Resident Veterinary Surgeon
MALDIVES



Lauren Valentine
Veterinary Nurse
MALDIVES



Isha Afeef
Project Manager
MALDIVES



Afrah Abdul Sathaar
Sea Turtle Biologist
Baa Atoll, MALDIVES



Julian Gervolino
Sea Turtle Biologist
Laamu Atoll, MALDIVES



Emily Mundy
Sea Turtle Biologist
Lhaviyani Atoll, MALDIVES



Rosie Brown
Sea Turtle Biologist
Noonu Atoll, MALDIVES



Joe Rigby
Sea Turtle Biologist
North Malé Atoll, MALDIVES



Olivia Forster
Sea Turtle Biologist
Raa Atoll, MALDIVES



Neus Segura
Sea Turtle Biologist
Shaviyani Atoll, MALDIVES



Mariyam Niuma
Sea Turtle Biologist
North Malé Atoll, MALDIVES



Moosa Mohamed
Sea Turtle Biologist
North Malé Atoll, MALDIVES



Aminath Angeela
Sea Turtle Biologist
Laamu Atoll, MALDIVES



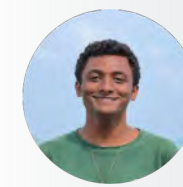
Afrah Abdul Sathaar
Intern
MALDIVES



Sarah Ibrahim
Intern
MALDIVES



Mariyam Niuma
Intern
MALDIVES



Abdulla Swift Hameed
Intern
MALDIVES



Adam Naahi Fauzi
Intern
MALDIVES



Mohamed Naaif
Communications Intern
REMOTE

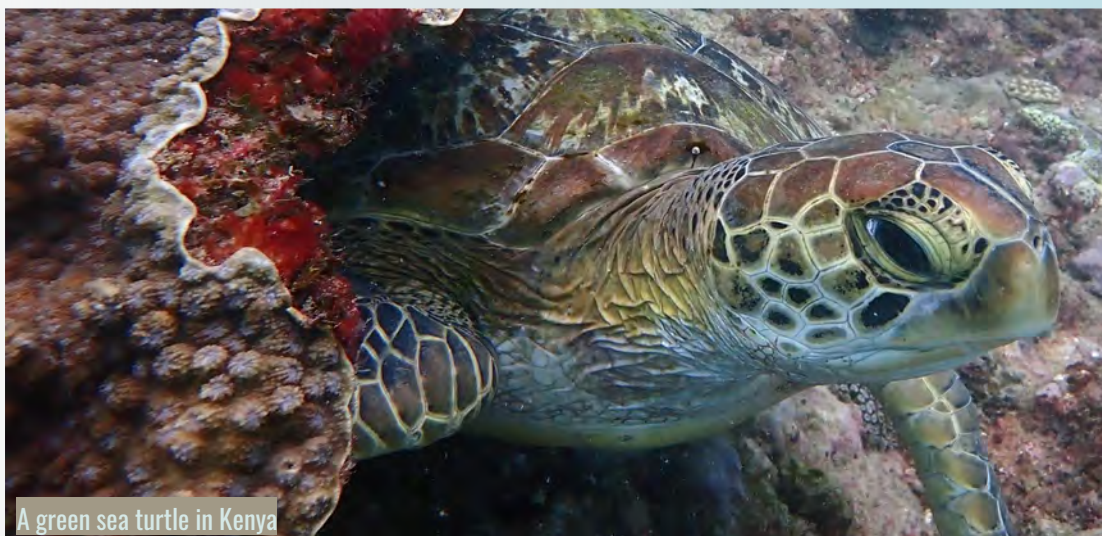


Andy Torbet
Ambassador



Matt Sorum
Ambassador

Executive Summary



A green sea turtle in Kenya

Welcome to the 2022 annual review for the Olive Ridley Project (ORP). As we near the charity's 10th anniversary, we reflect on how far we have come since our humble beginnings.

ORP's initial objective was focused on the single threat of sea turtle entanglement in abandoned, lost or discarded fishing gear (ALD) in the Maldives. These early observations provided the catalyst that spearheaded the project from concept to charitable status in 2016.

In addition to scientific research and ghost gear recovery, ORP began focusing on sea turtle rescue and rehabilitation as well as education and outreach early on. We opened the first veterinarian-run marine turtle rescue centre in the Maldives in 2017, followed by a rehabilitation centre in 2019.

As ORP expanded its workforce and technical abilities, we decided to take a more holistic approach to sea turtle conservation. This was achieved by shifting ORP's mission from 'protecting sea turtles in the Indian Ocean from ghost gear' to 'protecting sea turtles and their habitats everywhere'. This new mission is achieved through three core pillars: rescue and rehabilitation, scientific research, and education and outreach. Our charitable objectives were officially altered to reflect this change in 2022.

ORP has continued to grow over the years with current bases in Kenya, Oman, Pakistan and the Seychelles in addition to the Maldives. The team now counts more than 30 experts in various disciplines. We are at the forefront of sea turtle conservation, assisting local policy makers, working with governments and fishing communities, and collaborating with a number of research institutes and advocacy groups.

At the end of 2021, ORP received a very generous donation which allowed us to bring forward programmes planned for 2023-2026. These initiatives include new research priorities and expansion of the team in core areas in line with our goal to make the charity financially sustainable for the long term and providing a safe and supportive working environment.

On the rescue and rehabilitation front (see page 15) we expanded our veterinary team to include a resident veterinary nurse at the Marine Turtle Rescue Centre in Baa Atoll. This role is an essential part of any veterinary team, providing both clinical and administrative support. Adding a veterinary nurse to the team has allowed us to take our veterinary practices to new levels and provide even better care for our patients. We also started work to expand and improve the clinic at the Marine Turtle Rescue Centre and continued construction of two more rehabilitation facilities in the Maldives.

Executive Summary *(contd.)*

We were able to diversify and expand our analyses of sea turtle populations, distribution, health and threats in the last year and continue to build upon our spatial ecology, parasitology, sea turtle behaviour, genetics and fishery related threats research. This year we have set up several initiatives to take advantage of new and existing technology to help us fill data gaps in sea turtle knowledge. These research projects include:

- Satellite tagging of released olive ridley turtle patients to gain insights into the feeding and migration habits of olive ridley sea turtles – a pelagic species about which little is known beyond their arribada nesting behaviour.
- The employment of temperature and humidity loggers as part of our nest monitoring research to improve our understanding of incubation conditions and their effect on hatching success.
- The use of drones to monitor nesting beaches and increase our observer coverage. In conjunction with AI technology, we hope to unravel several mysteries about sea turtles over the coming years, identify new nesting beaches and be able to better protect known nesting beaches against poaching.

Education and outreach (see page 51) remains a strong focus point for ORP and we were delighted to be able to add a full-time volunteer, education and outreach officer to the team in 2022. Tasked with overseeing and streamlining all educational initiatives across the charity, launching a sea turtle guardian training programme, and improving our internship and volunteer programmes, this role is key for ORP to achieve our goal of increasing capacity for sea turtle conservation at the grassroots level. A highlight of 2022 was the Vaavoshi festival - the first multi-atoll sea turtle festival to be arranged in the Maldives (see page 54).

Our site expansions in 2022 include two new bases in Shaviyani and Baa atolls in the Maldives through new partnerships with Fairmont Sirru Fen Fushi and Amilla

Maldives Resort & Residences respectively. We also restarted our project in Oman after a two year hiatus brought on by the Covid-19 pandemic.

Our team in Kenya is growing and our activities and research areas expanding and diversifying (see page 38). We joined forces with Pwani University to investigate sea turtle health through genetics and started a pilot study with the Arribada Initiative using Snapper GPS receivers to help us understand fine-scale movements of green turtles in foraging areas.

In the Seychelles (see page 44), one of the top five nesting grounds in the world for the critically endangered hawksbill, we began our nesting protocols and had a very successful first year of data collection.

And finally, we added two new members to the team in Pakistan (see page 48), expanded to Kakapir village which is located between Sandspit, one of Pakistan's most prolific sea turtle nesting beaches, and Hawke's Bay, and initiated sea turtle Photo-ID and nest monitoring research.

As we move into 2023 and reflect on how far we have come from our humble beginnings, we recognise that our achievements would not have been possible without the hard work of our dedicated and passionate team, the invaluable contributions by our citizen scientists and our volunteers, project partners and supporters. We would like to extend our sincere gratitude for your commitment to protecting sea turtles and their habits and supporting the incredibly important work we do, and we look forward to working with you all in 2023 and beyond.

We hope you enjoy reading more about our achievements in 2022 in this Annual Review.

- Dr. Martin Stelfox, CEO and Founder



Advocacy is an important part of ORP's mission. We build evidence through research and use our findings to guide policy creation to protect sea turtles and their habitats.

In 2021, the Ministry of Environment, Climate Change and Technology invited ORP to become members of the Marine Reptile Working Group in the Maldives and lead the assessment for olive ridley, green and hawksbill turtles. Finally, in 2022, the report, better known as the IUCN Red List Assessment for Maldives, was published providing a clear assessment of each species status in the Maldives. This assessment will lay the foundations for research priorities and conservation action for all sea turtles species in the Maldivian Archipelago, including the forthcoming sea turtle management plan.

R.Vandhoo was identified as one of the 14 most significant sea turtle nesting hotspots in the Maldives by the Ministry of Fisheries and Agriculture (MoFA) in 2006. Towards the end of 2022, the Ministry of Environment, Climate Change and Technology (MoECCT) began discussions with ORP and Waste Management Corporation Limited (WAMCO) on how best to monitor and protect nesting sea turtles on R. Vandhoo. MoECCT currently hosts the Regional Waste Management Centre on the island, which is operated by WAMCO. The aim is to develop a multiple stakeholder agreement to begin this project in early 2023.

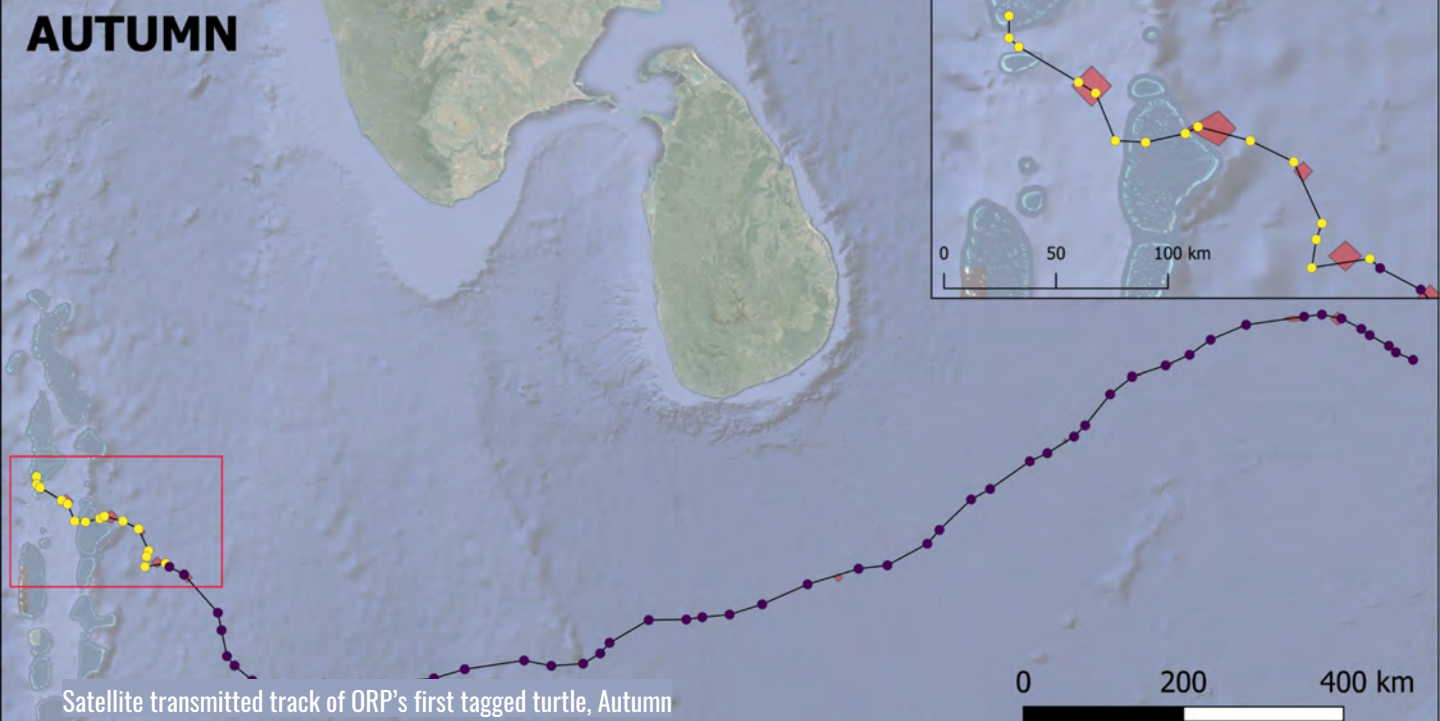
Discussions around a second historically significant nesting site in Maldives, L.Gaadhoo in Laamu Atoll, have been underway for much of 2022. Stakeholders including the Environment Protection Agency (EPA), AgroNat, Laamu Atoll Council, Fonadhoo Council, Six Senses Laamu and ORP are working together to establish long term monitoring and nest protection programme on the island. We hope to kick off the project in early 2023, which includes a sea turtle ranger and the use of drones.

In April 2022, ORP and other environmental organizations urged the Indian Ocean Tuna Commission and the International Commission for the Conservation of Atlantic Tunas to adopt robust Fish Aggregating Devices (FAD) management measures, including greater transparency in data submissions, 100% biodegradable FADs, and non-entangling FADs without netting or mesh materials. By 2023, a transparent FAD-recovery policy, a marking scheme, clearer rules for ownership, and stronger rules for activation and deactivation of FAD buoys should be developed. ORP also supported a call to the Inter-American Tropical Tuna Commission to specifically revise [resolution C-21-04](#) and adopt stronger FAD management measures. We hope that these proposed changes are looked into by 2023 to prevent gear loss and subsequent sea turtle entanglements.

- Dr. Martin Stelfox, CEO & Founder

SCIENTIFIC RESEARCH





SCIENTIFIC RESEARCH

In 2022, we implemented and extended many of the research projects initiated in the previous year, aiming to improve our analysis of sea turtle populations, distribution, health and threats in the Indian Ocean.

Our satellite tagging project #ORPTrack, led by ORP Spatial Ecology Researcher, [Rushan Bin Abdul Rahman](#), kicked off in 2022, with two satellite tags successfully deployed with the assistance of our former Resident Veterinary Surgeon [Dr Minnie Liddell](#) and Sea Turtle Biologist [Joe Rigby](#).

Together, the tags collected movement data over 121 days and over 4,700km for the two rehabilitated olive ridley turtles carrying them (see example of track above). Preliminary analyses provided us with first insights into seascape use and movement patterns of both sea turtles. Nine additional tags have been purchased with the help of our generous supporters and are being prepared for an exciting tagging season in 2023.

In addition to our nest monitoring projects in Maldives and Seychelles, we implemented a new technique to improve our understanding of incubation conditions: we now collect sand temperature and humidity data in three atolls and on Félicité Island. This is the first step towards understanding hatchling sex ratios in these locations and comparing them to data from other nesting beaches.

Furthermore, results from our nest monitoring efforts, a study evaluating the socioeconomic value of sea turtles in Maldives, and another summarizing risk factors and health conditions influencing the outcome of rescue and rehabilitation, were presented at the Fourth Maldives Marine Science Symposium in Malé in August 2022.

The sampling expedition for sea turtle population genetics in the Maldives, in close cooperation with the Environmental Protection Agency planned for Q2 of 2022 was unfortunately delayed due to unforeseen circumstances. A one-day training trip for all participants was executed in September 2022 and we are now aiming to complete the expedition in 2023.

In Kenya, we initiated a new partnership with Pwani University to extend our in-water studies investigating sea turtle health. Additionally, we started testing experimental satellite trackers in cooperation with the Arribada Initiative to help develop low-cost fine-scale tracking methods for sea turtles.

We are looking forward to 2023, a year in which we will continue to pursue our goal of filling knowledge gaps, advance our research and explore new opportunities.

- Dr. Stephanie Köhnk, Senior Project Scientist



An ORP Sea Turtle Biologist collecting Photo-ID

SEA TURTLE POPULATION RESEARCH

Photographic identification (Photo-ID) is a non-invasive technique used to identify individual animals in a population and track them over time from natural marks on the body. For sea turtles, it relies on capturing photographs of the unique patterns of scales on the animal's face.

Photo-ID can be used as a non-invasive alternative to tagging, and data may be analysed through Capture-Mark-Recapture (CMR) methods. This technique allows researchers to conduct longitudinal studies of individuals, yielding information about home range, survival rate, migration patterns, life cycle and includes groups that are less studied, such as juveniles and males.

We collect sighting data for both nesting and foraging green (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*) sea turtles in Kenya, Maldives, Oman and Seychelles. Olive ridley (*Lepidochelys olivacea*), loggerhead (*Caretta caretta*), and leatherback (*Dermochelys coriacea*) sea turtles are present in these countries, but less regularly sighted.

ORP began collecting new and historical photographs of foraging and nesting turtles from the Maldives in 2014. We have a nine-year data set for some atolls. We started collecting Photo-ID data from Kenya in 2018 and Oman in 2019. Unfortunately, the project in Oman was put on hold in 2020 due to the Covid-19 pandemic, but we successfully reinstated it in 2022. ORP also started a new chapter in the Seychelles at the end of 2021, establishing our Photo-ID database in the country.

ORP aims to help fill the gaps in scientific knowledge by providing detailed information on abundance, distribution, population growth rate, apparent survival, and nesting frequency of hawksbill and green sea turtles. We continue to use the Internet of Turtles (IoT) platform to analyse all turtle sightings from Maldives, Kenya, Oman, and Seychelles. The IoT platform combines data analytics with individual animal tracking and uses computer vision to compare new IDs to the existing database.

In the Maldives, we have recorded 33,889 identified turtle encounters from 5,789 different individuals until the end of 2022, including 574 newly identified turtles. Thanks to all our citizen science contributors for their valuable support in extending the scope of our data collection into areas where no ORP staff were present! Additionally, two new sea turtle biologist positions were established at the end of 2022, extending our research into Shaviyani and reinstating it in Baa Atoll.

In Kenya, there were over 3,769 sightings of 666 identified turtles (173 new individuals in 2022) who are now registered. We have added 265 turtle encounters in Oman in 2022, including 74 new identified individuals, bringing the total number of encounters to 332 and identified turtles to 114.

In our first full year of data collection in the Seychelles, we found 122 new turtles, bringing the aggregate number to 124, spotted over 249 encounters in total.

- Dr. Stephanie Köhnk, Senior Project Scientist



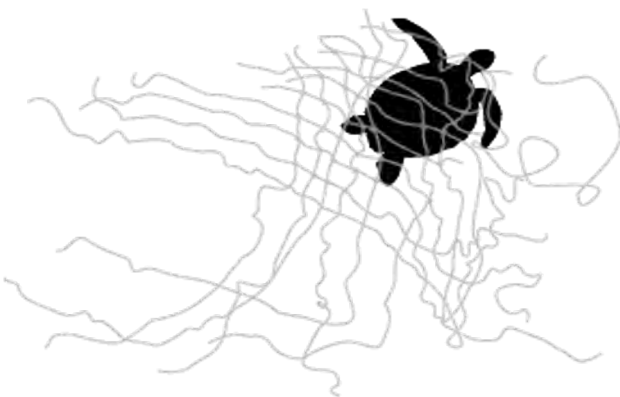
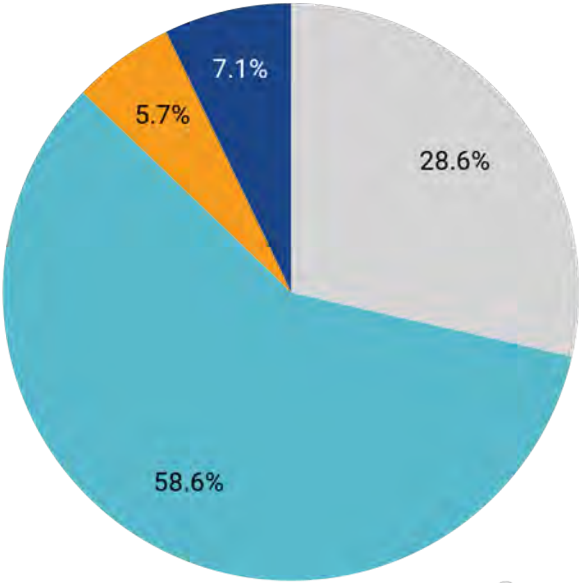
MALDIVES



An entangled olive ridley on a beach in the Maldives

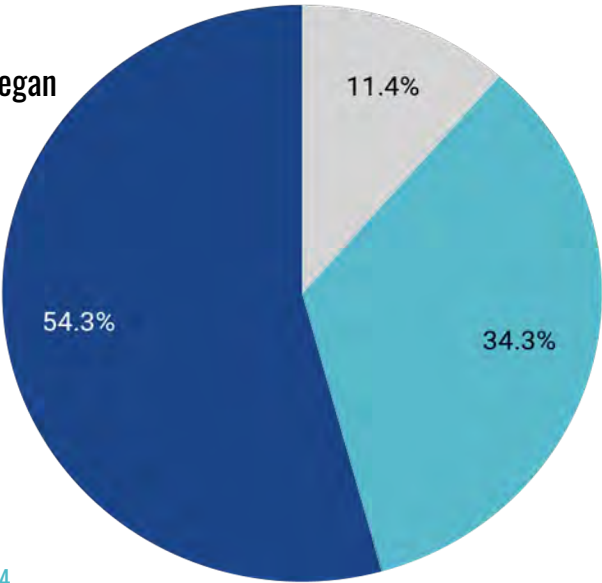
TOTAL NUMBER OF INJURED TURTLES REPORTED: 70

● Floating
 ● Entangled
 ● Blunt Force Trauma
 ● Stranded



● Found Dead
 ● Released immediately
 ● Transferred to rescue centres

Species	This Year	Since Project Began
Olive Ridley	56	967
Green	5	37
Hawksbill	9	104
Other	0	4
Total	70	1,112





Nurse Lauren and Dr. Claire performing surgery

SEA TURTLE RESCUE & REHABILITATION

2022 was another busy year for the veterinary team. We admitted 32 new turtle patients at the Marine Turtle Rescue Centre over the course of last year. The first three months of the year were particularly busy with 18 new patients admitted - the busiest quarter on record. We successfully released 16 patients back to the wild, with two olive ridleys, Autumn and Pickle, becoming our first sea turtle patients to be satellite tracked upon release! You can read more about our satellite tracking research initiative, #ORPTrack on page 11.

