

OLIVE RIDLEY PROJECT

Protecting Sea Turtles and Their Habitats



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NEWS FROM THE FIELD: JULY-SEPTEMBER 2022

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ABOUT OLIVE RIDLEY PROJECT



Olive Ridley Project (ORP) is on a mission to protect sea turtles and their habitats through:

- Rescue and Rehabilitation
- Scientific Research
- Education and Outreach

OUR RESEARCH

Our research areas include:

- Biogeography (population dynamics)
 - Reproductive biology
 - Population ecology
 - Threats to sea turtles
 - Sea turtle conservation
 - Sea turtle veterinary science



OUR PARTNERS

The Olive Ridley Project (ORP) is a charity established in 2013, registered in England & Wales and in the Maldives. We have partnered with resorts, organisations and local NGOs to host our rescue and rehabilitation centres and research teams, and to maximise the effectiveness of our reach in local communities. We would like to extend our gratitude to our partners for their help, support and endorsement of our cause.



































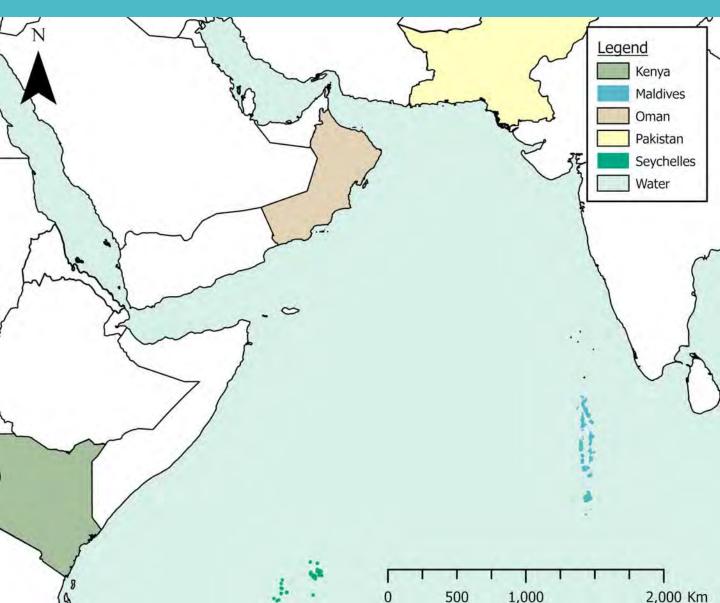








OUR BASES



Kenya

Established: 2018 Base: Diani Beach

Main Activities: Sea turtle population and habitat

connectivity research.

The Maldives

Established: 2013

Bases: Baa, Laamu, Lhaviyani, North Malé, Noonu & Raa

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

Base: Abdul Rehman Goth, Karachi

Main Activities: Ghost gear recovery, mitigation, and

repurposing; educational outreach.

Seychelles

Established: 2021 Base: Félicité Island

Main Activities: Sea turtle population, habitat connectivity

and threats research



EXECUTIVE SUMMARY

The third quarter of the year was yet again an adventurous one for all ORP members, filled with a lot of sea turtle nesting, many outreach events and some newly forged partnerships across our field sites.

Turtle nesting in the Maldives was at its highest with a record number of nests at Soneva Jani and Coco Palm Dhuni Kolhu. Our biologists fought adverse weather events that led to beach erosion and inundated nests in Laamu and Baa atolls. We are happy to say that we can counteract this issue now with nest relocations (under an EPA permit).

We were also delighted to participate in the the fourth Maldives Marine Science Symposium, held in Malé in August. Here we made four contributions by presenting findings from our socio-economic study, sea turtle nest monitoring, turtle patient history analysis, as well as the sea turtle National Red List Assessments as published in February 2022.

Over at the Rescue Centre at Coco Palm Dhuni Kolhu, our veterinary team was supported by two great interns this quarter, Naahi & Afrah. The Rescue Centre admitted five new patients and currently, nine patients are still in our care keeping everyone busy. We also saw many volunteers and visiting experts, including veterinarians from the UK and Portugal.

As part of our collaboration with like minded NGOs, our Lead Veterinarian Dr Claire visited Sal island, Cape Verde, home of Project Biodiversity, in September to assess the need for a rescue centre on the island and to discover avenues for collaboration over sea turtle protection.

Our satellite tagging program, <u>#ORPTrack</u> progresses, even though both deployed tags stopped within 55 days. A first look at data shows that rehab patients still have exceptional navigation and dive skills.

In the last three months, only nine ghost nets were recorded, which is in agreement with overall expected low numbers during this southwest monsoon season. Together with late reports of previously collected nets, we have now recorded information of 640 ghosts net conglomerates in total in the Maldives.

In September, our Senior Project Scientist Dr Stephanie visited the Maldives, joining the team in various turtle themed workshops and initiating our new partnerships at Fairmont Sirru Fen Fushi in Shaviyani Atoll, and Amilla Maldives Resort & Residencies in Baa Atoll. Additionally, we joined a one day survey and pilot trip through South Malé Atoll in preparation for a sea turtle genetics expedition to be conducted together with Environmental Protection Agency in the near future.

Moving on to Kenya, our team conducted further training in the south of the country for other conservation groups and prepared for an exciting upcoming field season with a new team member and additional research paths. We picked up in water activities again after the bad weather season, returning to logging turtle encounters.

Harsh weather also dominated the last quarter for our sea turtle biologist in Seychelles, which led to a significant

EXECUTIVE SUMMARY contd.

lack of sea turtle encounters for a large part of the time. We have come to the conclusion that the sea turtles are migrating to different habitats in rough sea conditions and hope to investigate this further in the future. Excitingly, nesting season has arrived earlier than expected on Félicité Island with rarely observed green turtle nestings recorded on the island. We are now preparing for the hawksbill nesting season with improved equipment, including temperature loggers and a drone, and are keeping an eye out for green turtle hatchlings.