Most of our patients were olive ridley turtles, but we also treated one green and four hawksbills. The majority of our patients were found floating rather than entangled this year. However, upon analysis of their injuries, we suspected that most of them had been entangled but managed to free themselves. Unusually, we also had a green entanglement victim.

Unfortunately, we lost 15 of our turtle patients. Three of these died shortly after being admitted with their injuries being too severe or help arriving too late. One of the patients that we could not save was our long-term resident Disco, who had been with us over two years. Disco was found floating with a missing front flipper and suffering from severe buoyancy syndrome. An endoscopy procedure in April 2022 revealed incredibly abnormal lungs with severe pathologic changes, especially in her left lung, as well as a damaged liver. Disco's case shows how ghost gear entanglement can cause grave external injuries as well as devastating damage to internal organs.

Another long term resident also left us in 2022, but under happier circumstances! Heidi finally moved to his forever home at the National Marine Aquarium in Plymouth, UK. His journey to the UK was kindly sponsored by British Airways and his transfer to Malé was supported by Trans Maldivian Airways. Heidi is now living in a much larger tank surrounded by many new fish friends.

We have also been working on expanding our sea turtle rescue and rehabilitation facilities, including our clinic at the Rescue Centre. Two new rehabilitation centres are under construction at our partner resorts Soneva Jani (Noonu Atoll) and JOALI BEING (Raa Atoll) in the Maldives. The Rescue Centre at Coco Palm Dhuni Kolhu will soon have a surgical suite and a clinical lab next door - twice the space we currently have. We would like to thank Coco Collection for their continued support and for making this possible.

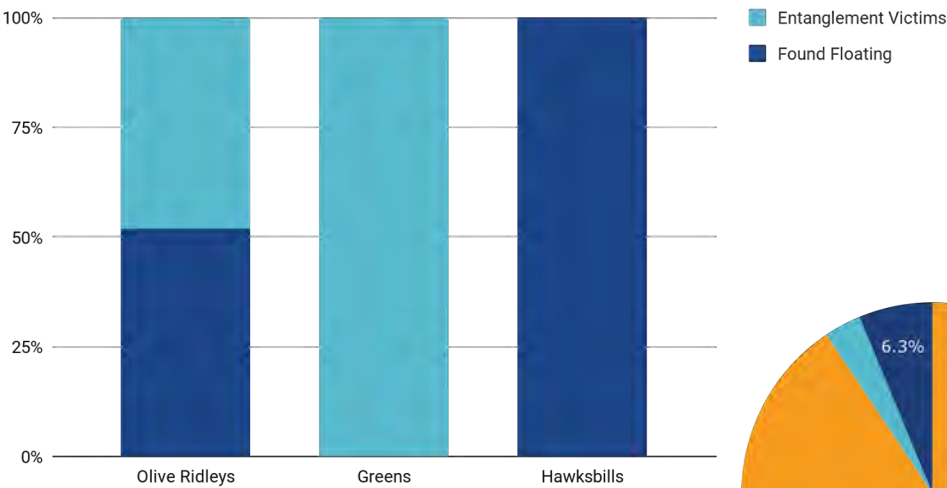
In June, we welcomed our first Veterinary Nurse to the Rescue Centre - [Lauren Valentine](#). The veterinary nurse role is an essential part of any veterinary team, providing both clinical and administrative support. Thanks to Lauren's presence and expertise, we have been able to elevate our veterinary practices and provide even better care for our patients. Resident Veterinary Surgeon, Dr Minnie Liddell left Maldives after 18 months in April 2022. She was followed by Dr June Ang, who took over for six months, before [Dr Mariana Fragoso](#) joined our veterinary team at the end of the year.



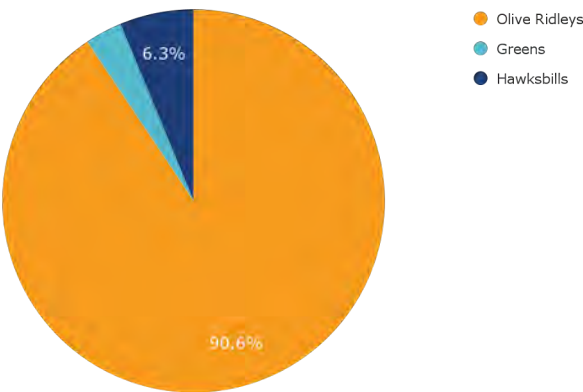
Biscuit, a ghost gear victim at the rescue centre

TURTLE PATIENTS

Reason for admittance by species



Patients by species



	This Year	Since Opening
New Patients Admitted	32	196
Turtles Released	16	118
Turtles Deceased	15	72
Patients Still in Care (ORP/Others)	6	6

VISITING VETS & EXPERTS

Our Visiting Vet Programme ran at full capacity in 2022 for the first time in two years. This programme has three main aims: to give exotic animal veterinarians the opportunity to work with wild sea turtles and learn from us; for our resident veterinary team to learn new techniques from other experts and continue their professional training; and to provide training to veterinarians who work with sea turtles in locations where no sea turtle training is available. We welcomed five visiting vets from four countries in the last year.

We also welcomed several other experts to the Rescue Centre in 2022. In May, Arribada Initiative visited our Rescue Centre to trial pilot satellite tags on our patients, as they aim to create cost-effective tags for future tracking projects. We were also a part of an exchange with Project Biodiversity, a conservation non-profit organisation committed to protecting wildlife in Cape Verde. Dr Claire Petros visited Cape Verde in August to establish whether there is a need for a rescue centre there. Meanwhile, Albert Taxonera, the Executive Director of Project Biodiversity visited the Rescue Centre, along with his Scientific Coordinator, Kirsten Fairweather. This was a great opportunity for knowledge exchange, with the veterinary team providing clinical experience in treating sea turtles, and Albert in turn sharing his extensive knowledge of community led programmes and the use of drones for nest monitoring.



Visiting Vet Dr Erik from Kenya and volunteers checking a patient



The Arribada Initiative with the Rescue Centre team

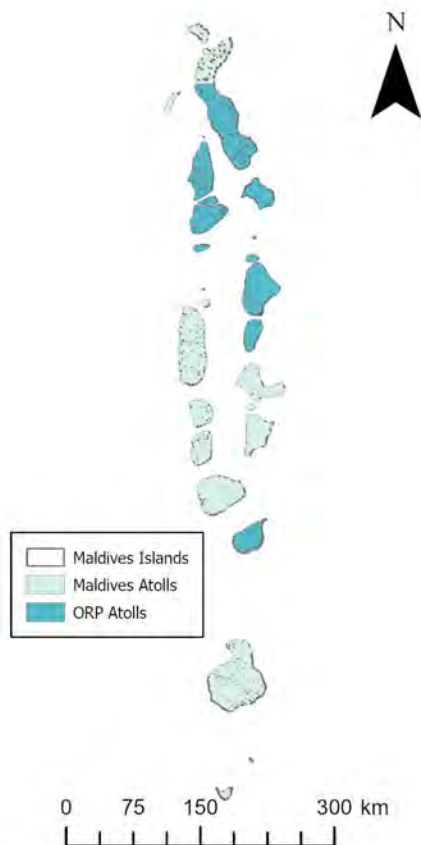
VOLUNTEERS



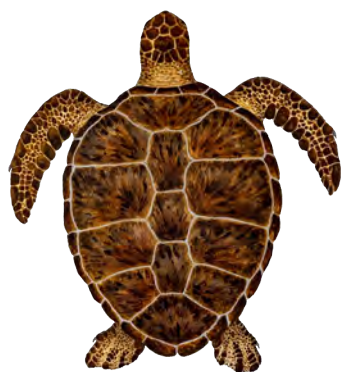
Volunteers and veterinary team in action

Volunteers are essential in the everyday running of the Marine Turtle Rescue Centre. They assist with all aspects of sea turtle rescue and rehabilitation, including treating wounds, helping with routine medical exams, observing surgeries, diet preparation, feeding, tank and turtle cleaning. Some lucky volunteers even get to experience hatching events! We welcomed 60 volunteers from 14 countries to the Rescue Centre in 2022 and we would like to thank them for their valuable contributions.

- Dr Claire Petros, Lead Veterinarian



TURTLE SIGHTINGS & NEW INDIVIDUALS: MALDIVES



GREENS

Total Sightings: 11,669
Total Individuals: 1,326



HAWKSBILLS

Total Sightings: 22,206
Total Individuals: 4,463

	This Year	Total Since Records Began
Total Number of Turtle Sightings	4,343	33,889
Total Number of New Individuals	574	5,789



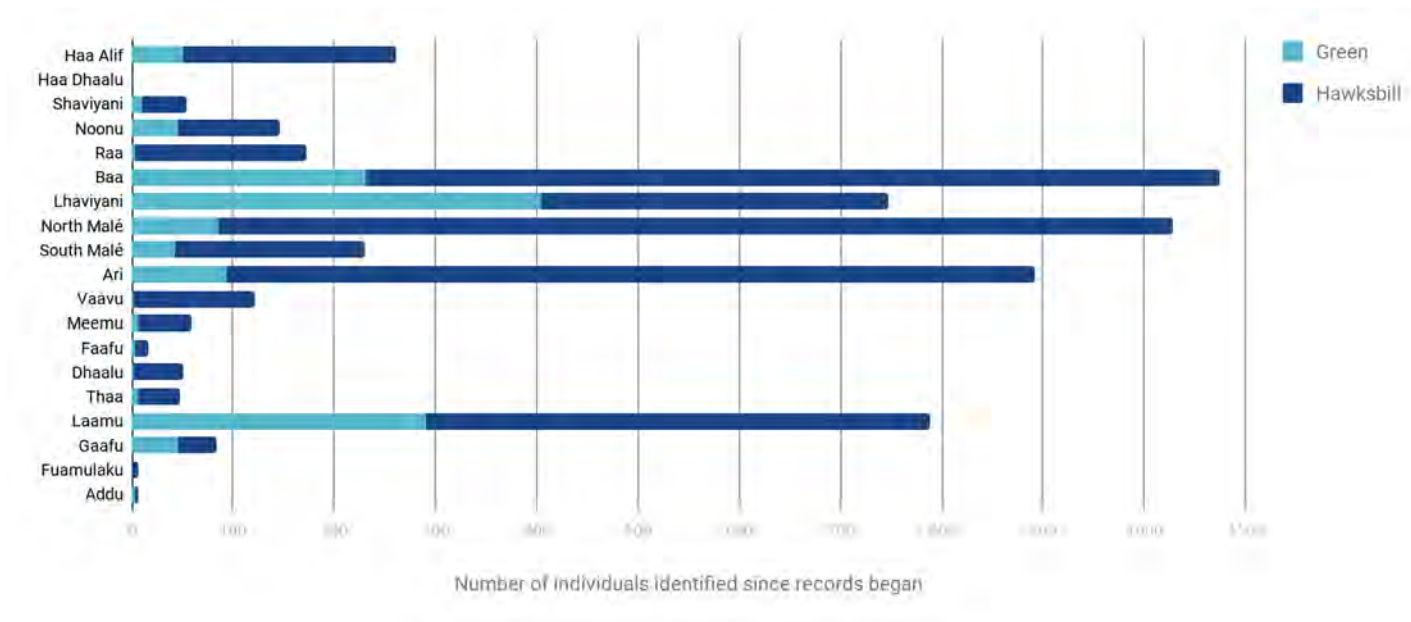
A Juvenile green turtle in a seagrass meadow

TURTLES IN MALDIVES

2022 was a very successful year for our Photo-ID research, with 574 newly identified sea turtles being registered: 176 greens and 398 hawksbills!! We're proud of this achievement, which was only possible thanks to the excellent submissions from our citizen science contributors.

This year, North Malé became the second atoll from our database to surpass 1000 registered individuals. With 1028 identified individuals, it comes a close second to Baa Atoll, which recorded a total of 1075 turtles. North Malé remains the atoll with the largest number of recorded hawksbills in the country to date - 942 individuals are registered here. The second and third largest number of hawksbills have been identified in Baa (844) and Ari (798). Lhaviyani Atoll remains the only atoll where the number of known green turtles exceeds the number of hawksbills, with 404 green turtles over 343 hawksbills. The second and third largest number of green turtles can be found in Laamu (290) and Baa Atoll (231).

The large number of resorts in the central atolls, as well as a consistent effort by our team members in certain atolls has resulted in better data coverage. The northern and southern atolls still have fewer turtles photographed and we hope to extend our data collection in those areas in the future.



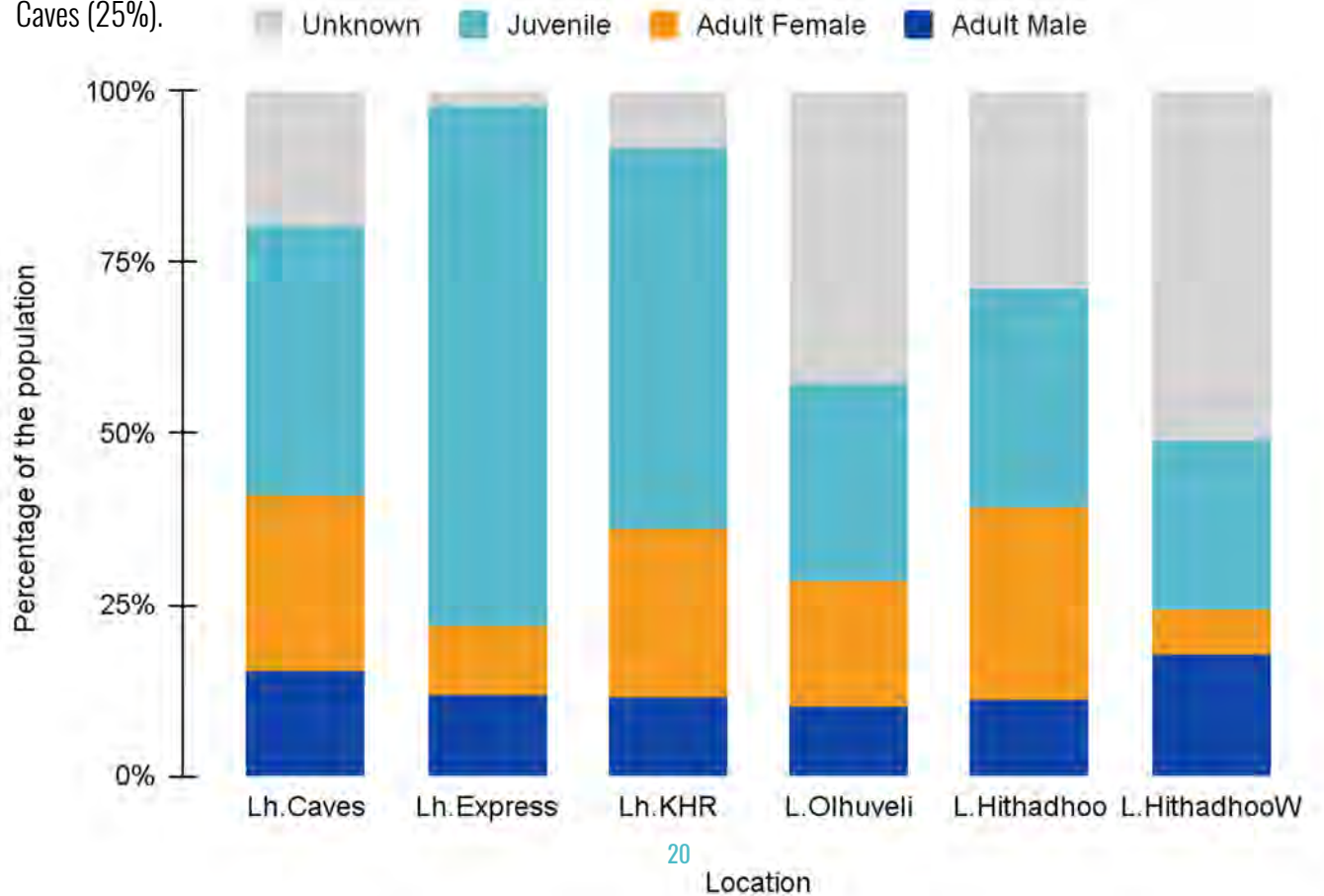


A male green turtle GR938 resting in Laamu

GREEN TURTLE RESULTS

Since starting data collection, we’ve found six reefs in Lhaviyani (Lh.) and Laamu (L.) atolls with a high number of identified green turtles. We’ve gained insight into their population structure due to consistent monitoring for more than five years now.

Juveniles and turtles of unknown age make up majority of the population at all sites, with 22% to 41% of turtles being identified as adults. The number of identified adults is higher than what was recorded at the end of last year, which most likely indicates that we are now seeing a proportion of our identified turtles reach maturity throughout our monitoring period, especially in Lhaviyani, in comparison to last year. On average, 34-35% of the encountered green turtles are adult at these six locations. The highest percentage of male turtles can be found at L. Hithadhoo West (18%), Lh. Kuredu Caves (15%), and Lh. Kuredu Express (12%). The largest percentage of females is found on L. Hithadhoo (28%) and Lh. Kuredu Caves (25%).



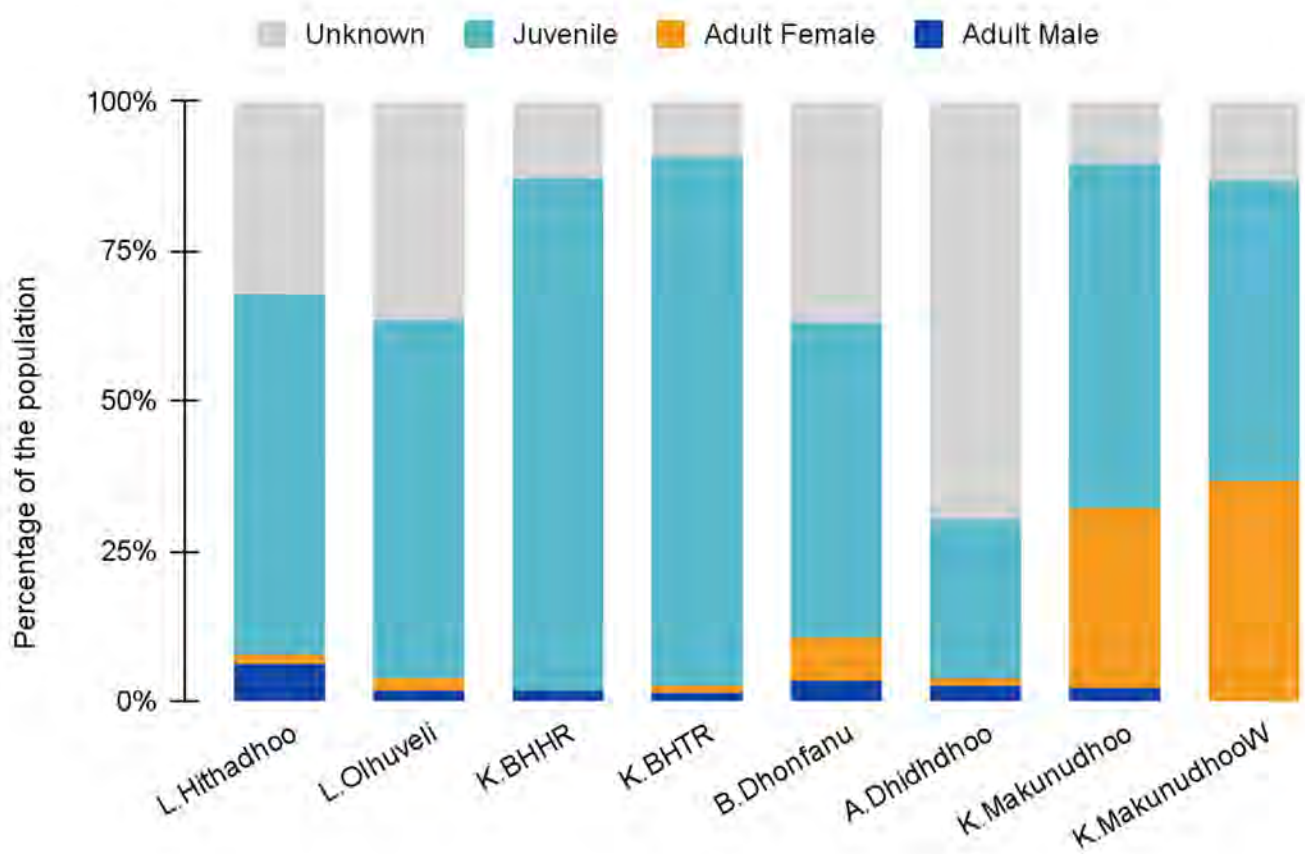


A hawksbill turtle resting on a reef in Baa

HAWKSBILL TURTLE RESULTS

The graph below shows sex and age breakdown for all identified hawksbill turtles at eight reefs in Laamu (L.), North Malé (K.), Baa (B.) and Ari (A.) atolls. Juveniles and turtles of unknown age make up majority of the population at all sites. Adult turtles were found to comprise over ten percent of the population only around K. Maakanudhoo and Maakanudhoo West with 30% and 37% respectively. The majority of these are females.

Bodu Hithi House Reef (BHHR) and Bodu Hithi Turtle Reef (BHTR) are home to over 85% juveniles. The highest number of males has been observed at L. Hithadhoo, with around six percent of the population. Compared to the identified population of green turtles (75%), the hawksbill population is slightly more dominated by juveniles and unidentified turtles (85%).





REMIGRATION INTERVALS OF NESTING TURTLES

Photo-ID not only allows us to monitor the Maldivian sea turtle population in the water, but also makes it possible to follow nesting turtles and the success of their nests over time. ORP sea turtle biologists have identified 34 different females nesting or attempting to nest in Baa, Laamu, Lhaviyani, Noonu, North Malé and Raa Atoll. Out of these, 16 turtles were observed laying more than one nest and six have been seen in more than one nesting season.

The so-called remigration interval describes the time nesting females take between active nesting seasons. In green turtles, the remigration interval is usually two to four years. We have observed a remigration interval of five years for one individual in Baa Atoll, who was first sighted in August 2017 before returning in June 2022 (Right). Cookie (above), a turtle known to nest in Laamu Atoll, has been seen in three different nesting seasons: 2018, 2021 and 2022. She took an 18 months break between the last two seasons. On average, greens nest every three years in the Maldives, based on seven remigration observations.

The 34 turtles were observed laying one to six nests per nesting season, for a total of 82 nests between 2017 and 2022. That means each turtle was observed to lay an average of 1.4 nests per season.

A turtle identified for the first time in Raa Atoll in 2022 laid three nests, all of which unfortunately had a very low hatching success rate - less than five percent. We believe that it was the health and fertility of the nesting turtle rather than the environmental factors that played a role in the low success of these nests.



A green turtle nest of a remigrating female, marked & secured in Lhaviyani Atoll



GR632 returned to nest on B. Dhuni Kolhu in 2022 after a five year break



Pyrary: a juvenile green turtle resting on the reef

BAA ATOLL, MALDIVES

ORP partnered with Amilla Maldives Resort and Residences at Baa Atoll in 2022. Baa Atoll is one of the most significant atolls in the Maldives; it is a UNESCO Biosphere Reserve and a hotspot for many species of marine animals, including sea turtles, to feed, play and nest. Baa Atoll also holds the distinction of being the atoll with the highest number identified sea turtles in our database!

ORP has had a presence in Baa Atoll since 2017 when the Marine Turtle Rescue Centre opened. However, we have never had a full-time sea turtle biologist located here. The partnership with Amilla Maldives Resort and Residences has allowed us to increase our sea turtle population survey efforts in the atoll. ORP's first sea turtle biologist in Baa, Afrah Abdul Sathaar, has interned with us both in Laamu Atoll and at the Rescue Centre. He arrived on site in October 2022.

From 52 surveys carried out at 13 sites, Dhonfanu House Reef remains a hotspot for juvenile green sea turtles and hawksbills. Dhonfanu's large seagrass bed and house reef provide crucial foraging and resting grounds for these sea turtles. The surveys yielded 33 sightings of greens and 41 of hawksbills.

We are also focusing on building stronger relations with the local communities in Baa Atoll. One of the first community events we participated in was a beach cleanup organised by the Baa Biosphere Reserve Rangers on Olhagiri. During the clean-up, Biosphere reserve rangers collected and disposed off a vast amount of plastic trash weighing in at 400kg. We are looking forward to a fruitful partnership with Amilla Maldives and hope to engage the communities of Baa Atoll in active sea turtle conservation.

- Afrah Abdul Sathaar, Sea Turtle Biologist



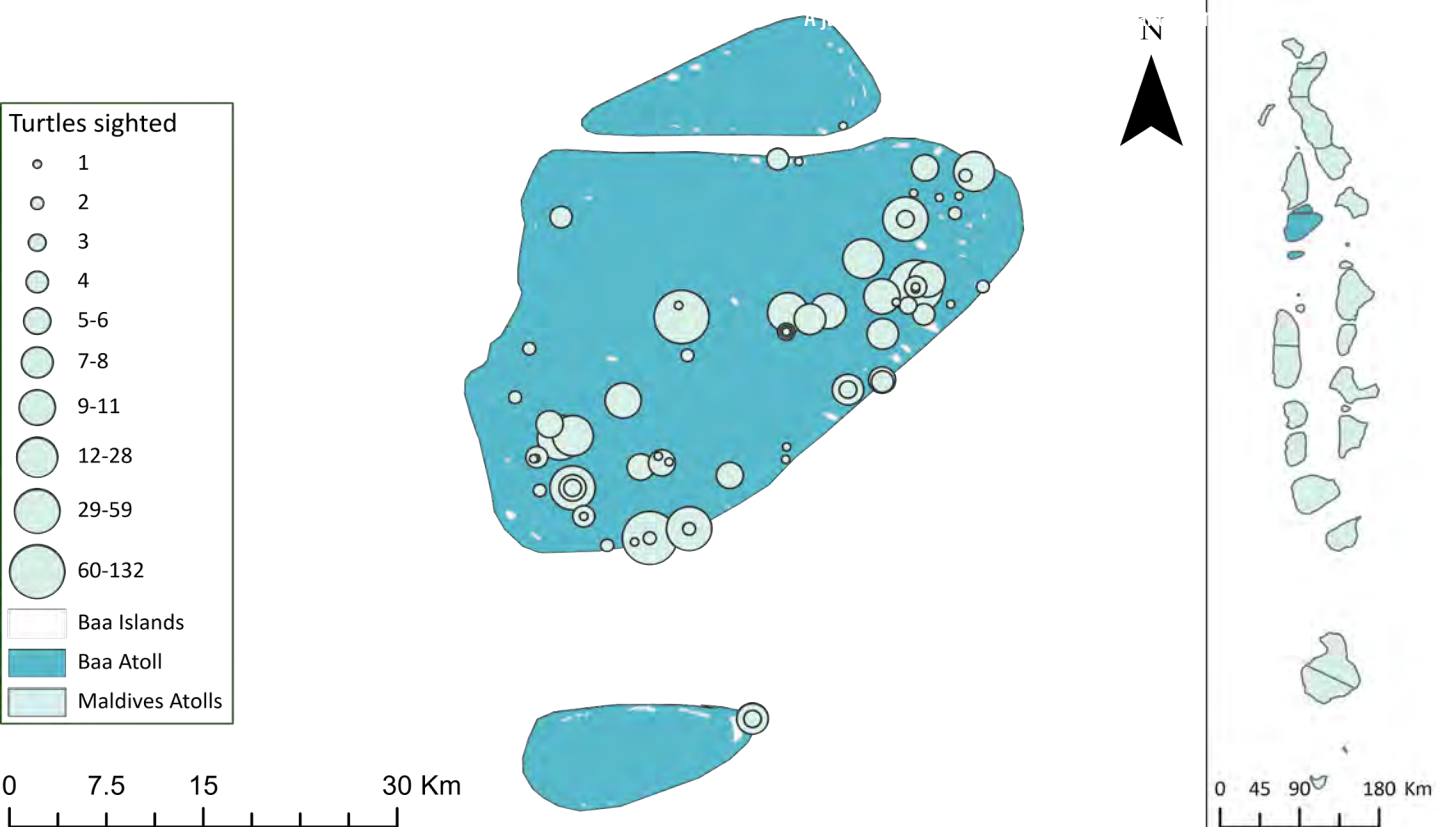
GREENS

Total Sightings: 1,316
Total Individuals: 231

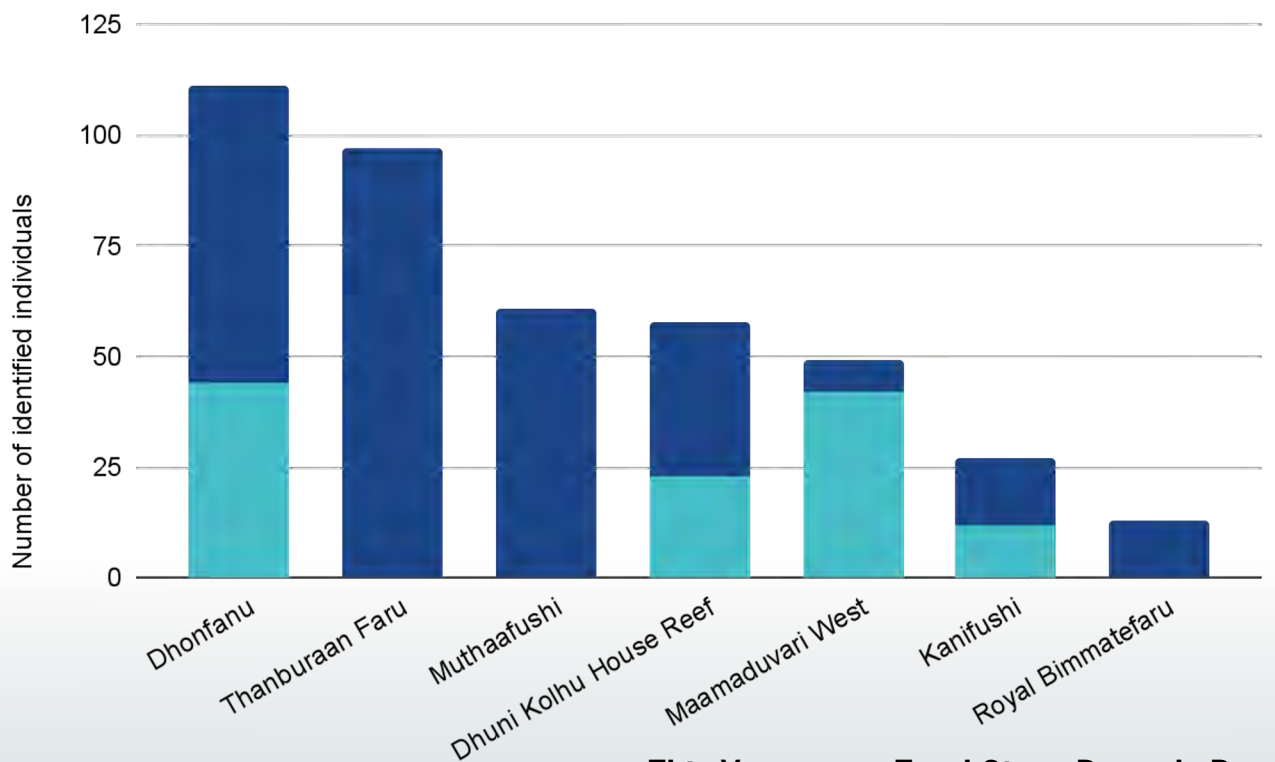


HAWSBILLS

Total Sightings: 3,845
Total Individuals: 840



TURTLE SIGHTINGS & NEW INDIVIDUALS: BAA ATOLL



	This Year	Total Since Records Began
Total Number of Turtle Sightings	367	5,162
Total Number of New Individuals	77	1,075



© Jasmine Corbett

LAAMU ATOLL, MALDIVES

In 2022, Laamu's database of sea turtles grew by 16.4% with 111 new individuals encountered, totalling 788 identified sea turtles.

A total of 20 nests were laid at Six Senses Laamu, 16 of which hatched before the end of the year with 569 hatchlings safely making it to the sea! Excavations conducted post-hatching revealed that the average nesting success rate was 30.79% - a 46.5% decrease from 2021. This large drop was due to storm surges that caused severe flooding to nests on the island.

For the first time ORP accepted interns for the Laamu project, helping us expand our research capacity whilst providing career building opportunities to Maldivians. Our former Intern, Afrah, successfully tested a new method of measuring turtles in-water using 'SVP' - stereo-video

photogrammetry. He continues his work with ORP as a sea turtle biologist at Baa Atoll.

We continued ad-hoc surveys at L. Gaadhoo, with 69 suspected nests and 17 false crawls recorded. Although designated as a protected area in 2021, 60.89% of nests (n=42) were suspectedly poached this year - the highest since monitoring began in 2018. ORP and EPA are working closely with AgroNat and other community stakeholders to establish a community-led protection and monitoring program.

ORP and Maldives Underwater Initiative (MUI) organised snorkel camps for local schools and a PADI Women's Day workshop to help familiarise individuals with the underwater world around their islands.

- Julian Gervolino, Sea Turtle Biologist



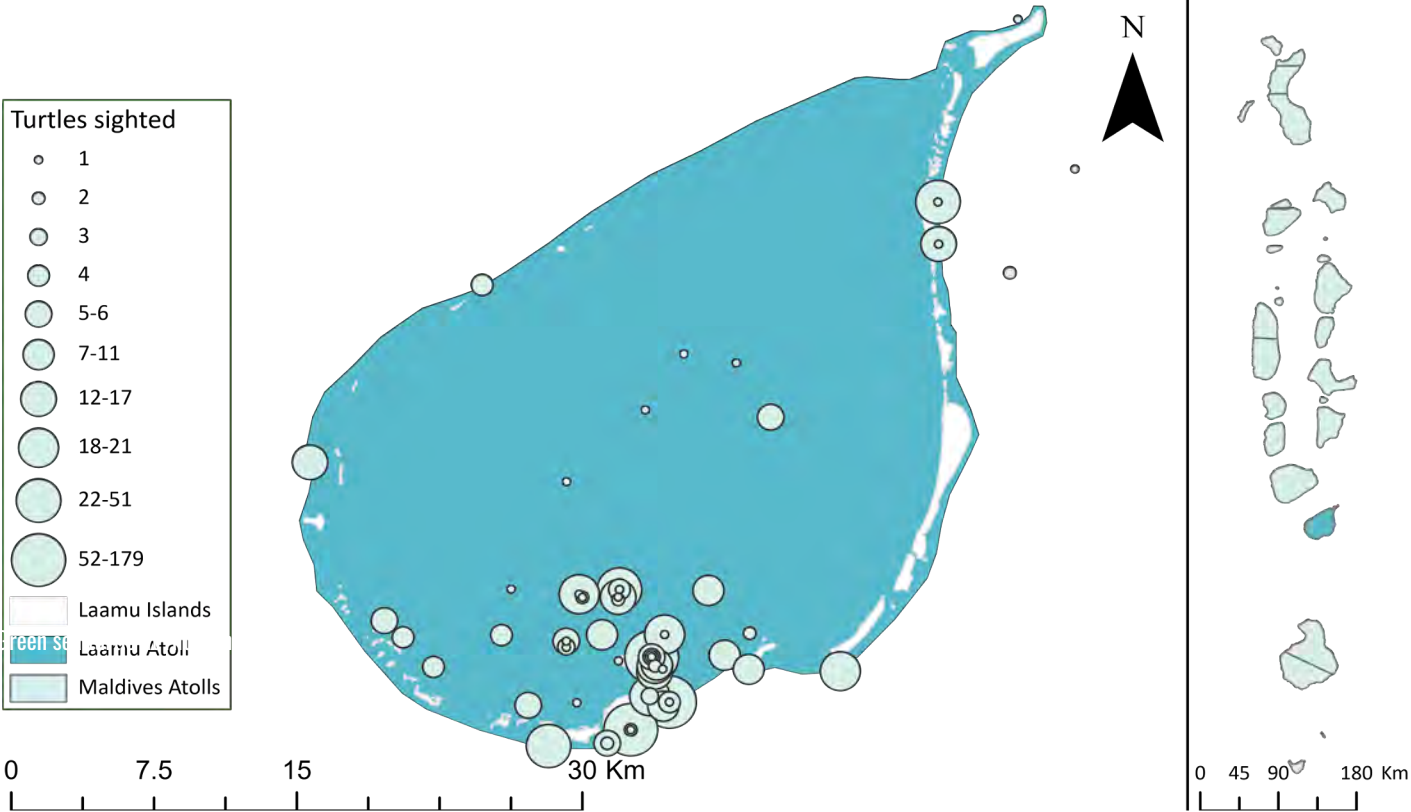
GREENS

Total Sightings: 3,544
Total Individuals: 290

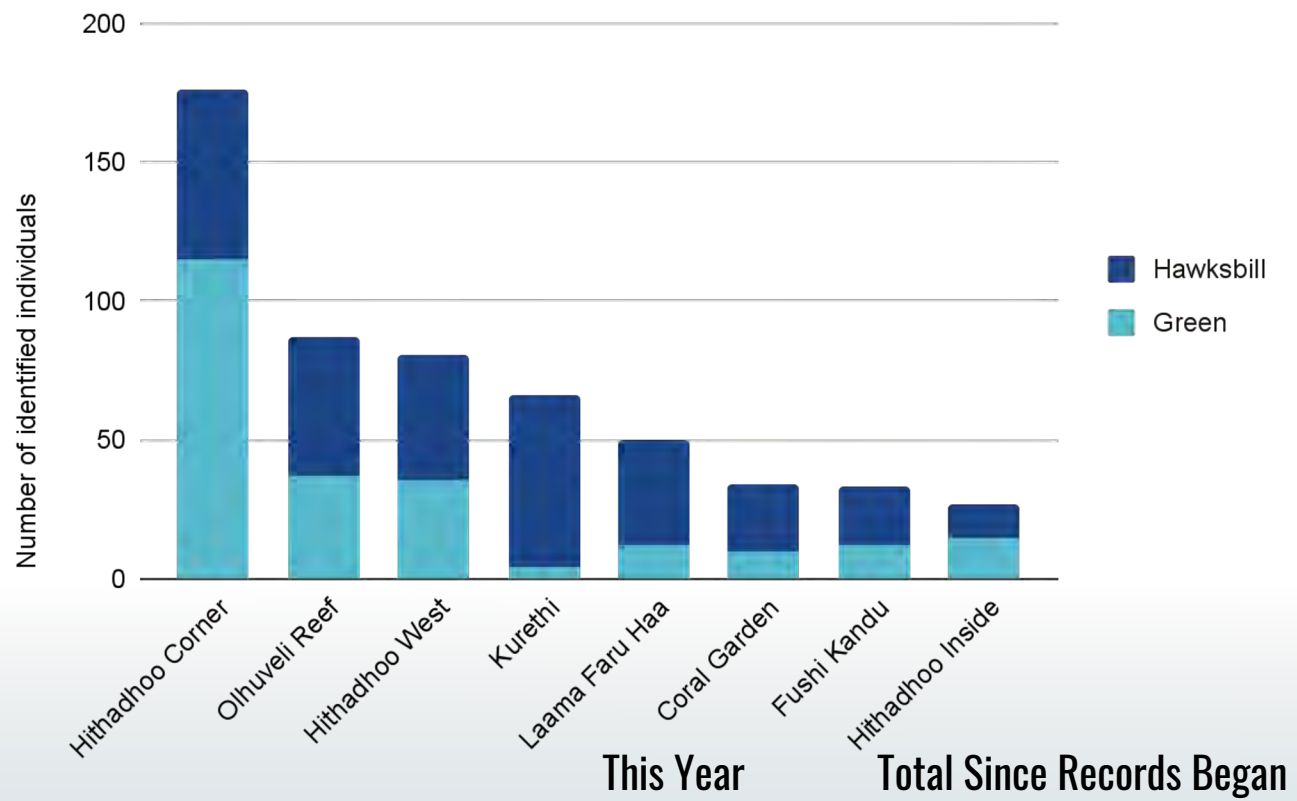


HAWKSILLS

Total Sightings: 2,791
Total Individuals: 498



SIGHTINGS & NEW INDIVIDUALS LAAMU



	This Year	Total Since Records Began
Total Number of Turtle Sightings	1,219	6,336
Total Number of New Individuals	134	788



A green sea turtle grazing on seagrass

LHAVIYANI ATOLL, MALDIVES

This year was a great one for sea turtle sightings in Lhaviyani Atoll. From regular dive and snorkel surveys conducted by our sea turtle biologist, to contributions from citizen scientists, a total of 1,743 turtles were photographed! We were able to identify a hawksbill sea turtle hotspot in the south east of Lhaviyani during the first field trip to our partner Prodivers base on Innahura. Through the eight surveys conducted, 25 individuals were added to the database, 16 of which were from one dive site.