In Oman, we have unfortunately been witnessing a constant influx of oil and tar in the waters near Musandam, the source of which is still unknown. Even though we have not recorded any affected turtles, we are working with the authorities to provide samples from each incident.

Our sea turtle Photo-ID research project was quite successful this last quarter: We identified a total of 76 new individuals in the Maldives, including 44 green turtles and 32 hawksbills. 790 identified turtle encounters were recorded and uploaded to the Internet of Turtles. This was in part possible due to our amazing citizen scientists throughout the country, who share their turtle encounters with us, for which we are incredibly grateful!

Team Kenya, despite the weather conditions was able to recorded 58 turtle sightings during 12 survey opportunities in Diani, including six new green turtles.

In Oman, we recorded 26 turtle encounters, including two new individuals, one green and one hawksbill turtle. As in many areas of the Indian Ocean, adverse weather made data collection rather challenging in the last quarter.

In Seychelles, we've had a special entry to our data set - a nesting green female, a first for us! We've had nine additional turtle sightings in the Seychelles including one new hawksbill and the aforementioned green turtle.

To support our on-ground efforts, we launched a digital campaign this quarter, encouraging Photo-ID submissions from citizens and scientists alike. We are constantly working on expanding our database and improving it to re-validate historical and new Photo-ID alike.

Back in the Northern hemisphere, our Pakistan team also braced some very harsh weather conditions this quarter. Despite torrential rainfall, they recovered 134 kg of ghost gear and kept a close eye on sea turtle nesting activity on Hawke's Bay beach, which we will be monitoring in the future.

Our various turtle adoption programs continue to be popular and generate a substantial amount of donations for us. We are grateful for the continued support we are receiving!

Focussing on online education, 142 new students enrolled in our online courses last quarter and we have a total of 166 'graduates' to date. We have recently updated our <u>e-Turtle School</u> with a new lesson on the importance of sea turtles.

In the upcoming months we are looking forward to a great finale to 2022 including a sea turtle festival, conference attendance and further advancing of our research projects.

- Dr Stephanie Köhnk, Senior Scientist



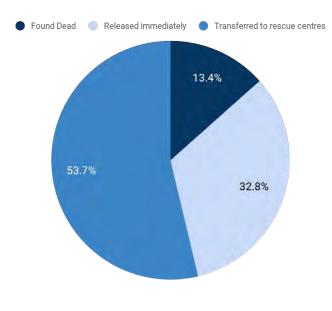


MALDIVES

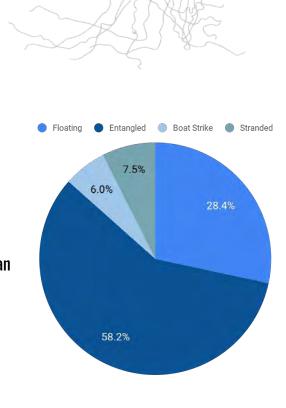




STRANDED SEA TURTLES REPORTED: MALDIVES

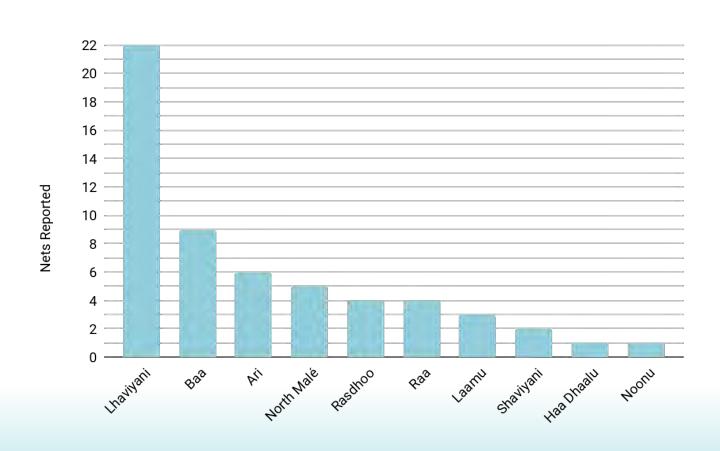


This Quarter	This Year	Since Project Bega
5	54	965
2	5	37
4	8	103
0	0	4
11	67	1109
	5 2 4 0	5 54 2 5 4 8 0 0





GHOST NET REPORTS



GHOST NETS REMOVED - MALDIVES

This Quarter This Year Since Project Began

Ghost Net Conglomerates Removed 9 57 640*

*includes late registrations of nets



TURTLE RESCUE & REHABILITATION

This quarter concluded with a total of five new arrivals, five releases, one transfer and unfortunately, one death at the Marine Turtle Rescue Centre in Baa Atoll. The new arrivals were predominantly entangled olive ridleys, and four out of the five releases were also entanglement cases, with an average stay of 144 days at the Rescue Centre.

Similarly to the previous quarter, most of our current patients are undergoing extensive wound care management with regular repeat blood work, X-ray and/ or ultrasonography follow-ups. We are expecting more releases before the northeast monsoon and peak entanglement season starts in mid-November.

One of our most recent cases - Lakia, was detected with a complete fracture in the right front flipper. Given that there was pain sensation at that flipper, the team decided to preserve as much of the flipper as possible, and reserve amputation as the last resort. Hopefully, with the

current treatment plan Lakia regains moderate functionality of that flipper over time.

Excitingly, the long-awaited transfer of Heidi to the National Marine Aquarium in Plymouth, UK is likely to be happening in October this year, so we are busy preparing for it. The veterinary rescue team is also assisting with the preparations for ORP's annual sea turtle festival called 'Vaavoshi', The canopies at the Rescue Centre are undergoing a replacement for the festival, thanks to the tremendous support from Coco Collection.