2022 saw a long gap in nesting on Kuredu Resort and the nearby islands, with no activity recorded between September 2021 and July 2022. We had previously believed Lhaviyani's peak nesting season to be from November to February. This year however, 11 nests were laid between July and December, with seven of those laid by one female. Two suspected nests were reported from an uninhabited island in the south by the Atoll Marine Center.

This year, 26 ghost nets were removed and 23 entangled sea turtles rescued, seven of which were sent for rehabilitation either to our Rescue Centre or Atoll Marine Center - which now hosts a veterinarian. One sea turtle was found floating alive but later died at our Rescue Centre, despite the team's best efforts. Three sea turtles were found floating dead, but the necropsies performed on two of them did not reveal the cause of death.

In August we attended the Atoll Marine Center's Turtle Fest where we ran an information stall and spread awareness to the local community on our work. Later that month, we collaborated with the Lhaviyani Atoll Education Center at Hinnavaru to host Vaavoshi Sea Turtle Festival in Lhaviyani for the first time. It was a great success, and strengthened our relationship and awareness amongst the local community.

- Emily Mundy, Sea Turtle Biologist



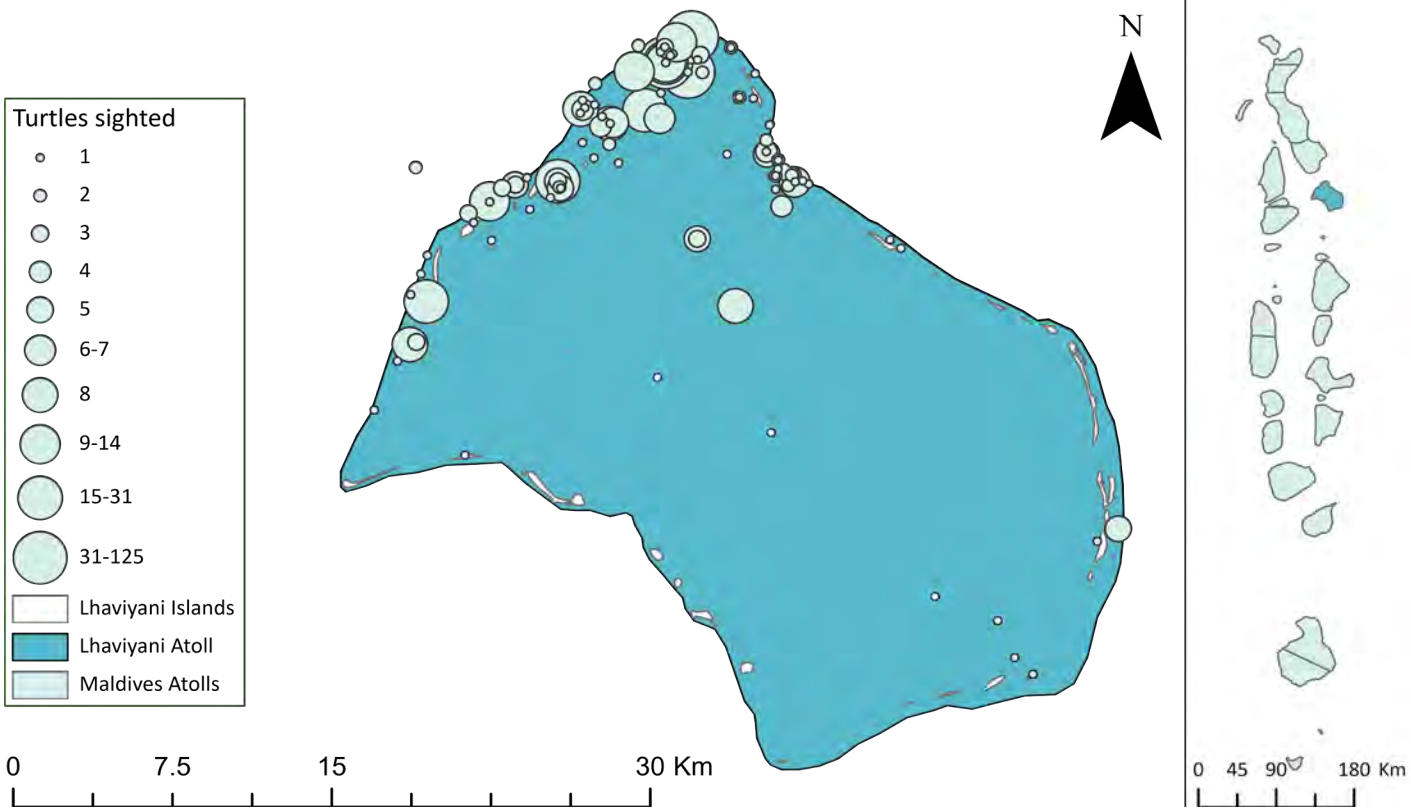
GREENS

Total Sightings: 6,137
Total Individuals: 404

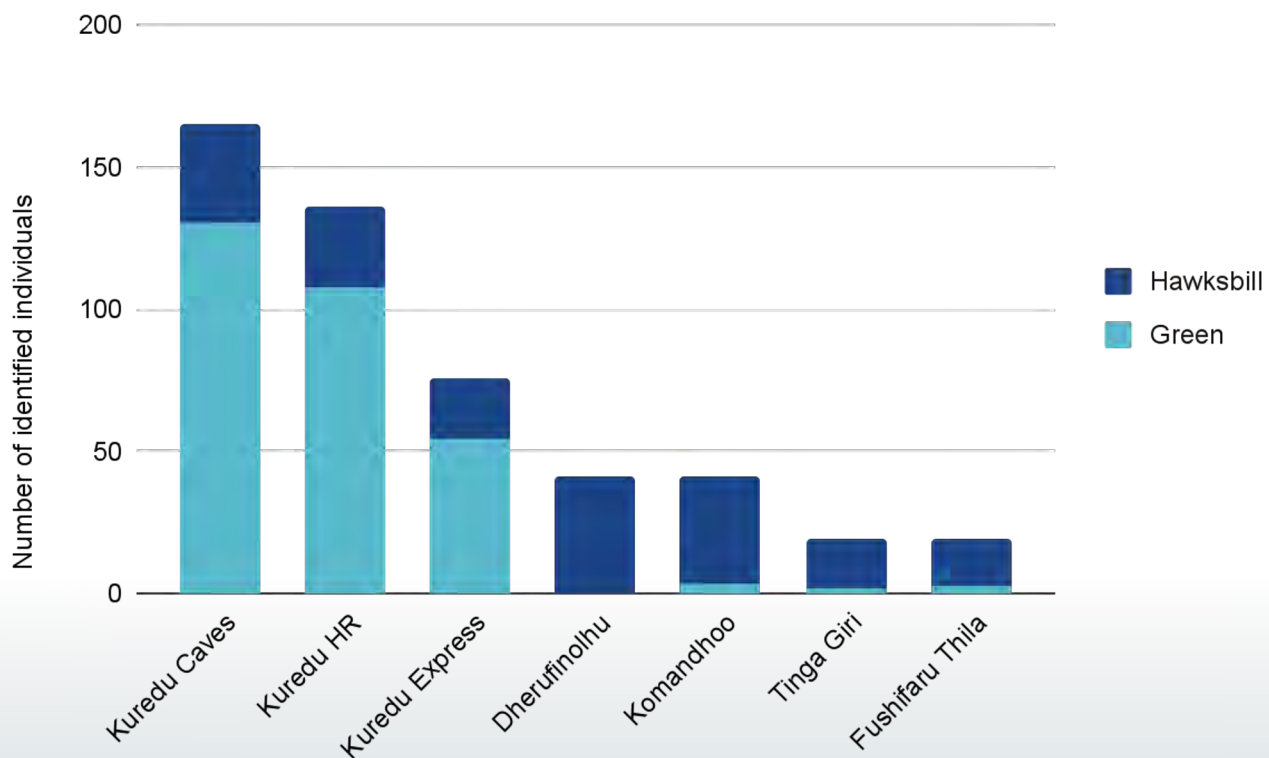


HAWKSBILLS

Total Sightings: 1,163
Total Individuals: 343



TURTLE SIGHTINGS & NEW INDIVIDUALS LHAVIYANI



	This Year	Total Since Records Began
Total Number of Turtle Sightings	1,743	7,303
Total Number of New Individuals	124	747



A nesting female green sea turtle in Noonu Atoll

NOONU ATOLL, MALDIVES

This year we welcomed our first sea turtle biologist in Noonu Atoll. Former Communications Officer, Rosie Brown, rejoined the in-field team as the sea turtle biologist at Soneva Jani, a sustainable luxury resort that we have partnered with since 2017. Rosie has spent the year largely monitoring nesting activity on the island, contributing to our Photo-ID project, overseeing the development of the Soneva Turtle Rehabilitation Centre (STRC) and conducting education and outreach programs, both on site and on nearby local islands.

We recorded an unprecedented number of sea turtle nests in Noonu Atoll - 96 on Medhufaru (Soneva Jani), 47 on Budufushi and two from Orivaru. Ten new nesting females have been added to our database; over 6,000 hatchlings are estimated to have emerged from the nests and three nesting females have been rescued after finding themselves stuck on their way back to the sea. Unfortunately, we have also observed a significant amount of poaching on Budufushi, where 27% of nests were poached.



GREENS

Total Sightings: 50
Total Individuals: 46

As part of our outreach efforts, we established a new project in partnership with the International Pole and Line Foundation (IPNLF), funded by Satlink, that aims to educate local fishers in N.Lhohi on best practices for ghost gear retrieval and sea turtle rescue. The upcoming STRC will act as a holding facility for any injured turtles found by local fishers, before they can be transported to our Marine Turtle Rescue Centre.

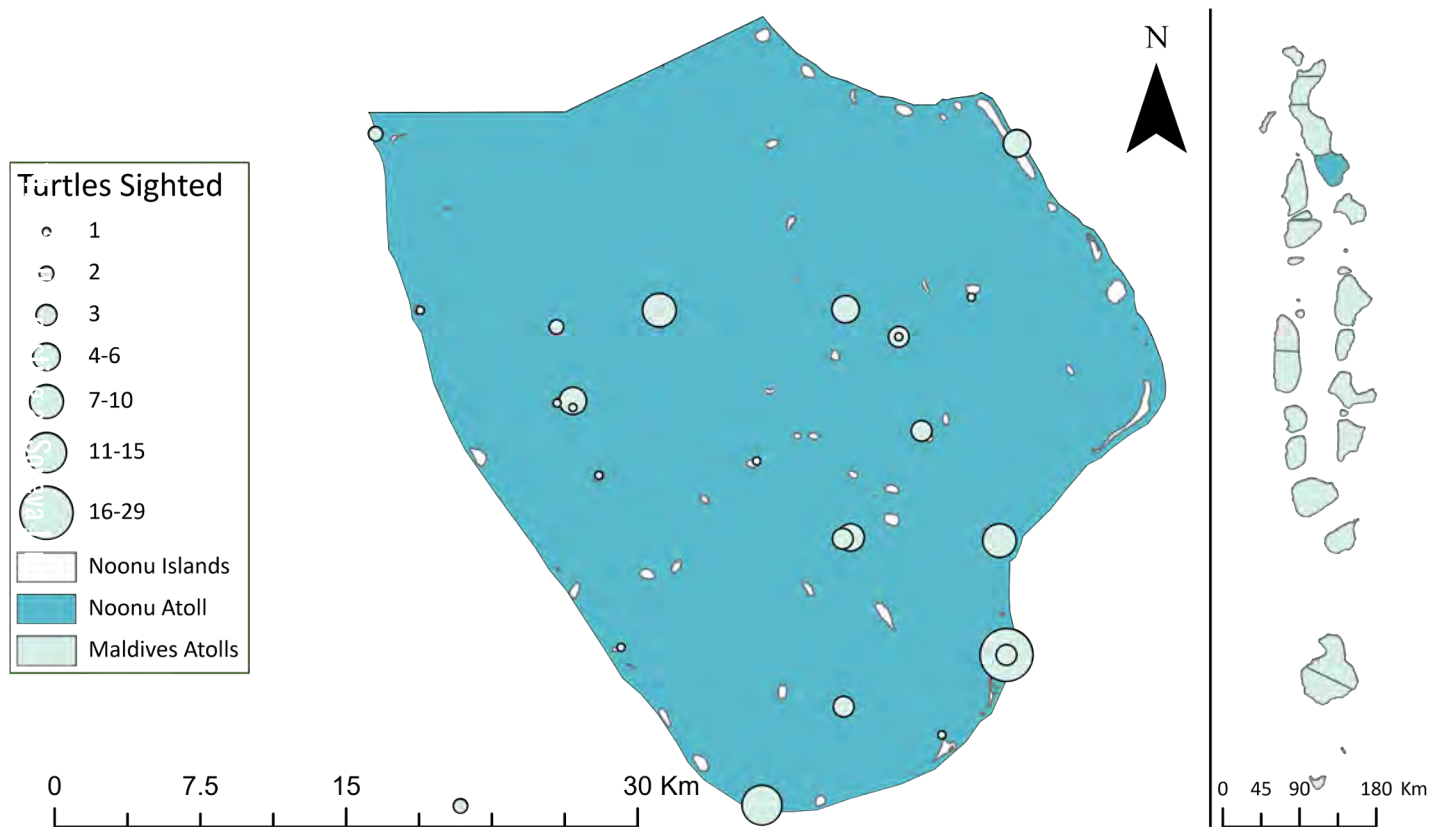
We found two injured olive ridley turtles in Noonu Atoll this year, one of which was recovered from a ghost net and had sadly already passed. The other individual, Fida, was spotted struggling to swim in Soneva Jani's lagoon, and after staying the night, was transferred to our Marine Turtle Rescue Centre in Baa Atoll. We provided training in best practices for ghost gear rescue and retrieval to 114 staff members at Soneva Jani and also assembled entanglement kits which are now on board all resort boats.

-Rosie Brown, Sea Turtle Biologist

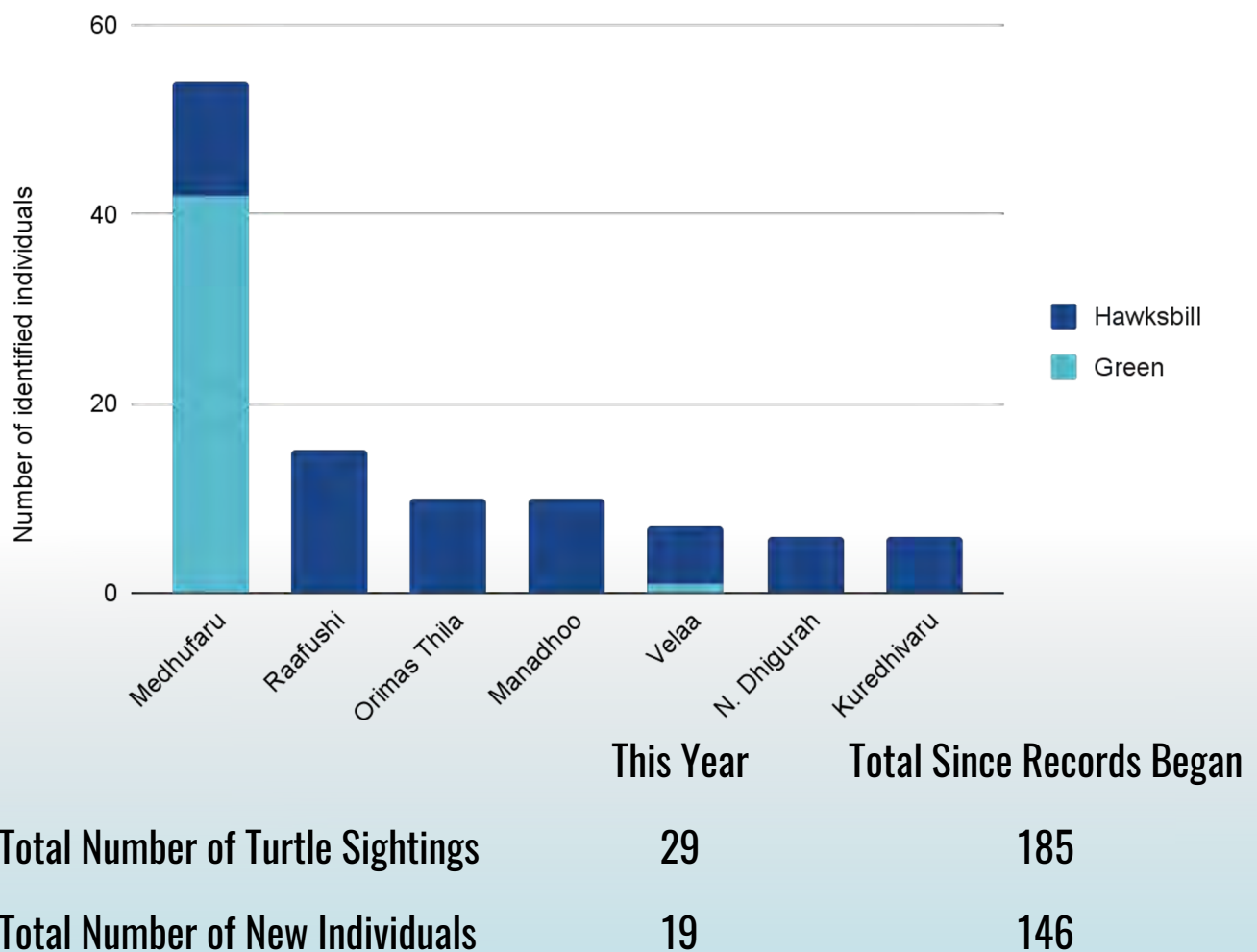


HAWKSILLS

Total Sightings: 135
Total Individuals: 100



TURTLE SIGHTINGS & NEW INDIVIDUALS NOONU





A hawksbill at Makunudhoo Reef, North Malé

NORTH MALÉ ATOLL, MALDIVES

In 2022, we continued our in-water research in North Malé, mainly focusing on the population in Makunudhoo Reef and spent a total of 408 hours in the water! We added 37 new individuals to our database thanks to the support of many citizen scientists.

From January to July, we admitted four new patients at our Rehabilitation Centre, two of whom unfortunately could not make it. Tibby, who arrived at the Rehabilitation Center in late 2021 from the Rescue Center, was returned to the Rescue Center in May for veterinary care due to deteriorating health. Sadly, Tibby could not be saved.

Kalo, who came along after Tibby, was the last patient we had before he was transferred to the sea cage at Atoll Marine Center at the end of July. Kalo was successfully released back into the wild after a few weeks. Our centre was closed from August onwards, for maintenance and construction of a smaller holding tank.

Our Sea Turtle Biologist Joe Rigby returned to the UK in August to pursue further studies and was replaced by one of our previous interns from the Rescue Center, Mariyam Niuma (Ni).

The year's highlight was our participation in the very successful Vaavoshi Sea Turtle Festival, which took place at K. Huraa at the end of October. Support for the festival poured in from teachers and parents of the K. Huraa School along with enthusiastic participation from all the students. The one-day festival included sandcastle building, debate competition, beach clean up, game stalls, mural painting and a marine themed parade involving all the students.

We didn't have any nestings at One&Only Reethi Rah in 2022, but we are keeping our fingers crossed for 2023.

- Mariyam Niuma, Sea Turtle Biologist



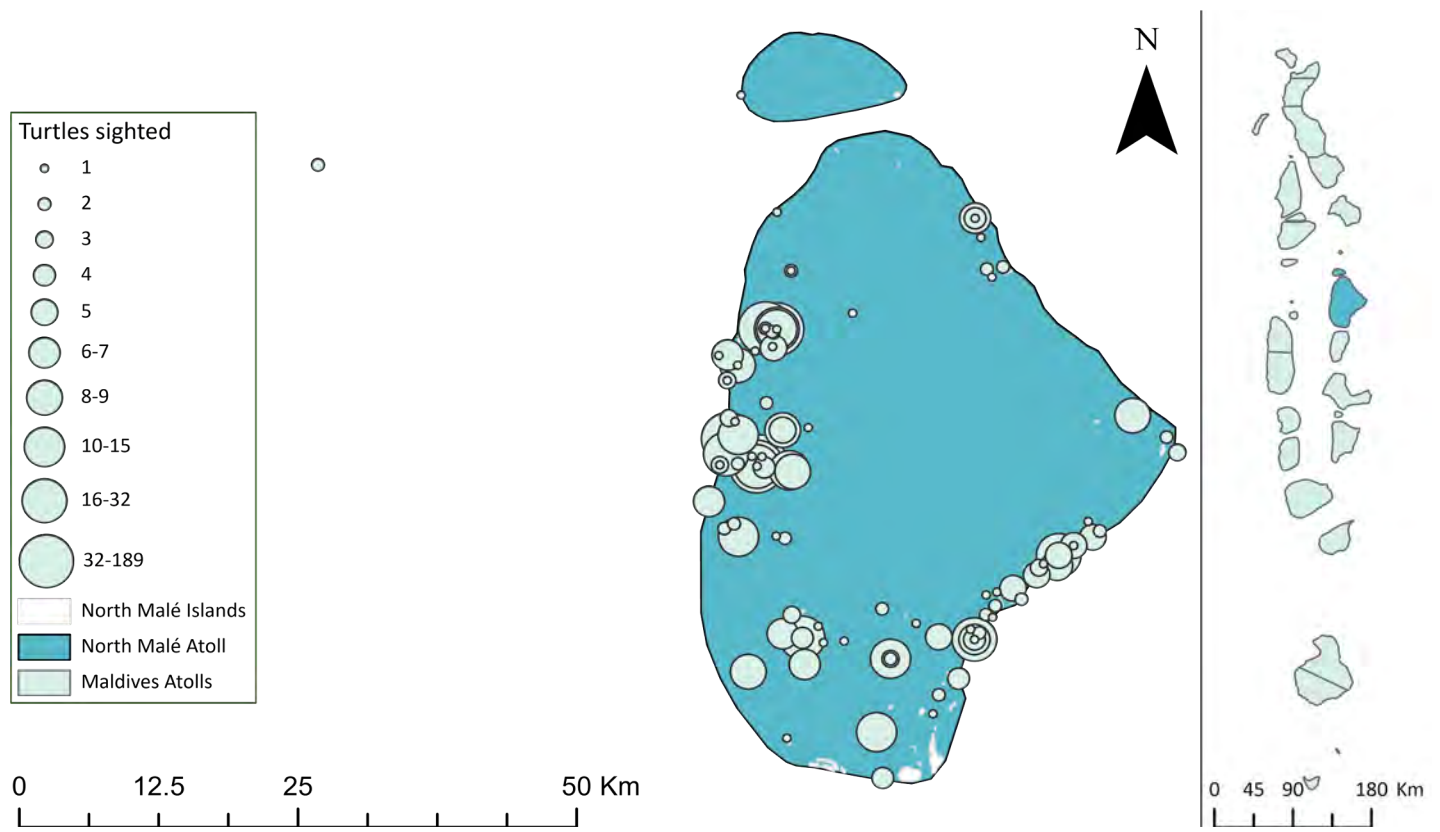
GREENS

Total Sightings: 127
Total Individuals: 86

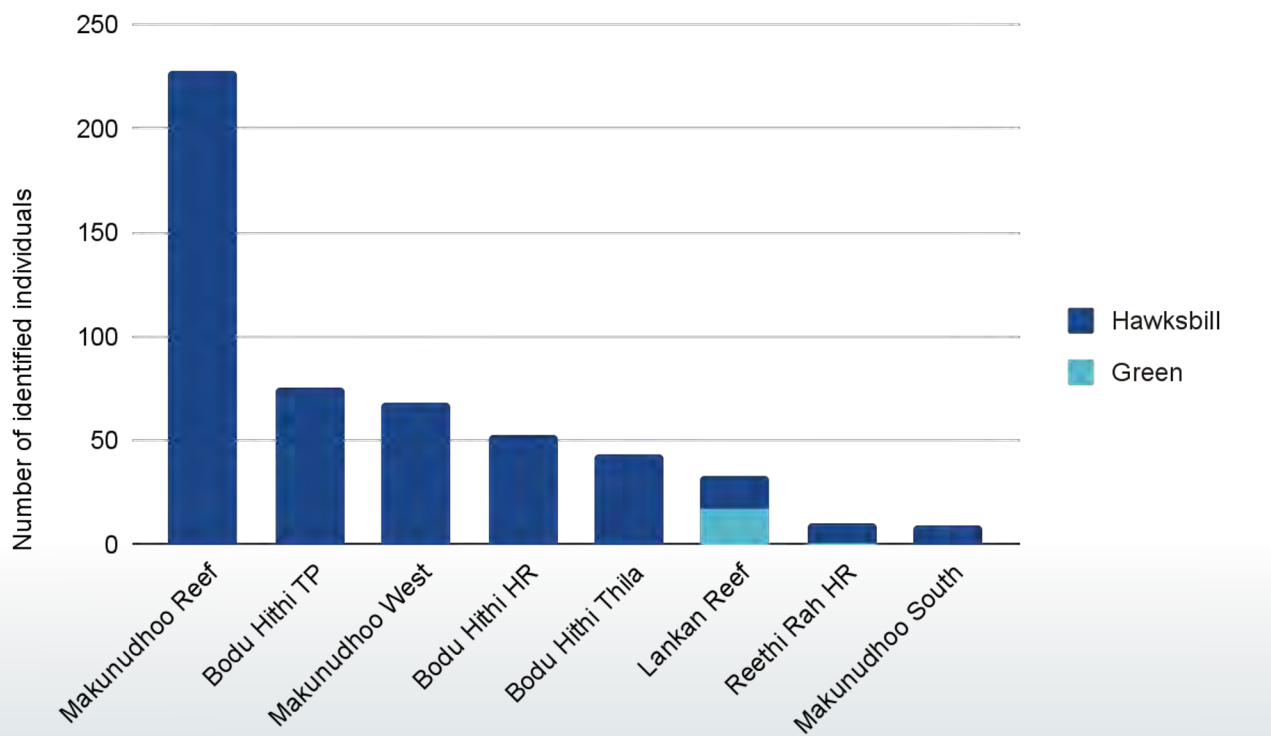


HAWKSBILLS

Total Sightings: 10,234
Total Individuals: 942



TURTLE SIGHTINGS & NEW INDIVIDUALS NORTH MALÉ



	This Year	Total Since Records Began
Total Number of Turtle Sightings	252	10,361
Total Number of New Individuals	37	1,028



A swimming Hawksbill in Raa Atoll

RAA ATOLL, MALDIVES

2022 marks the first year of ORP’s partnership with JOALI BEING, located in Raa Atoll on the island of Bodufushi. Olivia Forster, our sea turtle biologist, arrived at the end of 2021 for the opening of the resort. Since then, she has been working on establishing ORP’s presence in Raa, through education and outreach within the local community and at the resort, as well as collecting data on the population of sea turtles residing and nesting here.

Photo-ID collection was slow to begin with, but we were able to add 183 sightings and 39 individuals to our database, bringing the total number of identified individuals in Raa to 173. 98% of these individuals were hawksbills, the majority of which were sighted at Gemana Faru Reef (55.5%), a foraging hotspot for this species in Raa Atoll.

Our knowledge of nesting in Raa Atoll increased substantially this year as we were able to collect nesting

data for the first time. Data was collected from four sites, including JOALI BEING. A total of 21 true nests were recorded across the four islands, 19 of which were green turtle nests and two were hawksbills.

Towards the end of 2022, ORP partnered with the Environment Ministry and Waste Management Corporation Limited (WAMCO) to protect Vandhoo, an island in the east of Raa Atoll, which is currently being used as a waste management facility. Vandhoo is thought to be one of the top 14 sea turtle nesting hotspots in the Maldives. However, it has been subject to poaching in the past. Through this collaborative project we plan to help protect what could be Raa Atoll’s most important nesting site, through consistent monitoring, data collection and prevention of poaching.

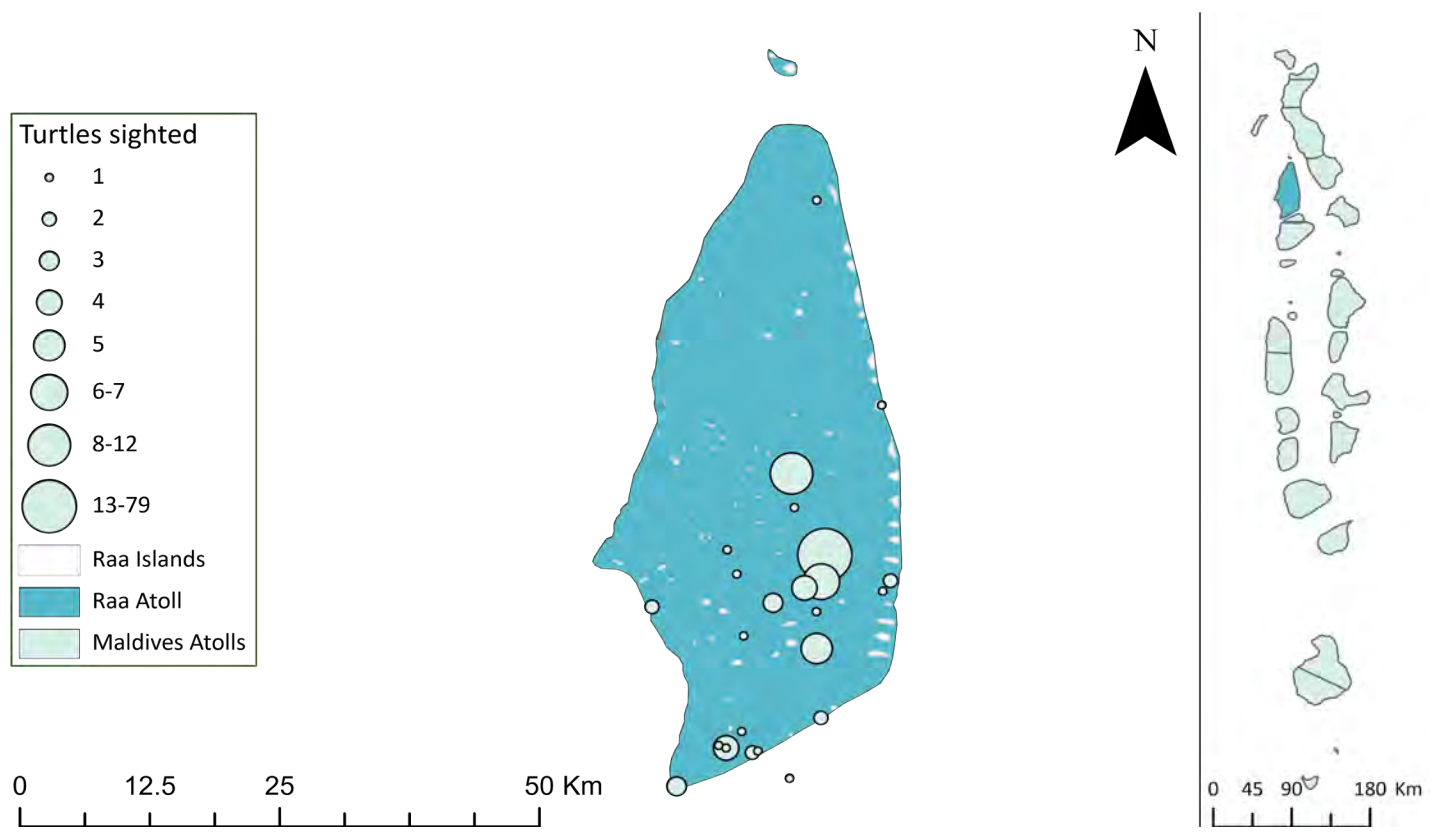
- Olivia Forster, Sea Turtle Biologist



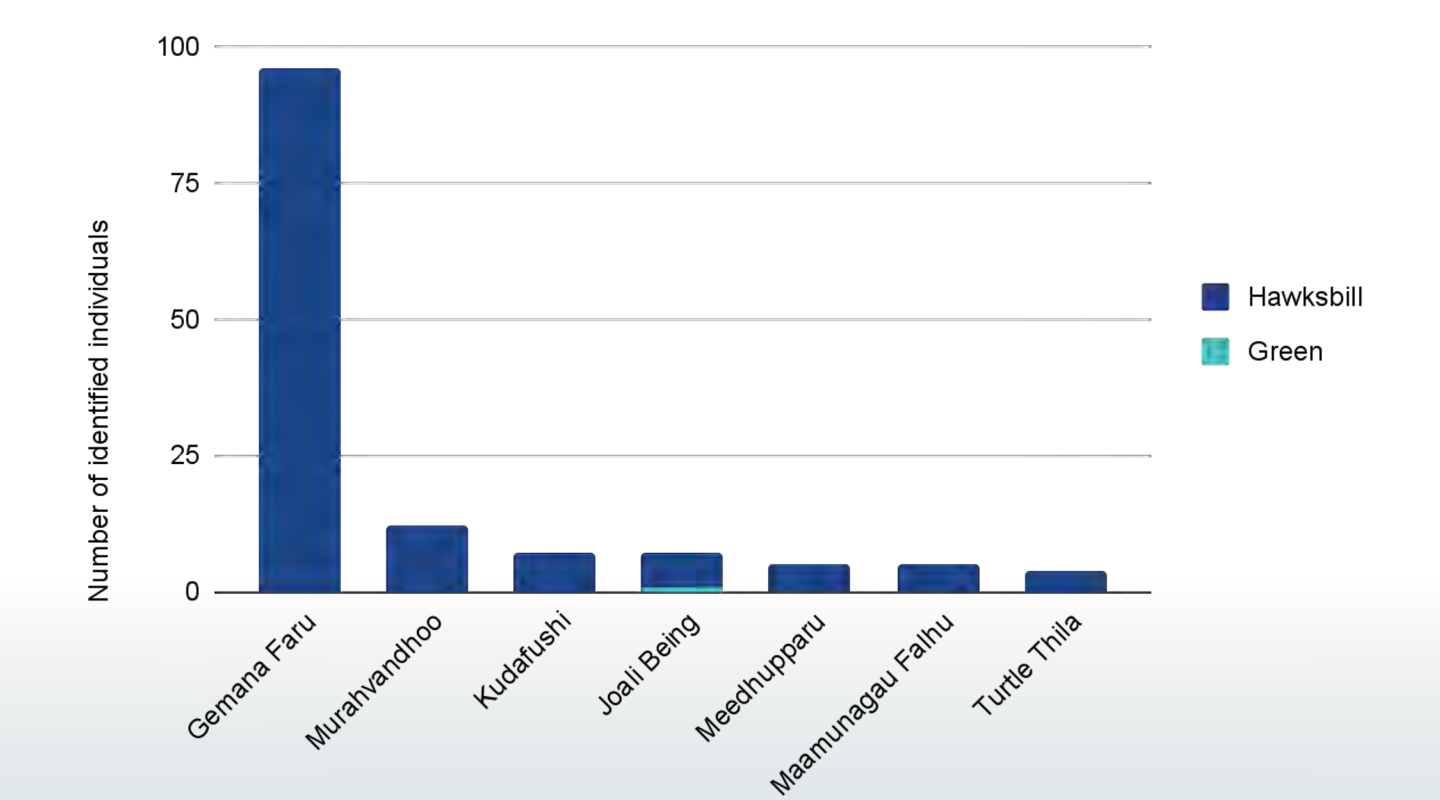
GREENS
Total Sightings: 5
Total Individuals: 3



HAWKSBILLS
Total Sightings: 551
Total Individuals: 170



TURTLE SIGHTINGS & NEW INDIVIDUALS RAA



	This Year	Total Since Records Began
Total Number of Turtle Sightings	183	556
Total Number of New Individuals	39	173



HK3216 'Kiba' one of the resident hawksbills in Gaakoshinbi Reef. © Dinuka Ranasignhe

SHAVIYANI ATOLL, MALDIVES

ORP partnered with Fairmont Sirru Fen Fushi in 2022, and welcomed Neus Segura as ORP's first sea turtle biologist in Shaviyani Atoll in October. Shaviyani is located in the northern part of the Maldives and is relatively untouched by tourism with only a few resorts.

Prior to Neus' arrival, Photo-IDs collected in Shaviyani Atoll were solely done by citizen scientists, as ORP had no presence here. Since the end of last year, data collection has therefore increased significantly. In addition, we also started behavioural research looking at things like what the sea turtles are doing (e.g.: feeding, swimming, resting), and whether the sea turtles we encounter appear interested in snorkelers or flee from them, or if they seem unbothered by the viewers. Combining information concerning their ecology and documenting human impacts help us develop appropriate management approaches and solutions, which should be practical and realistic according to the specific regions we work in.

Overall, 32 hours were spent surveying the waters of Gaakoshibee, taking Photo-ID during each sea turtle encounter. A total of 68 sightings were added to the database, resulting in 54 identified individuals in the atoll.

In addition to research, we conducted educational outreach events in Shaviyani Atoll, visiting five local schools. The seventh and eighth graders of Milandhoo, Maaungoodhoo, Lhaimagu, Maroshi and Kanditheemu schools were all a fantastic audience. They listened very carefully to the talks on sea turtle biology, threats and ORP's mission. Beach clean ups and turtle entanglement workshops were also conducted in some of the schools.

We look forward to conducting further educational trips to other local schools in the atoll next year.

- Neus Segura, Sea Turtle Biologist



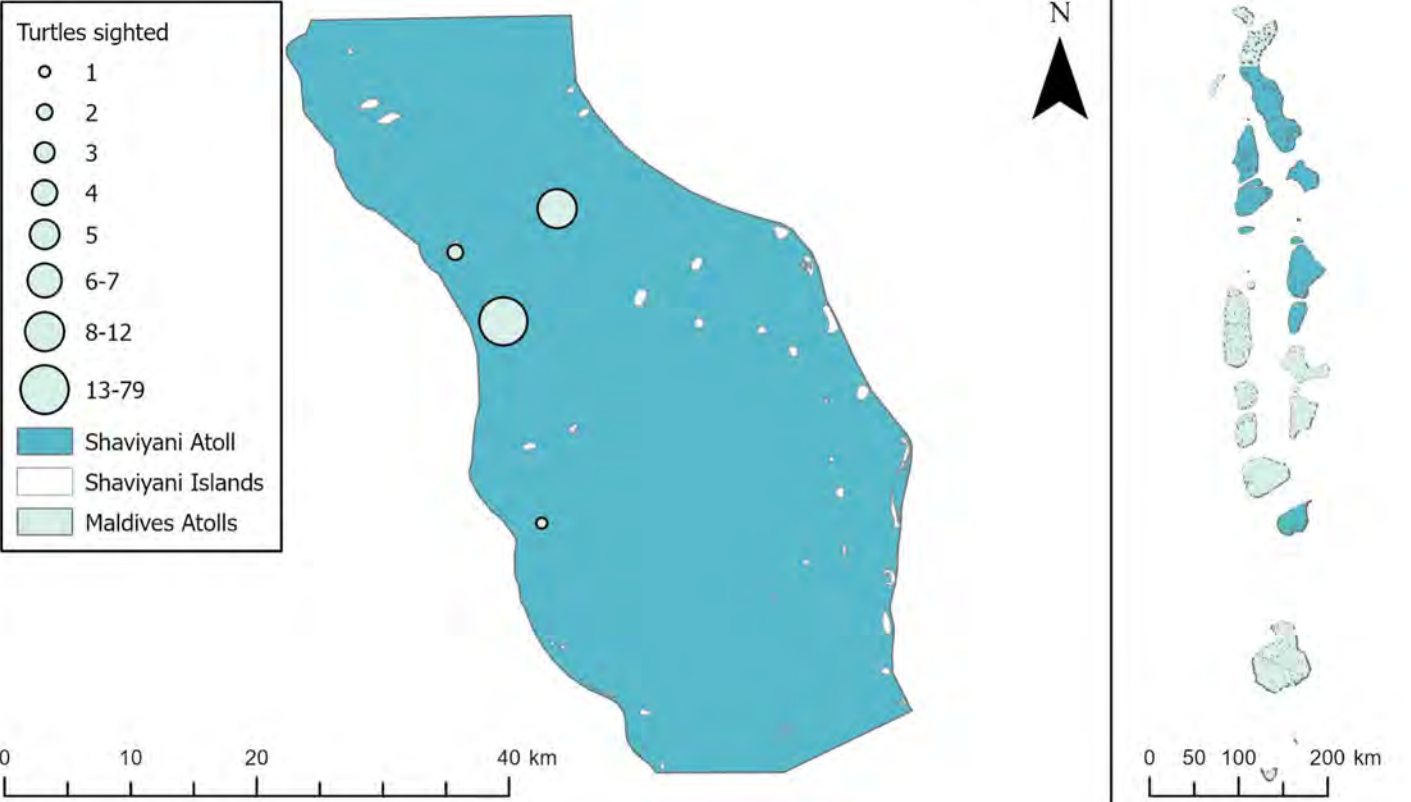
GREENS

Total Sightings: 9
Total Individuals: 9

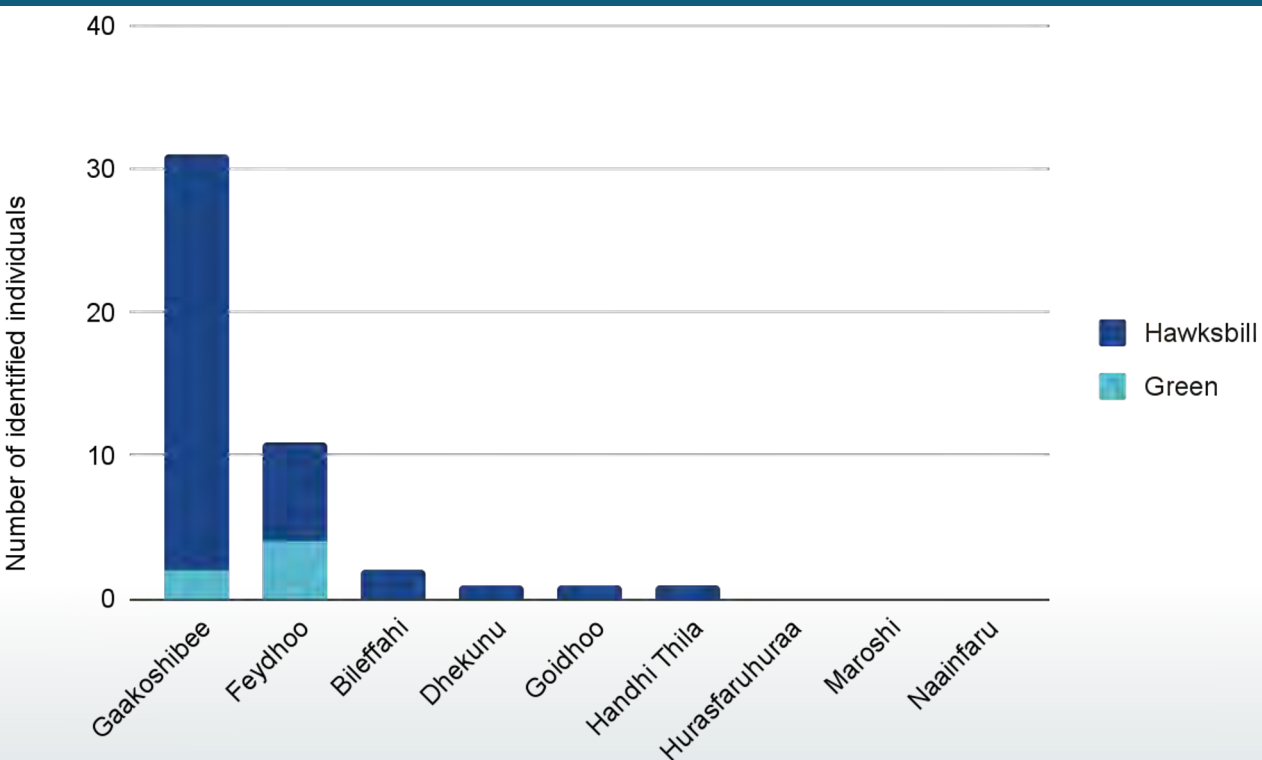


HAWKSILLS

Total Sightings: 252
Total Individuals: 45



TURTLE SIGHTINGS & NEW INDIVIDUALS SHAVIYANI



	This Year	Total Since Records Began
Total Number of Turtle Sightings	71	261
Total Number of New Individuals	12	54