- The ORP Veterinary Team





TURTLE PATIENTS

	This Quarter	This Year	Since Project Began
New Patients Admitted	5	31	201
Patients Treated	5	38	195
Turtles Released	5	12	104
Turtles Deceased	1	13	70
Patients Still in Care (ORP only)	8		

TURTLE ADOPTIONS

	This Quarter	This Year	Since Project Began
Patient Adoptions	73	211	1,278
Maldives Adoptions	29	134	596
Kenya Adoptions	7	16	118
Seychelles Adoptions	12	18	18
Famous Turtle Adoptions	5	20	120



CURRENT TURTLE PATIENTS REASON FOR ADMITTANCE

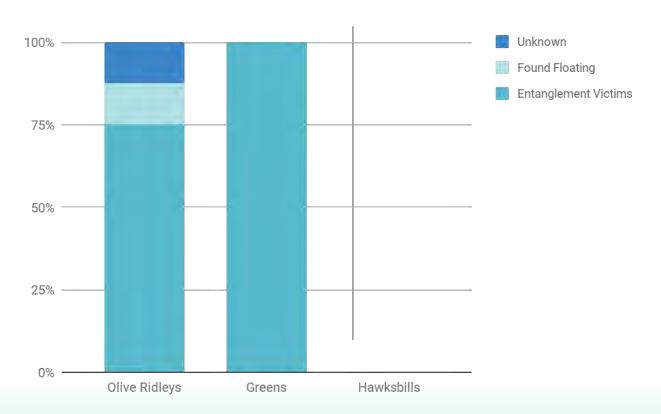


Figure 1. Reason for admittance by species



Olive ridley turtles make up 88% of all patients
Patients requiring flipper amputation (this quarter): 1
Average length of stay (all patients): 290 days

CURRENT TURTLE PATIENTS



New Patients at MTRC: Kakuni, Fida, Naseeb, Lakia, Pepe Released: Finihaka, Jazeera, Basil, Crwban, Kalo Deceased: Spirit



INTERNSHIPS, VOLUNTEERS, VISITING VETS & EXPERTS

Since 2017 we have hosted 16 interns at the Rescue Centre, many of whom, we are very pleased to report, have continued working in the marine conservation field - some for the government, others for NGOs or at resorts as marine biologists and educators.

Our latest intern, Afrah, from Addu Atoll, has been a great asset to the team. He previously served as a sea turtle biologist intern at Six Senses Laamu where he assisted the team with nest monitoring and Sea Turtle Photo-ID research. At the Rescue Centre, he has been trained in sea turtle first-aid and husbandry.

Our internship programme is designed as a capacity building initiative, aimed at providing young Maldivians with well-rounded training in sea turtle science, research and husbandry. We are extremely proud of our interns, all of whom go on to become flag bearers of science and conservation in the Maldives.

This quarter, we were assisted by 16 volunteers, from nine countries. Many of our volunteers report their experience to be a life changing one and for some, this opportunity is often their first introduction to wild marine animals and their habitats. We are greatly appreciative of our volunteers, who play a crucial role in our rescue and rehabilitation efforts at the Rescue Centre.

The centre was also visited by experts and veterinarians including Dr Amy Castleton-White from the UK, Dr Mariana Fragoso from Portugal, and ORP Senior Project Scientist Dr Stephanie Köhnk.

While for Dr Amy it was a first working in sea turtle medicine, Dr Mariana was able to add Maldives to her list of experiences in sea turtle medicine from Florida, Texas and Greece. We are grateful to be able to participate in knowledge sharing with experts, and hope to continue to host professionals in sea turtle veterinary sciences from across the world.

-Dr Claire Petros, Lead Veterinarian

ORP TRACK - A SATELLITE TAGGING PROGRAMME

Our second satellite tagged patient Pickle (shown on the right upon intake at the Rescue Centre in December 2021) was recorded spending her days towards the east of the Maldives archipelago, just before her tag stopped transmitting data.

Pickle approached the Maldives from the south-east up to the latitude of Meemu Atoll, remaining roughly 100 km east of the atoll. Pickle spent several days here before changing trajectory again.

She then turned south-west and approached Gaafu Atoll to within 20 km of its islands! Afterwards, Pickle resumed swimming closely along the edge of Gaafu before turning further south in the direction of Fuvamulah Atoll.

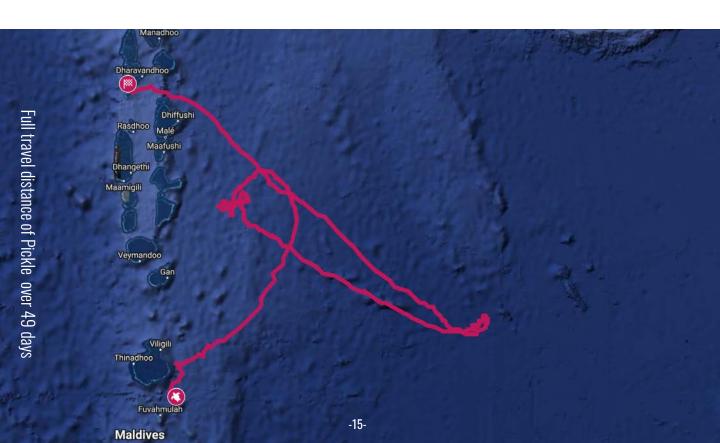
Here we lost connection after 70 days of Pickle's release. We hope Pickle is still swimming healthy and free, and that the loss of signal is due to biofouling (accumulation of microorganisms such as algae) of certain sensors on the tag, and not for other reasons, especially since Pickle swam in the direction of a well known tiger shark hotspot.

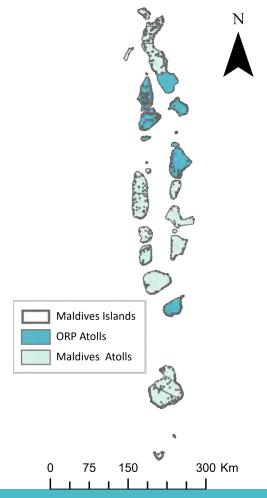
In total, Pickle travelled 2,481 km at an average speed of 1.47 km per hour. She covered 35.4 km on average per



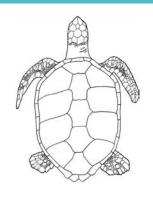
day of travel and dove down to a maximum of 90 m. We are now in the process of analysing all the data that has been recorded from Pickle's tag.