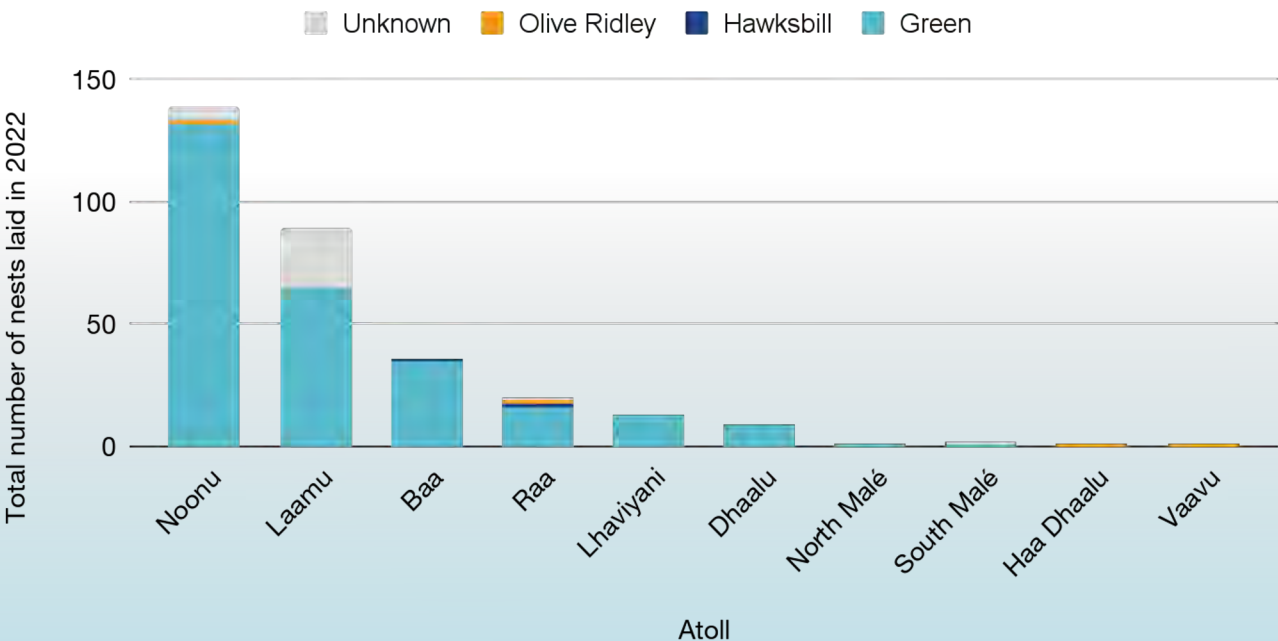
Green sea turtle embryos in advanced stage of development found during a nest excavation

RECORDED SEA TURTLE NESTING ACTIVITY

*Data for nesting is limited due to the small number of sea turtle biologists collecting nesting information.



Total Number of True Nests:	310
Total Number of False Crawls:	251
Total Number of Live Hatchlings Counted:	10,651* (to date, not all nests have hatched & some nests were not observed hatching)
Average Hatching Success:	79.7%
Average time of incubation:	61 days





KENYA





G441, 'Carol', the most sighted green turtle in Diani in 2022

DIANI BEACH, KENYA

2022 finally brought some normality to our work in Kenya with the resumption of regular in-water surveys at all sites and the establishment of new exciting research and monitoring initiatives. To assist us in achieving our goals, Jenni Choma joined our team as an in-field supervisor.

Our regular diving surveys, conducted across 12 dive sites, resulted in 978 confirmed sea turtle encounters, of which 874 were green turtles and 104 were hawksbill turtles. From these encounters, we identified 163 new individual green turtles and 18 new individual hawksbill turtles. In addition, we conducted surveys to identify potential foraging sites for green turtles outside the reef with an emphasis on Diani's seagrass lagoon, both by snorkelling trips and by drone surveys.

To continue our efforts in understanding the dynamics of the green turtles in our area, we joined forces with Pwani University to carry out collaborative work such as genetic studies. We also teamed up with the Arribada Initiative to

conduct a pilot study using Snapper GPS receivers. This will help us understand fine-scale movements of green turtles in foraging areas. We managed to tag and sample three juvenile turtles by the end of the year, with two more tags available for deployment in 2023.

In our outreach efforts, our project coordinator, Leah Mainye, participated in the 12th WIOMSA Scientific symposium in South Africa and the Tenth Meeting of the WIO Marine Turtle Task Force. At a local level, our volunteer, Juma Gwerenya, led a three-month pilot study along Diani Beach. This helped us understand the community along the coast and individual perceptions of sea turtles and their conservation in the region. The results were used to define our Community Education and Outreach Program for 2023.

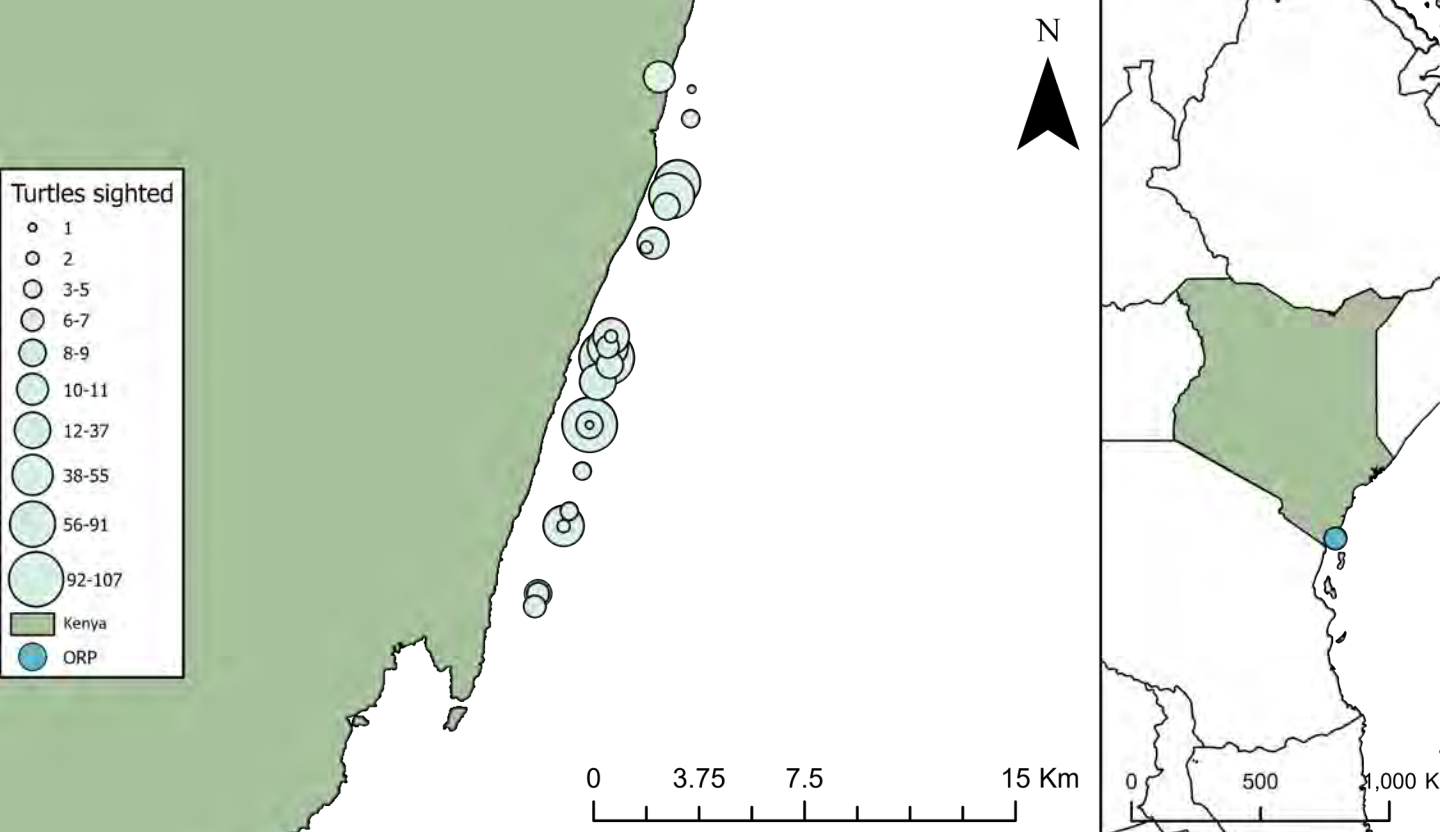
- Dr. Joana Hancock, Project Manager



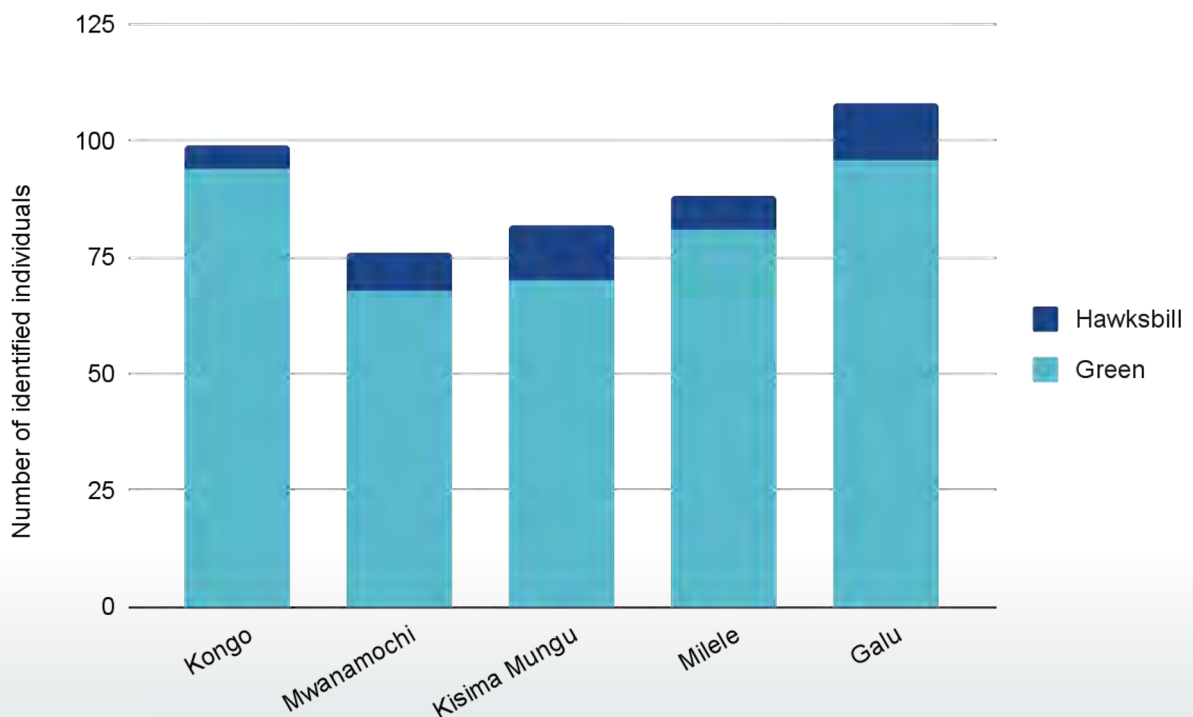
GREENS
Total Sightings: 2,782
Total Individuals: 539



HAWSBILLS
Total Sightings: 452
Total Individuals: 73



TURTLE SIGHTINGS & NEW INDIVIDUALS KENYA



This Year

Total Since 2018

Total Number of Turtle Sightings

931

3,234

Total Number of New Individuals

181

612





GM101, an identified green turtle in Oman

MUSANDAM, OMAN

Our activities in Oman restarted in 2022 with ORP’s new sea turtle biologist Tom Osborne arriving at the Musandam peninsula in January.

Throughout the year we recorded 332 turtle sightings, including some familiar faces from 2019, and added a total of 74 new additions to our database (72 greens and 2 hawksbills). The majority of sea turtles spotted in the area are still green turtles, which outnumber the identified hawksbills 10:1. The newly established regular house reef snorkels were a huge success with the guests at our partner resort, as were the sea turtle talks for adults and children.

In cooperation with the Environment Protection Agency and Six Senses Zighy Bay, ORP organised and carried out two large scale ghost gear clean ups. With the help of 40

participants, a total of four tons (3,628 kg) of ghost gear was successfully removed from the ocean. In the process, the remains of a sea turtle were found in one of the nets, but thankfully no other wildlife was found entangled.

This year, we also started exploring the possibility of establishing a sea turtle rescue centre in Oman. As Musandam is a rather remote location separated from the rest of Oman by the United Arab Emirates, we are considering Muscat, Oman’s capital, as a suitable location. Talks and meetings with relevant government officials and stakeholders have been initiated, thus laying the groundwork for further negotiations in the upcoming year.

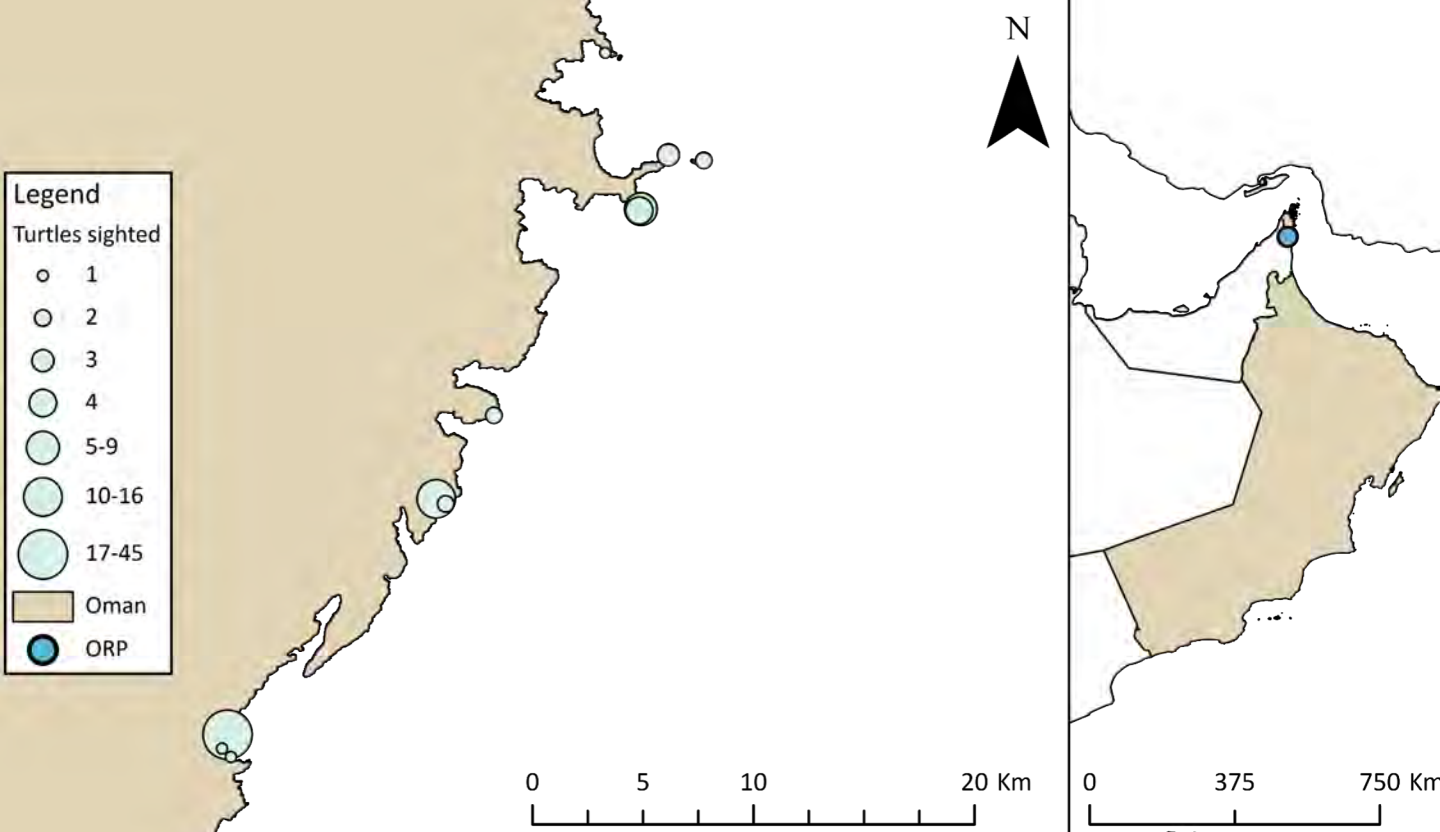
- Tom Osborne, Sea Turtle Biologist



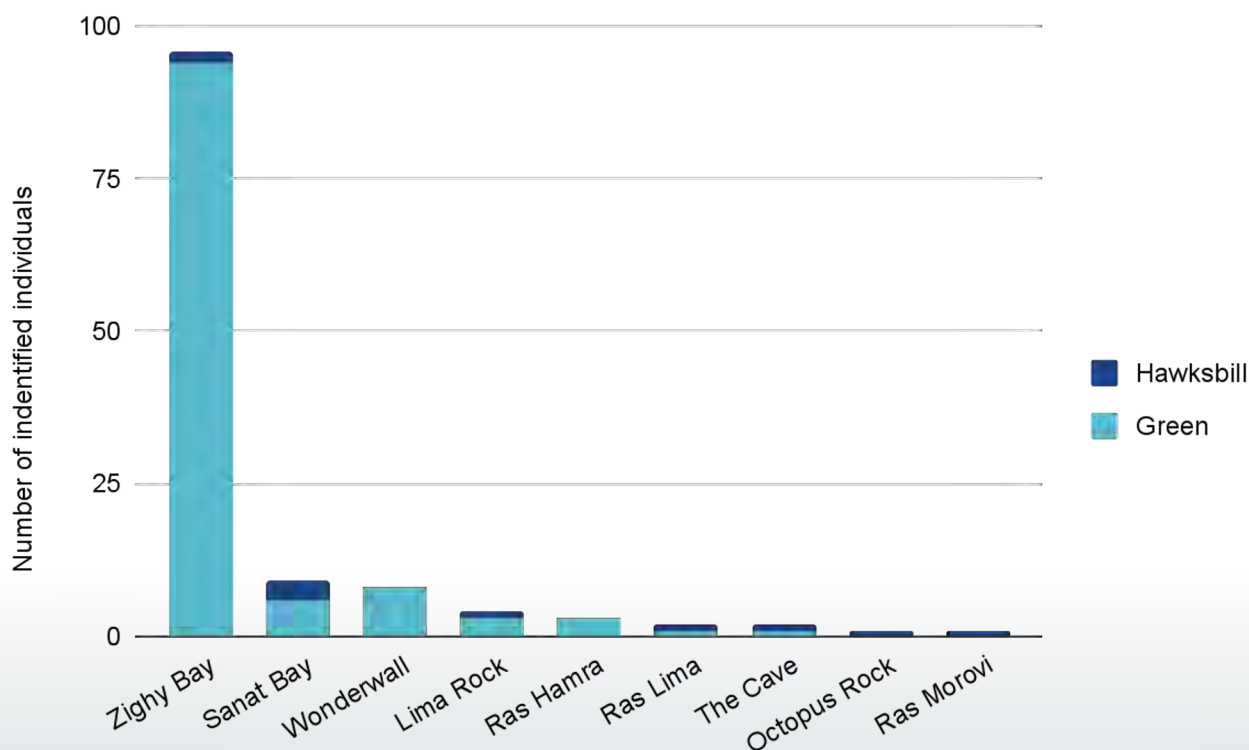
GREENS
Total Sightings: 317
Total Individuals: 105



HAWKSBILLS
Total Sightings: 15
Total Individuals: 9



TURTLE SIGHTINGS & NEW INDIVIDUALS OMAN



	This Year	Since Project Began
Total Number of Turtle Sightings	265	332
Total Number of New Individuals	74	114





A nesting female green sea turtle in the Seychelles

SEYCHELLES

We completed our first full year of work in Seychelles thanks to our partner, Six Senses Zil Pasyon, located on Félicité Island. Félicité Island is in close proximity to Ile Coco Marine Park and Sister Islands, which are renowned for juvenile hawksbill turtle populations. The island is also a prominent location for nesting hawksbill and green turtles.