We are looking forward to extending our satellite tracking program in the near future, thanks to the generous donations from our supporters.



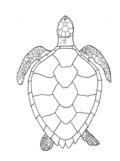


SEA TURTLE SIGHTINGS & NEW INDIVIDUALS: MALDIVES



GREENS

Total Sightings: 10,916 Total Individuals: 1,292



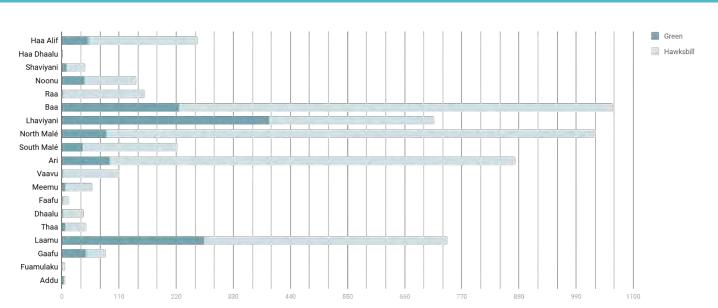
HAWKSBILLS

Total Sightings: 21,447 Total Individuals: 4,336

	This Quarter	This Year	Since Project Began
Total Number of Turtle Sightings	790	2,866	32,367
Total Number of New Individuals	76	361	5,628



SEA TURTLES IN THE MALDIVES



In Q3 of 2022, our biologists, collaborateurs and citizen scientists recorded 790 identified turtle encounters in the Maldives, We would like to thank you all for your continued support!

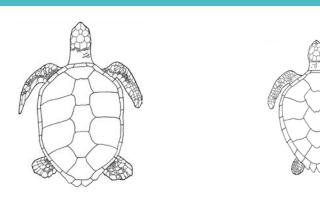
The largest population of identified turtles can still be found in Baa Atoll with a total of 1061 individuals, 835 of which are hawksbills. A close second remains North Malé Atoll with 1028 individuals, including 942 hawksbill turtles - that is the largest number of recorded hawksbills in the country to date. Ari Atoll still is the home to the third largest group of identified hawksbills - 781 - with a total of 873 individuals, including 92 greens.

By far, the largest number of green turtles can be found in Lhaviyani Atoll with 399 identified individuals. Including hawksbills, 717 turtles have been identified in the atoll. Second and third largest green turtle populations have been registered in Laamu (274) and Baa (226) atolls, with a resident hawksbill population of 469 and 835 individuals respectively. Lhaviyani Atoll still remains the only well documented atoll with a larger green than hawksbill turtle population.

The difference in data coverage is resulting from a large number of resorts in the central atolls, as well as a relatively consistent effort by our team members in certain atolls. In atolls where still relatively few turtles have been photographed, we greatly appreciate all submissions from citizen scientists to extend our knowledge.



LAAMU ATOLL, MALDIVES



GREENS

Total Sightings: 3,180 Total Individuals: 274

HAWKSBILLS

Total Sightings: 2,540 Total Individuals: 468

	This Quarter	This Year	Since Project Began
Total Number of Turtle Sightings	140	615	5720
Total Number of New Individuals	23	62	742



LAAMU ATOLL

This quarter was an exciting one in Laamu, as we along with Maldives Underwater Initiative (MUI) started venturing out onto the local islands to conduct community activities - the first time since the pandemic that this could be resumed! We organized clean-ups for local islands, held educational sessions, and also participated in the second quarterly meeting of Laamu communities known as 'Eku Eky', meaning together in Dhivehi.

Additionally, we had the chance to host delegations from the United Nations Environment Programme (UNEP), Ministry of Environment, Climate Change and Technology, and also from the <u>Nekton Mission</u> during their preparations to conduct the first exploratory dive of life down to the midnight zone of the ocean.

In terms of sea turtle activity, it was a difficult time for nesting mothers - in July, severe storm surges eroded the beaches of Olhuveli and Gaadhoo islands. On Olhuveli, we documented an increased number of false crawls, with nesting females venturing further inland to find a suitable nesting spot. The majority of

nests incubating at this time were unfortunately completely flooded. We continue to monitor nests with the help of our nestwatch volunteers - there are three nests due to hatch in October, and no further nesting attempts made on island. However, nesting continues in Gaadhoo - and we have also documented an increase in poaching.

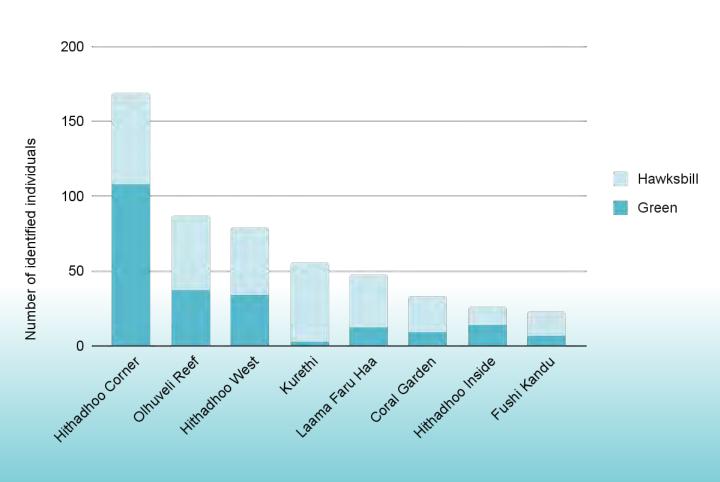
The wild turtle population of the atoll is being monitored with Photo-ID, and we have trained new recruits on data collection. We had 232 Photo-ID submissions from MUI this quarter, bringing the total number of identified Laamu turtles to 742.

Thanks to our former intern Afrah's help, we made use of stereo-videography equipment to measure turtles. We also recruited a new intern to join the team for six months in Laamu.

- Aminath Angeela, ORP Sea Turtle Biologist, Laamu Atoll



SEA TURTLE SIGHTINGS & NEW INDIVIDUALS: LAAMU ATOLL



LAAMU

(Right) We had a surprise hatching on an island this month, after a nest that had been identified as a false crawl or failed nesting attempt actually hatched! The hatchling was first spotted by guests on the beach, who then helped coordinate rescue efforts to find the rest of the hatchlings along with our team. The hatchlings, disoriented by the villa and pool lights, had unfortunately started going inland. All in all, thanks to the coordinated effort, around 30 hatchlings were found and released to the sea.



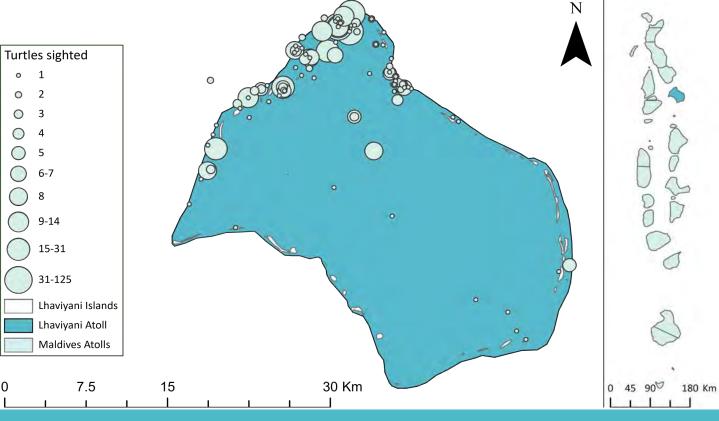




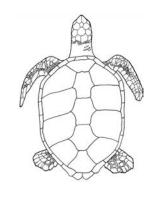
(Left) In Laamu, we celebrated PADI Women's Dive by hosting 19 women and girls from the local islands to take their first breath underwater. The event was organised with MUI and Deep Blue Divers (DBD). The participants were first given a briefing on all the different marine life they would spot and the MUI diving Code of Conduct. They were then taken underwater for the first time with SCUBA apparatus. The event was a success, with participants - which included students, teachers and parents, feeling confident in the water and happy about the marine life they got to observe.

ADDITIONAL INFORMATION

	This Quarter	This Year
Hours Spent Surveying	42.2	117.5
Sites Surveyed	17	26
Nests Laid	3	16
Nests Hatched	8	14
Live Hatchlings Counted	140	564
Ghost Nets Removed	0	2



LHAVIYANI ATOLL, MALDIVES



GREENS

Total Sightings: 5,834 Total Individuals: 399 HAWKSBILLS

Total Sightings: 1,113 Total Individuals: 318

	This Quarter	This Year	Since Project Began
Total Number of Turtle Sightings	427	1,362	6,947
Total Number of New Individuals	9	99	717



LHAVIYANI ATOLL

This quarter saw the first nesting activity after a gap of ten months on Kuredu island, our base in Lhaviyani Atoll. The last nesting activity on the island was observed in August 2021.

Out of the 25 instances of nesting activity that were recorded, nine nests were successfully laid. Thanks to continued collaboration with Kuredu Island Resort's security team, we were able to observe seven nests being laid, six of which were laid by one individual.

However, disturbance to nesting females remains an issue on Kuredu island due to the high density of guest rooms along the nesting beaches. Two confirmed instances of disturbance resulting in the female abandoning nesting attempt and retreating back to sea were reported. We increased guest outreach to communicate our <u>Code of Conduct</u> around sea turtles, and it now includes a briefing from our sea turtle biologist during the resort's island orientation tours.

We've also had some very gracious guests extend support in different forms. From those who participated in the educational Kuredu Turtle Search excursion, one guest pledged to cover the cost of transporting an injured turtle by speedboat to the Rescue Center. A second individual donated the cost of a second security camera for nest monitoring, which has been purchased and is now on site. While no ghost gear was recovered this quarter, a staff member from our partner Prodivers rescued a buoyant turtle on 21st August, which was transferred to the Rescue Center. The turtle, named Spirit, later passed away due to severe lung damage.

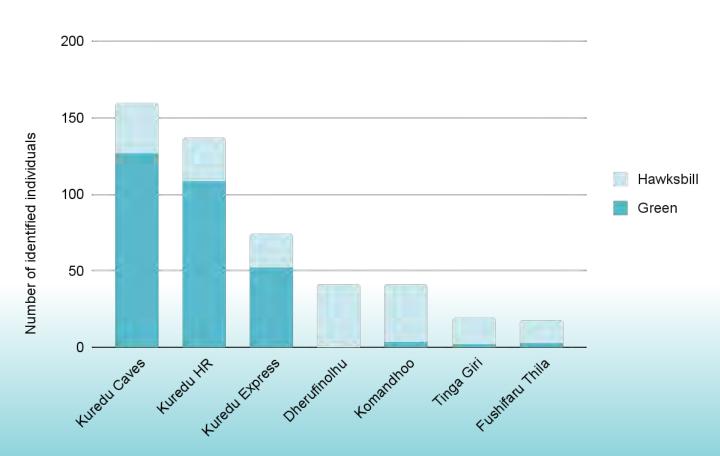
In the last three months, we surveyed 44 dive and snorkel sites across the atoll, including six new sites from the south-east during a field trip to Innahura island. From almost 80 hours of surveys and ID photos submitted from across Lhaviyani, 427 wild turtle sightings were uploaded to the Internet of Turtles. Of these, 19 new individuals were added to our growing database. The majority of sightings continue to be of green sea turtles from around Kuredu island. However, the reefs near Innahura island are a clear hawksbill turtle hotspot.

Between July and September, 10 wild turtles were named and adopted from Lhaviyani Atoll. We are incredibly thankful for all the adoptions, donations and encouragement we've received this quarter!