We surveyed 15 different sites throughout the year both on land and in the water, resulting in over 300 survey hours. We recorded a total of 124 new individuals in 2022, of which the majority were hawksbill turtles (N=117). The addition of the Zil Pasyon excursion boat in the last quarter of the year allowed us to add additional survey sites. Hawksbill turtles made up the majority of sightings in the water, and nesting activity was also higher for hawksbill turtles with 28 nests compared to 7 for green turtles.

Hawksbill turtles in Seychelles have a distinct nesting season from October until March. Seychelles is also one of the only locations in the world where hawksbills exhibit daylight nesting. Green turtles may nest all year round, but on Félicité we only observed them in the cooler months of August and September. Unfortunately, due to severe erosion on the main nesting beach, a significant amount of nests (n=10) had to be relocated. The nests are due to hatch in the first quarter of 2023 and we will keep you updated on the success!

This year we also worked on establishing new partnerships with local organisations such as the Seychelles Parks and Garden Authority (SPGA) and the Turtle Action Group Seychelles. We want to thank all of our partners for their support and look forward to growing our database and partnerships in 2023.

- Lara Kalisch, Sea Turtle Biologist



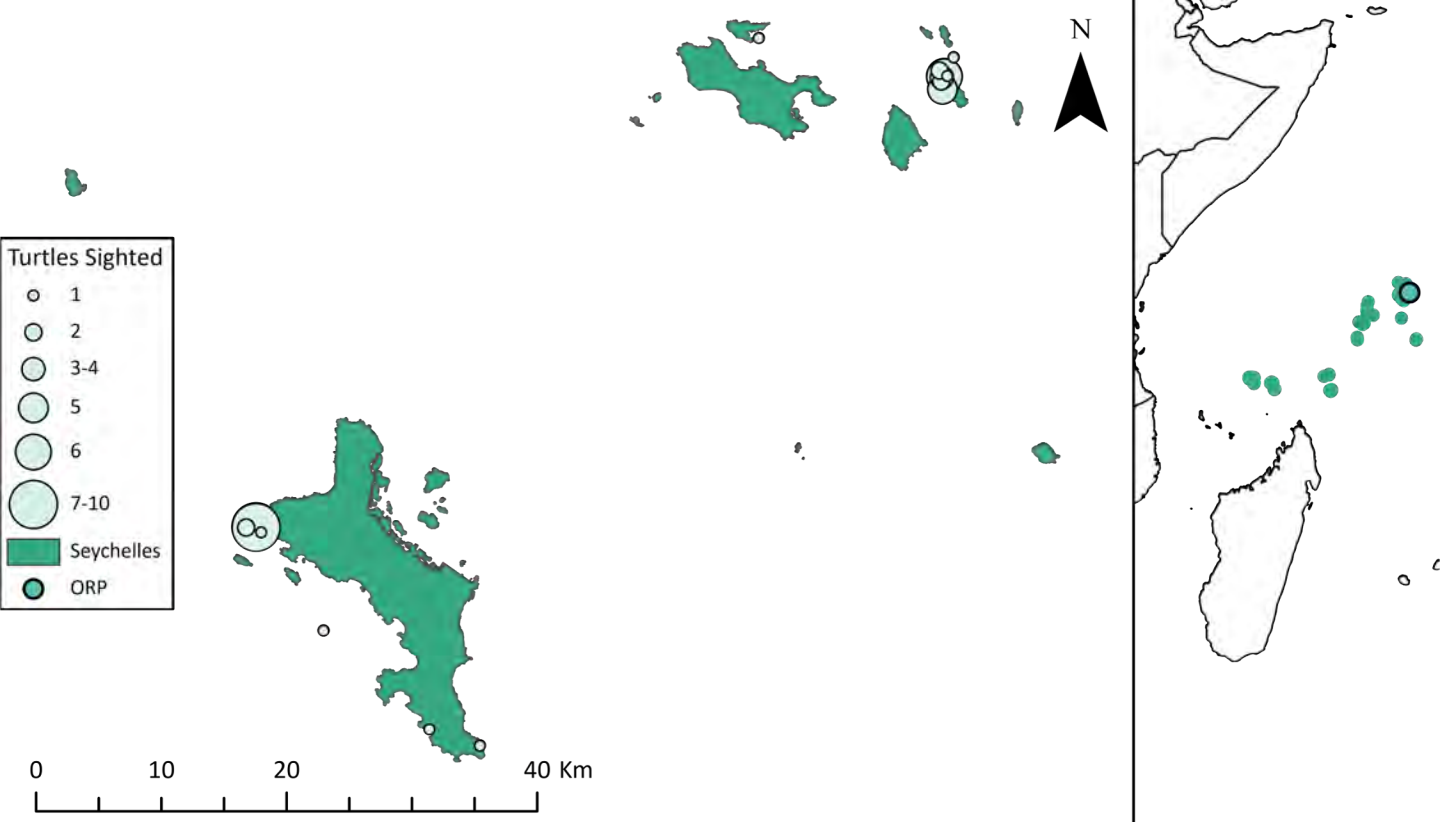
GREENS

Total Sightings: 8
Total Individuals: 7

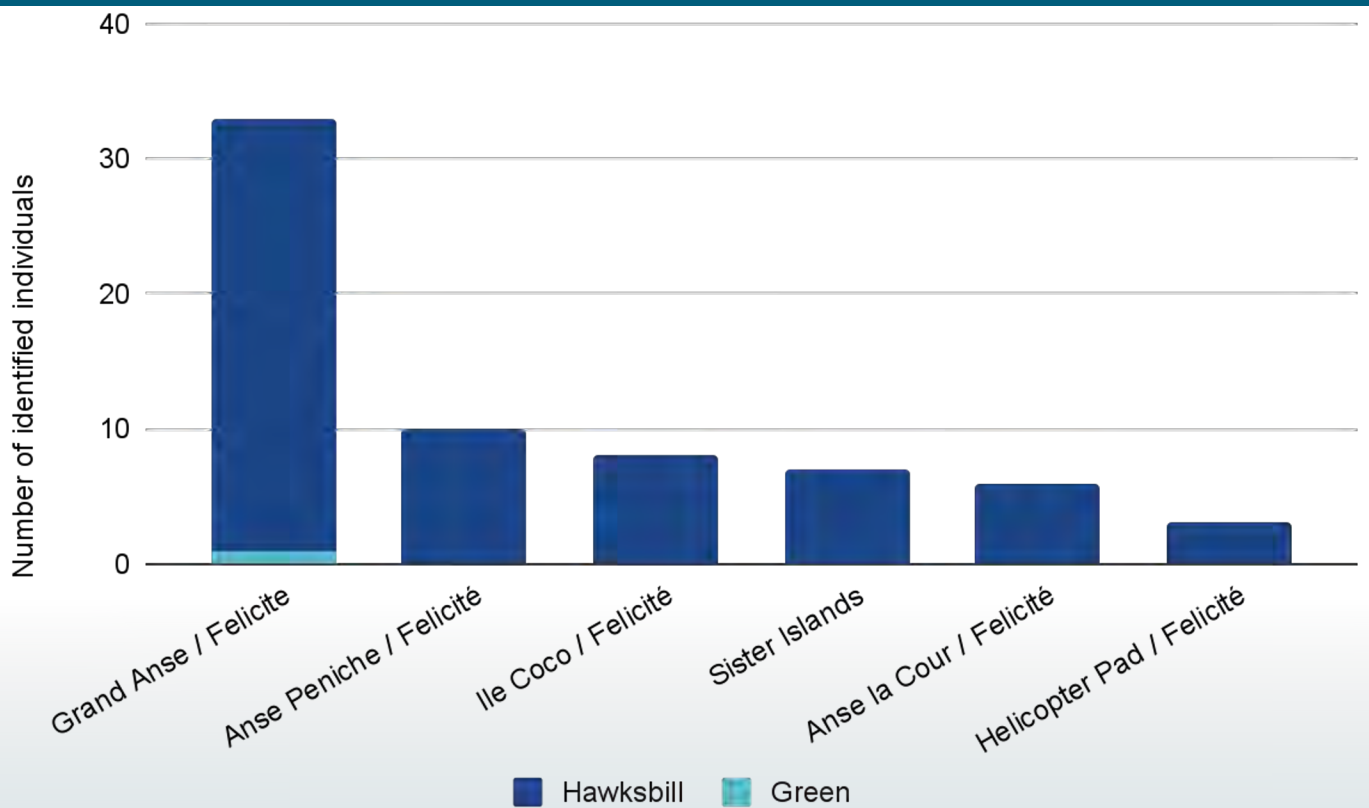


HAWKSBILLS

Total Sightings: 241
Total Individuals: 119



TURTLE SIGHTINGS & NEW INDIVIDUALS SEYCHELLES



This Year

Since Project Began

Total Number of Turtle Sightings

244

249

Total Number of New Individuals

124

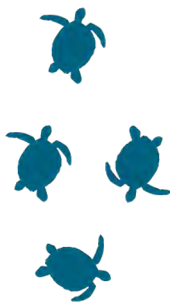
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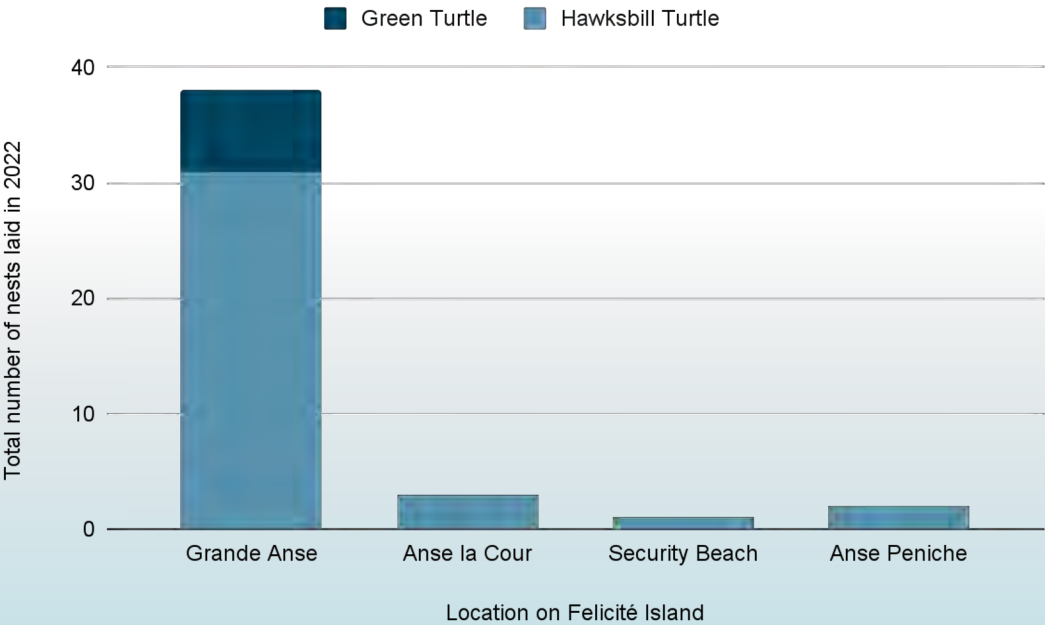
Hawksbill turtle hatchlings heading to the water

RECORDED SEA TURTLE NESTING ACTIVITY

Only includes data from Félicité Island



Total Number of True Nests:	40
Total Number of False Crawls:	76
Total Number of Live Hatchlings Counted:	4,185 (to date, not all nests have hatched & some nests were not observed hatching)
Average Hatching Success:	84,89%
Average time of incubation:	64 days







A green turtle returning to the sea after nesting in Pakistan

PAKISTAN

We expanded both our team and operations in Pakistan in 2022. Two additions were made to team: Waqar J Khan, joined us as Community Leader, and Muhammad Hanif, as Field Coordinator, in Kakapir. And whilst we continued our educational outreach, ghost gear recovery and circular economy projects, we also initiated two new research initiatives: sea turtle Photo-ID and nest monitoring for the first time in Pakistan.

Waqar is responsible for running and expanding our circular economy project. He initiated ORP's participation in pop up markets and carnivals to sell our ghost net products, and also ensured that these are stocked in prominent pet stores. This has greatly increased the projects visibility and the demand for products made by the community.

Hanif is helping us establish our presence in his village, Kakapir, located in the middle of turtle nesting beaches Sandspit and Hawke's Bay. Kakapir residents often interact with nesting females and hatchlings during the nesting season. Hanif educates the residents on ghost nets, nesting protocols and sea turtle conservation.

We took our educational outreach initiatives from the classroom to the beach in 2022 - instead of making visits to schools, we invited the students to come for a walk on the beach with us for a more impactful and interactive session in the actual environment that sea turtles inhabit. (Read more on page 55). This approach has been a great success, and we plan to expand the programme next year.

Pakistan's coastline serves as nesting habitat for primarily green turtles, although hawksbills and olive ridleys are also occasionally spotted. While green turtles are seen in large numbers every year, no data currently exists by which we can estimate population numbers.

In an attempt to fill this crucial knowledge gap, we began monitoring sea turtle nesting activity in September 2022. We've recorded eleven nesting females thus far on Hawke's Bay, which we are hoping to identify with Photo-ID in the future. We hope to expand our monitoring efforts to Kakapir, Manora and Sandspit Beach in 2023.

- Usman Iqbal, Project Manager



PAKISTAN - CIRCULAR ECONOMY

ORP has been working alongside the fishing village of Abdul Rehman Goth (ARG) since 2015 on initiatives that aim to prevent gear abandonment and disposal at sea or on beaches. ARG consists of around 3000+ small scale artisanal fishers that operate close to marine turtle nesting and foraging activity.

Our circular economy initiative allows fishers and their families to convert ghost gear into saleable products, such as dog leashes and bracelets, which generate alternative income for the community. Moreover, through our educational programmes, fishers are returning and recycling end of life fishing gear to avoid it from being disposed of in the environment.

The team recovered 381 kg of ghost gear, predominantly in the form of monofilament gill nets, in 2022. Monofilament nets are very fine and break easily, often resulting in ghost gear. From the recovered ghost gear, we produced 82 ghost leashes. 57 ghost leashes and 23 ghost net bracelets were sold online and in the local market, generating a total of approximately PKR 54,500 (£150) additional income for the artisans making the products. We continue to explore new markets to sell the ghost gear products domestically, including attending several local pop-up markets and stocking them in pet shops. This has greatly increased the project's visibility and demand for the products.

- Usman Iqbal, Project Manager

	This Year	Total Since Project Began
Ghost Nets Recovered	381 kg	5,810 kg
Ghost Leashes Made / Sold	82 / 57	627 / 536
Ghost Net Jewellery Made / Sold	0 / 23	565 / 528



EDUCATION & OUTREACH

**Keep us Alive,
Do the Best
that You Can.**



EDUCATION & OUTREACH INITIATIVES



Kenya Project Coordinator Leah Mainye at Diani Sea Turtle Festival

Education is a big part of ORP's mission and an important aspect of our multifaceted approach to protecting sea turtles and their habitats. We believe education is a powerful tool to increase awareness, engage people – particularly young people – and stimulate action at local, international and policy level.

Our educational outreach initiatives take many forms and include a wide range of topics. We cover everything from sea turtle biology, anatomy, husbandry and veterinary care to threats, conservation and research findings. We organise workshops, talks and educational festivals, take part in conferences and symposiums, host webinars, visit schools and welcome school children to visit us. We also offer a [free online learning platform](#) and provide internships to build local capacity for sea turtle conservation and rehabilitation.

Our audience is global, diverse and includes everyone from school children to tourists to scientists and fellow conservationists and wildlife veterinarians. During 2022, we strengthened our commitment to education and outreach by welcoming Risha Ali Rasheed as our first full-time volunteer and educational outreach officer. Risha, who had initially joined us in 2020 as a volunteer coordinator, now oversees all educational initiatives across the charity. She frequently visits schools, local

communities and resorts to conduct lectures, workshops, and take part in and arrange educational festivals.

For the past two years, most educational and outreach initiatives had to be virtual due to the Covid-19 pandemic but in 2022 we were finally able to resume in-person events. We once again welcomed school children to the Rescue Centre and relaunched Vaavoshi Festival as a multi-atoll event, reaching more than 3,700 children and local community members. The festival was a huge success and was even featured on [CNN's Call to Earth Day](#). In Kenya, we took part in the third edition of the popular Diani Sea Turtle Festival, organized by our partners, Conservation Education Society (see above image).

Our online learning platform continues to do well with 541 new enrolments in 2022 for our free e-Turtle School and Sea Turtle Science & Conservation courses. To date, 184 students have 'graduated'. e-Turtle School received a refresh in 2022 and we added a new lesson on the importance of sea turtles. We were also delighted to receive unexpected help from [Spongebob Squarepants](#) in reaching a new audience. Our Sea Turtle Science Video "[What Are Barnacles](#)" now has 1.6 million views on YouTube!

-Risha Ali Rasheed, Volunteer & Educational Outreach Officer



INTERNSHIPS

One of ORP's goals is to build local and national capacity for sea turtle conservation and rehabilitation in all our locations. Our internship programmes, only open to residents of our host country, offer great opportunities to gain hands-on experience in many aspect of sea turtle conservation.

Our first intern joined us in 2017 for a three-month stint at the Marine Turtle Rescue Center. Here interns learn about sea turtle care and husbandry, sea turtle conservation and the running of a rescue center. They also assist with educational outreach and, if lucky with their timing, with nest monitoring and hatching events. We have since trained 19 interns at the Rescue Centre, some of whom have gone on to work full-time for ORP, other conservation NGOs, and even the government.

In January 2022 we also started a sea turtle biology internship with Maldives Underwater Initiative at Six Senses Laamu, and later in the year at Soneva Jani. The interns here learn how to collect Photo-ID data through underwater surveys, assist with nest monitoring and hatching events, and take part in educational activities at the resorts and in the community. The interns also support the resorts' marine biologists with additional research and educational activities.

We have since combined the two programmes so that interns now spend three months at the Rescue Centre and three months with a sea turtle biologist. Working alongside both the veterinary team and sea turtle biologists allow the interns to gain a thorough understanding of the many aspects of sea turtle conservation and research - the end goal being to fully train them to work with ORP long term.

In 2023 we will launch an internship programme in Diani, Kenya in collaboration with our partner Diving the Crab. This programme aims to increase local capacity for sea turtle conservation and research, and in particular underwater research, and give recently graduated biology students an opportunity to gain field work experience.

All ORP interns receive a stipend, as well as meals and accommodation for their duration of stay.

-Risha Ali Rasheed, Volunteer & Educational Outreach Officer

VAAVOSHI SEA TURTLE FESTIVAL MALDIVES



Vaavoshi Sea Turtle Festival, initially conceptualised by our former Resident Veterinary Surgeon, Dr Claire Lomas in 2019, is a celebration of sea turtles and marine habitats. ‘Vaavoshi’, meaning ‘olive ridley’ in Dhivehi - the local language of the Maldives, aims to spread awareness about key marine habitats and ecosystems, the critical role that sea turtles play in maintaining these habitats, and the threats faced by marine life in the country.