-Emily Mundy, ORP Sea Turtle Biologist, Lhaviyani Atoll

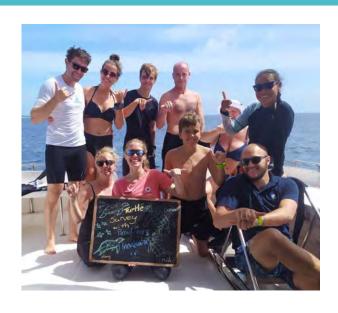


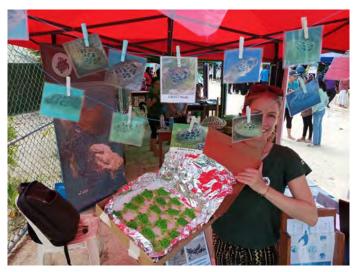
SEA TURTLE SIGHTINGS & NEW INDIVIDUALS: LHAVIYANI ATOLL



LHAVIYANI

(Right) In August our sea turtle biologist undertook the first field trip to our partner Prodivers' base on Innahura island in the southeast of the atoll. Eight surveys were conducted on guest dives and snorkel excursions, where 42 hawksbill turtles were photographed. Workshops on sea turtle entanglement, ghost net retrieval and data collection were conducted with the Prodivers Innahura team, and a presentation on the Lhaviyani sea turtle population and ORP's work was given to resort guests.





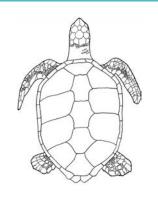
(Left) On 27th August we attended the Lhaviyani Turtle Festival on Naifaru island. This annual event is organised by the Atoll Marine Center (AMC), which runs the rehabilitation center for sea turtles on Naifaru. We had a stall with information on ORP's work and a fun sea turtle ID game. The event was attended by the local community and school children from across Lhaviyani, resulting in increased awareness of our work in the atoll. Our attendance at the festival further strengthened the collaborative relationship between ORP and AMC.

ADDITIONAL INFORMATION

	This Quarter	This Year
Hours Spent Surveying	85.75	184.5
Sites Surveyed	39	45
Nests Laid	9	9
Nests Hatched	3	3
Hatchlings Counted	267	267
Ghost Nets Removed	0	24



NOONU ATOLL, MALDIVES



GREENS

Total Sightings: 46 Total Individuals: 44 **HAWKSBILLS**

Total Sightings: 134 Total Individuals: 99

	This Quarter	This Year	Since Project Began
Total Number of Turtle Sightings	13	24	180
Total Number of New Individuals	10	14	144



NOONU ATOLL

We have had an unprecedented number of nesting activities on Soneva Jani this year. There have been 51 new nests between July and September, which brings us up to 68 nests so far.

Thanks to our team of volunteers monitoring the main nesting beach throughout the night, we have managed to get an incredible amount of data on the nesting females, including their carapace width and length, any abnormalities or presence of barnacles as well as Photo-ID shots to recognise the individual. All volunteers have been trained on best practices around nesting turtles to minimise disturbance and every one has taken on this information with ease and done a fantastic job of supporting our monitoring efforts.

At the end of September, Senior Project Scientist Dr Stephanie visited Soneva Jani, inspecting the nesting beach together with Sea Turtle Biologist Rosie, discussing the procedures on site and thanking the team for their support.

Our Reolink NestWatch cameras are doing more than just watching out for hatching events!

We have recorded several occurrences where nesting females have trampled over other nest signs and knocked them out of place. In response, we have set up floating markers, hung by ghost gear strands, which the turtles can't reach.

We make note of the date laid and 60th day of incubation on the markers which helps our nestwatch group to navigate the very busy beach and monitor nests that are due to hatch.

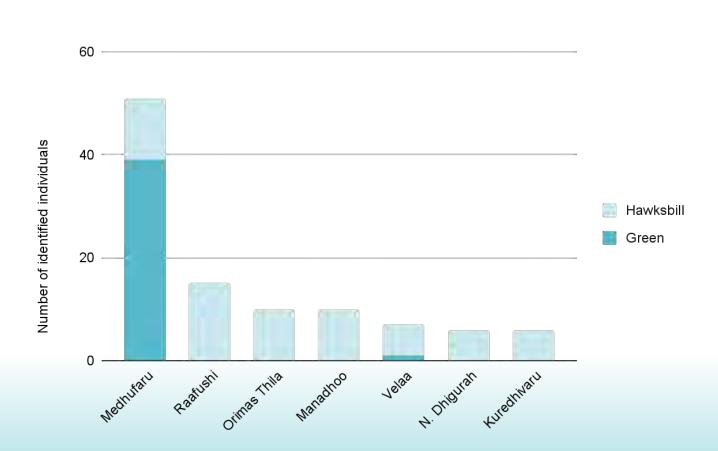
However, the turtle activity in Noonu does not stop at nesting greens. In early August, Nazim, an engineering team member, alerted us of an olive ridley struggling in the water near one of the over-water villas at Soneva Jani. Nazim, aka 'Mr Fix It', retrieved the turtle and noticed the juvenile was missing two flippers on the same side, with some nasty wounds.

The turtle was named Fida, meaning devotion in Arabic and was looked after overnight until she was flown to Soneva Fushi by seaplane and then to the Rescue Centre by boat, where she was received by our veterinary team.

-Rosie Brown, ORP Sea Turtle Biologist, Noonu Atoll



SEA TURTLE SIGHTINGS & NEW INDIVIDUALS: NOONU ATOLL



NOONU



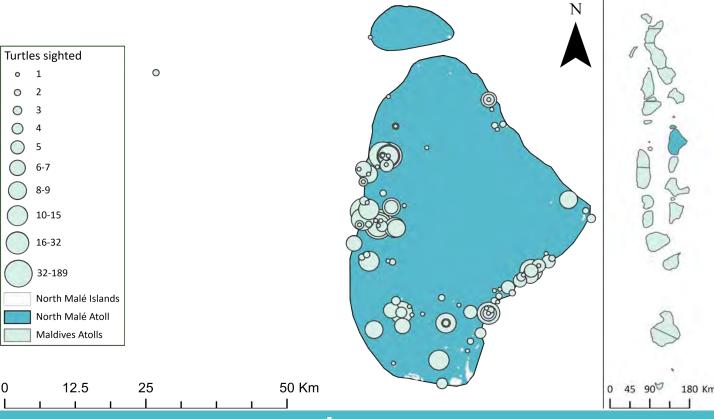
(Left) Due to the wild nature of much of the nesting area at Soneva Jani, we sometimes come across nesting females who have gotten stuck on their way back to the sea. This nesting green -GR1474 aka Bella, was stuck in the foliage and was fortunately safely released, though she had sustained some from the scars Two months later, Bella was spotted again, but this time in the night! She triggered an alert on our Reolink camera. We then saw her successfully nesting and were able to record more data. We're glad Bella wasn't put off by the first ordeal!

(Right) During one of the excavations at Soneva Jani, our sea turtle biologist opened up one of the unviable unhatched eggs to find a triplet! Twins have been seen more frequently in the past, but this was a first for OPR! The two larger hatchlings are accompanied by a third, tiny embryo pictured on the bottom right in this photo. We document all hatchling abnormalities so that we can understand how our data compares to other populations around the world. It is also important for helping us understand the environmental factors that may be responsible for producing such aberrations.

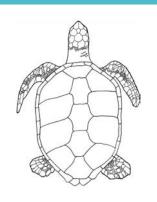


ADDITIONAL INFORMATION

	This Quarter	This Year
Hours Spent Surveying	78	88
Sites Surveyed	2	6
Nests Laid	82	107
Nests Hatched	32	33
Hatchlings Counted	3227	3249
Ghost Nets Removed	1	8



NORTH MALÉ ATOLL, MALDIVES



GREENS

Total Sightings: 127
Total Individuals: 86

HAWKSBILLS

Total Sightings: 10,184 Total Individuals: 942

	This Quarter	This Year	Since Project Began
Total Number of Turtle Sightings	83	205	10,394
Total Number of New Individuals	4	32	1,028



NORTH MALÉ ATOLL

We added a total of 83 sightings to our database and spent 48 hours in the water conducting surveys across North Malé this quarter. Most of the sightings recorded were hawksbill sea turtles with three new individuals identified.

At the Rehabilitation Centre in July, Kalo was making progress with his weight and diving, but he needed a bigger space for deeper diving practice. Hence, Kalo was sent to the Lh. Naifaru Atoll Marine Centre to begin his training in their sea cage. Consequently, with the amazing efforts from the Atoll Marine Centre rehab team, Kalo was released on the 28th September.

On 27th July, we received a call from our former Rescue Center intern Shah about a floating adult female green turtle found in South Malé Atoll. Our veterinary team coordinated the rescue but unfortunately the turtle died just a few hours before she could reach our resident vet. She was brought to our Rehabilitation Centre where a

a necropsy was performed by our former sea turtle biologist, Joe. The findings showed four lacerations on the carapace which had led to severe damage to the gastrointestinal tract and one of the kidneys. We suspect the injuries resulted from a fatal collision with a speedboat propeller. In addition to that, the turtle had also ingested a plastic bag.

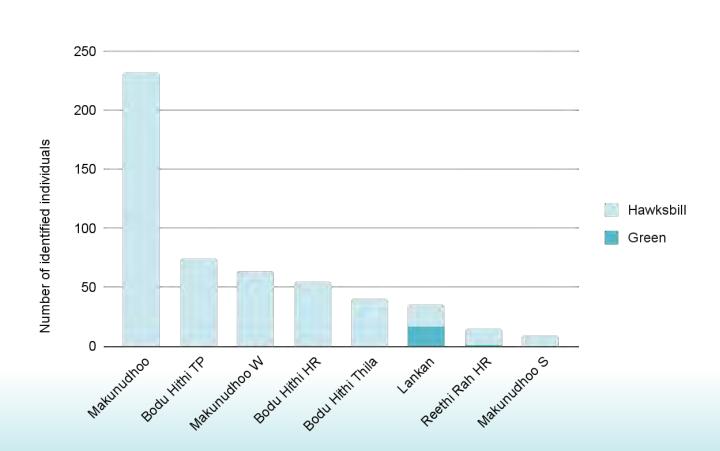
With the resort being quiet this quarter, One&Only Reethi Rah took this opportunity to advance work on the maintenance of our existing rehab tank and build our new holding tank. We hope to have the Rehabilitation Centre back in operation in November, in time for the entanglement season.

Joe, our former sea turtle biologist, left for England in early August to pursue studies in Veterinary Medicine. We thank Joe for all his work with us and wish him the best for his studies.

-Mariyam Niuma ORP Sea Turtle Biologist, North Malé Atoll



SEA TURTLE SIGHTINGS & NEW INDIVIDUALS: NORTH MALÉ ATOLL



NORTH MALÉ



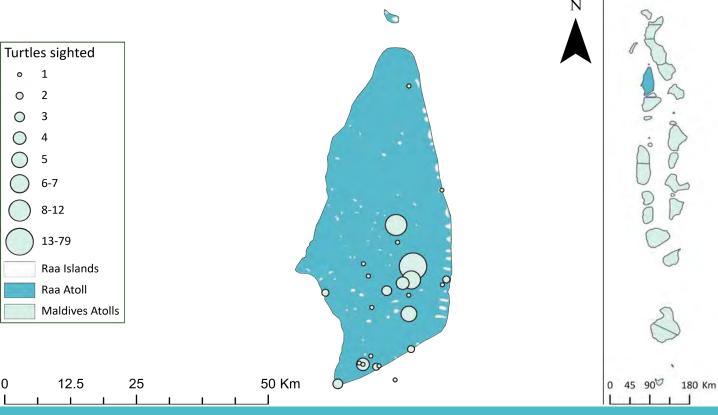
At the end of September, our Senior Scientist Dr. Stephanie Köhnk visited One&Only Reethi Rah for the first time to conduct in-water research training and onboarding for our new Sea Turtle Biologist Ni. Stephanie and Ni also met with key resort management to discuss collaborations for the future and shared research updates from our work in the Maldives.