In October 2022, Vaavoshi Sea Turtle Festival was celebrated across eight atolls in the Maldives as the first multi-atoll festival in the country. Nationwide, 2,177 students and more than 1,606 community members joined the festivities. The festival’s main objective is to educate students on the importance of protecting sea turtles and their habitats through a variety of fun educational activities. These included talks, video and poster competitions, beach clean-ups, sand sculpture competitions, and a marine creature parade where students marched together advocating for the protection of sea turtles and their habitats. The festival also addressed cultural attitudes towards sea turtles by clearing misconceptions regarding the species and their conservation status.



The support for Vaavoshi 2022 was phenomenal. We hope it will inspire younger generations to become more conscious of their actions and consider education and career opportunities in marine sciences and conservation. [The success of the Vaavoshi Festival](#) was only possible thanks to the help and participation of many - most of all the eight schools that co-hosted the festival with us with support from the Ministry of Education. Additionally, we had support from parents, island councils, Maldives Police Service, NGOs, local businesses, individuals and volunteers, partner resorts, the British High Commission in the Maldives, Bank of Maldives, and the Environmental Protection Agency of Maldives; we thank you all.

NESTING BEACH TOURS IN PAKISTAN

In Pakistan, we were delighted to invite 125 students from six different schools operated by [Development in Literacy](#) for nesting beach tours on Hawke's Bay Beach. The students are shown sea turtle nesting hotspots, turtle tracks, false and true nests, and taught about the different sea turtle species found in Pakistan, sea turtle biology, and the threats they face – particularly ghost gear – through interactive educational sessions. We also focus on how to behave around nesting sea turtles and how to ensure hatchlings make it safely to the sea undisturbed.

During one of the nesting beach tours, the students also took part in a beach clean-up. In total, they removed around 40 kg of general trash.



ORP Pakistan Project Manager Usman conducts an educational session with students from DIL Orangi Campus students on Hawke's Bay Beach

WORKING WITH FISHERFOLK IN KENYA



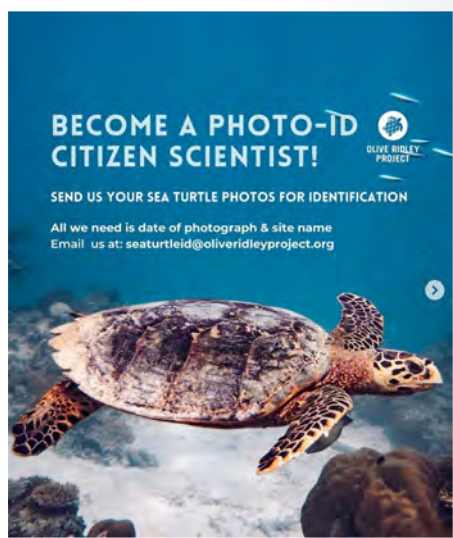
Juma and Leah conducting informal interviews with community members in Diani

In Kenya, our team conducted a pilot study, visiting the fishing communities around the Diani-Chale Marine National Reserve (DCMR). We met with 35 fisherfolk ranging from 35 to 80 years, and participated in discussions to better understand the fishing communities' encounters with sea turtles and their experiences with bycatch and ghost gear.

From this study, the Kenya team will launch a new community education and outreach programme for 2023, with the aim to foster positive attitudes towards sea turtle conservation and encourage voluntary adoption of good fishing practices to reduce sea turtle bycatch at the local level.

DIGITAL REACH

In 2022 our digital presence continued to grow across Instagram, Facebook, Twitter and Youtube (below). We also expanded our reach to Tik-Tok and LinkedIn. We place a strong belief in education and knowledge-sharing, and are grateful to be able to reach out to our ever-growing global audience on social media. This interconnectedness has helped us spread the message of sea turtle conservation far and wide, and we look forward to forging new connections in 2023.



(Left) We launched three major social media campaigns; one on the common misconceptions regarding nesting turtles in the Maldives and another on sea turtle Photo-ID, aimed at increasing Photo-ID submissions from the general public and citizen scientists. Through interactive posts across our social media channels, both campaigns reached an average total of 40K people.

On World Sea Turtle Day, we conducted a week-long campaign that highlighted the threats to sea turtle populations worldwide. The campaign ended with a three-part illustration series on “Why are sea turtles important to YOU”. This series exemplified the many ways in which sea turtles contribute to the welfare of human societies and were therefore pleased that this reached 14K people across our social media platforms.

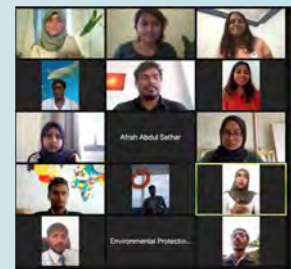
CONFERENCES, WEBINARS & PRESENTATIONS

At ORP, we routinely organise and participate in conferences and webinars to share our research findings among the scientific and conservation communities, as well as to gain insights from other professionals. Here are some of the events we participated in in 2022:

- In March 2022 ORP joined the International Sea Turtle Symposium hosted in Perth and conducted online. The International Sea Turtle Symposium is a global gathering where sea turtle biologists, conservationists, indigenous groups, researchers, academics, and advocates, come together to share knowledge, build capacity, network and collaborate towards the protection and conservation of sea turtles.
- In May, ORP members participated in a webinar on 'Maldivian Youth in Sea Turtle Conservation', hosted by the Environment Protection Agency of the Maldives.
- We hosted our 2nd annual World Sea Turtle Day webinar in the Maldives titled 'Sea Turtle Science in the Maldives', which highlighted key milestones in sea turtle conservation science, and presented ongoing projects by organizations working for sea turtle research and rehabilitation.
- ORP members participated in the Fourth Maldives Marine Science Symposium, in August 2022 at the Maldives National University, Malé, and presented across a wide range of topics from nesting to socio-economic value of sea turtles to the Maldives' tourism industry.
- From 7th-9th October, ORP participated in the New Scientist Live 2022 exhibition, a fantastic multidisciplinary festival of scientific discovery and ideas. Former ORP members who now volunteer with us in the UK, stepped in to run the ORP stall and share our research and conservation efforts with over 300 attendees.
- The 12th Western Indian Ocean Marine Science Association Symposium (WIOMSA) held from 12th-15th October 2022 in South Africa. Our Kenya team presented on Photo-ID as a 'Tool to Study Sea Turtle Populations in Kenyan Marine Protected Areas'
- ORP's Senior Project Scientist, Dr Stephanie Köhnk gave a presentation on the successful integration of Citizen Science in conservation, to the German Youth for Conservation (Naju) group at the Ludwig-Maximilians-University Munich.



40th International
Sea Turtle Symposium



Maldivian Youth in Sea
Turtle Conservation



Fourth Maldives Marine
Science Symposium



New Scientist Live 2022



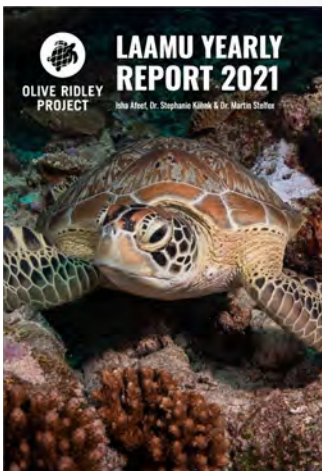
12th Western Indian Ocean
Marine Science Association
Symposium

PUBLICATIONS

In addition to ORPs regular technical reports and reviews, ORP team members were part of a working group that created and published the first ever National Red List Assessments for select species in the Maldives in February 2022, covering each of the five sea turtle species which have been reported from the country.

Three of the assessments - the ones for hawksbills, greens and olive ridleys - were led by ORPs CEO Dr Martin Stelfox and Senior Project Scientist Dr Stephanie Köhnk. Amongst other resources, they included information about each species' population, nesting activity and potential threats as collected in ORPs Photo-ID, nesting, veterinary and entanglement databases, resulting in an evaluation of each species' extinction risk following categories and criteria established by the International Union for Conservation of Nature (IUCN).

The working group found that for olive ridley turtles not enough information was available for the Maldives, hence listing them as "Data Deficient". Green and hawksbill turtle populations each experienced a significant decline in recorded nesting activity in the country and have therefore been listed as "Endangered" (green) and "Critically Endangered" (hawksbill) in the country, which is in agreement with regional trends for these species in the Indian Ocean.



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- Köhnk S 2022. *Eretmochelys imbricata*. The Maldives Red List of Threatened Species. Available online: <http://www.environment.gov.mv/v2/en/download/14670>
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FINANCIALS



2022 Funding & Charitable Costs

During 2022 ORP has seen record financial growth, with income received during the year of £559,797, an increase of 45% on the previous year. The sustained financial growth over the past two years has enabled us to expand our charitable operations and accelerate programmes included in our longer-term plans. As a result, expenditure during 2022 was £383,617, an increase of 129% on the previous year.

In 2022, 97% of our expenditure was spent on charitable activities undertaken to further our charitable objectives and 3% was spent on raising funds. The split of expenditure across our three core objectives was:

- Rescue and Rehabilitation – 30%
- Scientific Research – 42%
- Education & Outreach – 7%

56% of our expenditure during the year was from unrestricted funds, with 44% from restricted funds.

Charitable Programmes Acceleration

The growth in our income over 2022 has enabled us to revisit our strategy for the next five years and accelerate several key initiatives and expansion plans. We would once again wish to express our deepest gratitude to our generous supporters who have provided us the platform to achieve this. The key initiatives that we are able to accelerate into 2023 are:

- Genetics study in the Maldives for hawksbill and green turtles
- Sea cage development to support rehabilitative efforts.
- Acquire new specialised medical equipment for treating sea turtles
- Advance data collection and community engagement along Kenya's South Coast.

Building Financial Security

ORP is currently funded entirely through donations and grants, with the vast majority of our income being from private donations generated through our adoption and rescue centre volunteering programs, and donations from our corporate partnerships.

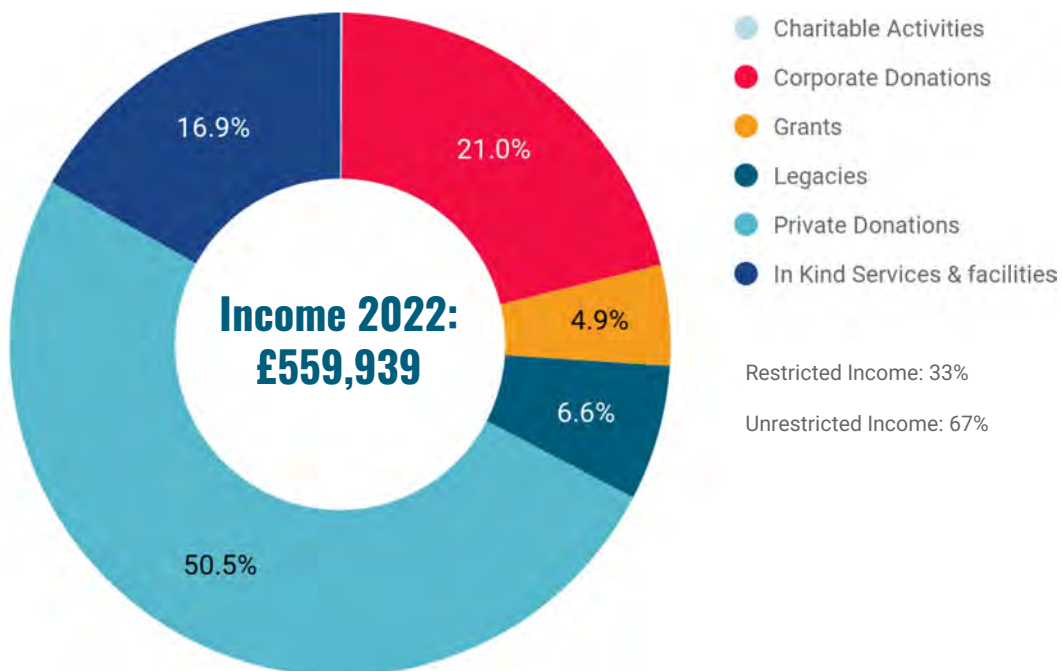
A strategic review of our fundraising was performed during the year, and as a result we will be securing the support of a full-time fundraiser during 2023. The aim here is to maintain the growth ambitions of the charity through the optimisation of our existing income sources and diversification into new areas of funding.

The appropriate level of financial reserves held by ORP is considered each year by the Trustees. In order to operate effectively in the event of unforeseen circumstances, the Trustees have agreed that financial reserves should be maintained to cover a minimum of 3 months of essential operating costs.

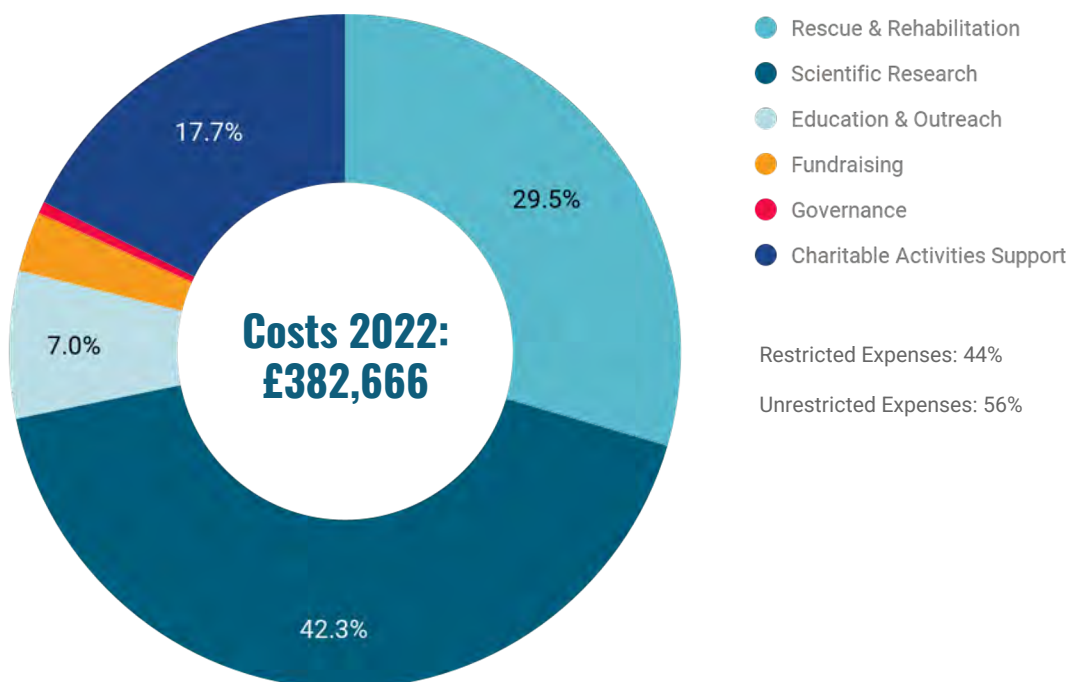
Given the growth in income received over the past 2 years, current funds within ORP are in excess of the minimum reserve requirements. However, with the acceleration of key initiatives and expansion plans, we have allocated these funds to be spent over the coming 12-24 months, returning funds to a level that is more aligned to our reserves policy.

- The Board of Trustees

HOW WE ARE FUNDED – 2022



WHAT WE SPENT – 2022



OBJECTIVES FOR 2023

EXPAND RESEARCH PROJECTS

1. Continue to expand research projects in order to:

- Fill data gaps in sea turtle population health
- Expand our satellite tagging program to identify major foraging habitats, fisheries interactions and release success
- Assess environmental factors influencing sea turtle behaviour and nesting
- Assess green turtle feeding behaviour and diet composition
- Establish a Sea Turtle Health Database of clinical indices to track population health of sea turtles in Maldivian waters

2. Expand our ghost gear recovery and repurposing projects in the Maldives and Pakistan

- Expand our ghost gear recovery efforts in Noonu Atoll, Maldives
- Extend circular economy products into local shop owners and pop up markets in Pakistan

3. Increase collaborative projects with local groups and governments

- Finalise and sign multi stakeholder agreements to protect sea turtles on Gaadhoo in Laamu Atoll
- Finalise and sign multi stakeholder agreements to protect sea turtles in Vandhoo in Raa Atoll
- Continue to work with governments to assist in data collection and/or conservation management of sea turtles.
- Engage local groups and individuals in sea turtle conservation and research.

4. Provide the best possible care for injured sea turtles in the Indian Ocean

- Expand our clinical and rehabilitation facilities in the Maldives and in other areas in need of our expertise
- Serve as leading innovators in sea turtle medical therapy to ensure best veterinary practices are implemented at our sea turtle hospital and share these innovations and therapies with other sea turtle rescue centres internationally
- Evolve our Visiting Veterinary Programme into a formalised training tool in sea turtle medicine with special emphasis on increasing clinical knowledge of veterinarians from developing countries.
- Establish Clinical Research Programme to investigate specific disease processes prevalent in sea turtles inhabiting the region

5. Build national and local capacity for sea turtle conservation

- Build relationships with local NGOs, universities and local groups to help protect sea turtles and their habitats.
- Increase local participation in scientific research
- Expand our online learning tools to compliment national and international learning projects.

GHOST GEAR REPURPOSING

COLLABORATION

TURTLE REHABILITATION

BUILD CAPACITY

2022 PARTNERS, COLLABORATORS & DONORS



The Olive Ridley Project would not be able to achieve its goal of protecting sea turtles and their habitats without the incredible help and support that we receive from many people across the globe. We are so grateful and would like to take this opportunity to say a huge thank to all of you! Thank you to our collaborators and partners for both logistical and financial support; our volunteers that help care for our patients; our community of sea turtle lovers that follow us on social media, continuing to encourage us and help share awareness; our citizen scientists for the vital Photo-ID data contributions; our donors, adoptive parents and fundraisers for their generosity; our students eager to learn about sea turtles and last but not least, our advocates that help rescue stranded and entangled turtles and remove ghost gear from the oceans.

Together, we have:

- Treated 196 injured sea turtles and successfully released 118 back into the wild at the end of 2022;
- Recovered more than 10 tons of ghost gear from beaches and oceans, and saved countless turtles and other animals from getting entangled;
- Made big headways in our research into sea turtle populations, distribution and threats, including the identification of more than 6,860 individual sea turtles in the Indian Ocean and documentation of tens of thousands of sea turtle sightings;
- Educated thousands of school children, tourists, divers, fishers and resort employees;
- Contributed data and analysis to the first ever Red List Assessment of sea turtles in the Maldives. This assessment will lay the foundations for research priorities and conservation action for all sea turtles species in the Maldivian Archipelago, including the forthcoming sea turtle management plan.

GLOSSARY OF TERMS

Atoll

An atoll is a ring-shaped coral reef, island, or series of islets. The atoll surrounds a body of water called a lagoon.

Blunt trauma (or blunt force trauma)

Any trauma that is caused by crushing force, most typically resulting in fractured bones of the carapace, plastron or skull.

Buoyancy syndrome

Buoyancy syndrome is a common condition that can occur in all 7 species of the sea turtle. It is characterized by inappropriate floating at the surface of the water and difficulty submerging or diving. It can occur following traumatic injuries, behavioral disturbances, or when diseases of the lungs and gastrointestinal tract are present, which cause a build-up of gas in the body cavity.

False crawls

Any instance where a female turtle ready to nest comes ashore but leaves again without successfully nesting due to disturbance or her not finding a convenient nesting location. Can include aborted nesting attempts.

Ghost gear

Ghost gear is fishing gear that has been abandoned, lost or discarded (ALD), at sea, on beaches or in harbours, including nets, lines, traps, pots and fish aggregating devices (FADs).

Habitat connectivity

Degree to which organisms and natural processes can move unimpeded between different habitats.

Monofilament gillnets

Monofilament is a single fibre of plastic material that is often made into fishing lines or Gillnets. Gillnets are designed to catch fish by their gills but also catch other animals, known as 'Bycatch' (unwanted fauna trapped by commercial fishing nets). Monofilament material is becoming increasingly transparent or 'superfine' in some regions to increase their catch. As a result, they often break easily, adding to risk of marine debris in the ocean.

Necropsy

A necropsy is the examination of an animal's body after death.

Remigration

The returning to an individual's original or previous home after a migration. In the case of a female sea turtles, she will return to the beach or area where she was born, to nest (also known as 'natal homing').

Sea cage

A sea cage is a netted cage or pen commonly used for the farming of fish. In the rehabilitation of sea turtles, a sea cage can be useful for re-introducing a sea turtle to their natural environment. Being in the cage allows them to build their strength with a greater depth, in comparison to a rehab centre holding tank, to be able to practice their diving.

Stranding

A sea turtle stranding, or stranded sea turtle, is when the animal is found floating in the water or washed ashore, alive or dead.

True nests

A nest laid by a sea turtle, in contrast to false nests, which are aborted nesting attempts.

For general queries or enquiries regarding our work, please contact:

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For updates on our work, follow ORP'S social media channels