This quarter we were joined by Mariyam Niuma (Ni), who took over from Joe Rigby as our new Sea Turtle Biologist & Guest Educator for North Malé Atoll, based at the One&Only Reethi Rah Resort. Ni has previously volunteered with ORP across different occasions - in 2019 when she was working at Six Senses Laamu and later at Soneva Jani in 2021. She wanted to develop her career further in this area so she joined the Marine Turtle Rescue Centre as an intern in 2021, where she was trained extensively in sea turtle care.

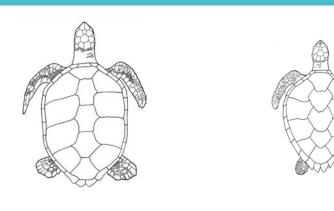


ADDITIONAL INFORMATION

	This Quarter	This Year
Hours Spent Surveying	48	372
Sites Surveyed	6	22
Nests Laid	0	0
Nests Hatched	0	0
Hatchlings Counted	0	0
Ghost Nets Removed	0	5



RAA ATOLL, MALDIVES



GREENS

Total Sightings: 2 Total Individuals: 2 **HAWKSBILLS**

Total Sightings: 538
Total Individuals: 160

	This Quarter	This Year	Since Project Began
Total Number of Turtle Sightings	53	149	540
Total Number of New Individuals	10	22	171



RAA ATOLL

This quarter was busier than the last, complete with a turtle rescue, a bird rescue, training sessions for resort staff, and our first documented nesting activity on JOALI BEING.

During the bad weather in July we received a call about an injured female olive ridley found entangled in a ghost net. Fortunately, a gap in the weather allowed us to collect the turtle from a nearby resort and temporarily hold her until we were able to get her on a sea plane to the Rescue Centre. The olive ridley, later named Kakuni, had severe injuries to her front right flipper and carapace, and immediate medical attention was provided to her at the Rescue Centre.

Since arriving at the Rescue Centre Kakuni has undergone surgery and is recovering well, but still needs some time to overcome her buoyancy issues. Although the rehabilitation centre at JOALI BEING is not complete yet, great progress has been made this quarter and we are hopeful it will be operational soon.

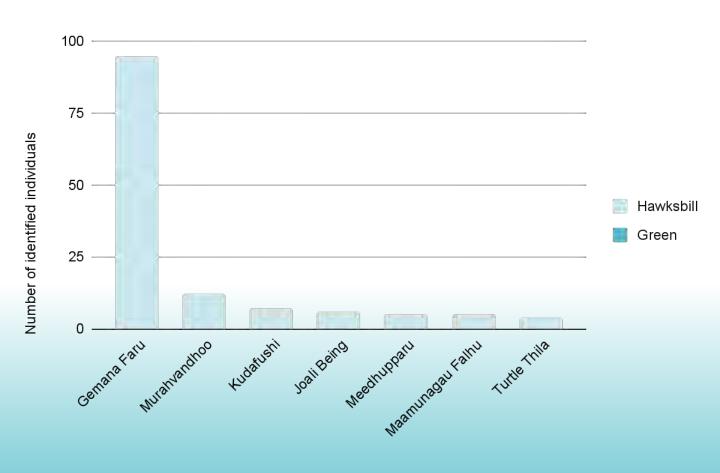
Excitingly, we had our first documented nesting activity towards the end of this quarter. We now have two green turtle nests on the island set to hatch towards the end of November. We also received nesting data from a neighbouring resort, Intercontinental Maamunagau. This is crucial in helping us understand nesting seasons in Raa and general overall population trends, so we are incredibly grateful to the marine biologists for sharing their data.

A total of 53 sightings were added to the Raa Atoll database, which is a great improvement from last quarter. 21 hours were spent surveying six different sites, two of which were new. We now have a total of 171 identified individuals for Raa. With the launch of our Photo- ID campaign, we are steadily receiving more submissions from other resorts and hope to have our database grow in the coming months.

-Olivia Forster, ORP Sea Turtle Biologist, Raa Atoll



SEA TURTLE SIGHTINGS & NEW INDIVIDUALS: RAA ATOLL



RAA



(Left) We conducted several training sessions for the resort staff this quarter to keep them up to date with Olive Ridley Project's work and our <u>sea</u> <u>turtle encounter Code of Conduct</u>. Since we now have two nests on the island, we also focused on sea turtle nesting and hatching and the proper <u>protocol to follow for these events</u>. We will soon be recruiting volunteers for nestwatch, for closer monitoring of the nests as the incubation period approaches.

(Right) An unexpected guest recently paid a visit to our island - a white-faced storm petrel. The bird, found seemingly unable to fly in the middle of the island was quickly brought to our sea turtle biologist for a once over. White-faced storm petrels are a pelagic species, rarely seen on land, but they can occasionally be blown inland by severe storms which is most likely what happened. Fortunately, there seemed to be no damage to the bird and after a rest and some wind under its wings, the petrel was good to go as it flew out to sea.



	This Quarter	This Year
Hours Spent Surveying	21	52
Sites Surveyed	6	13
Nests Laid	4	5
Nests Hatched	2	2
Hatchlings Counted	0	0
Ghost Nets Removed	3	7



RECORDED SEA TURTLE NESTING ACTIVITY

* 使	

This Quarter This Year **True Nests Laid** 193 260 **False Crawls** 119 210 **Nests Hatched** 54 59 **Live Hatchlings Counted** 4,540 4,837 83.6% **Average Hatching Success** 84.3%

58

Average Incubation Time

Unknown Olive Ridley Hawksbill Green

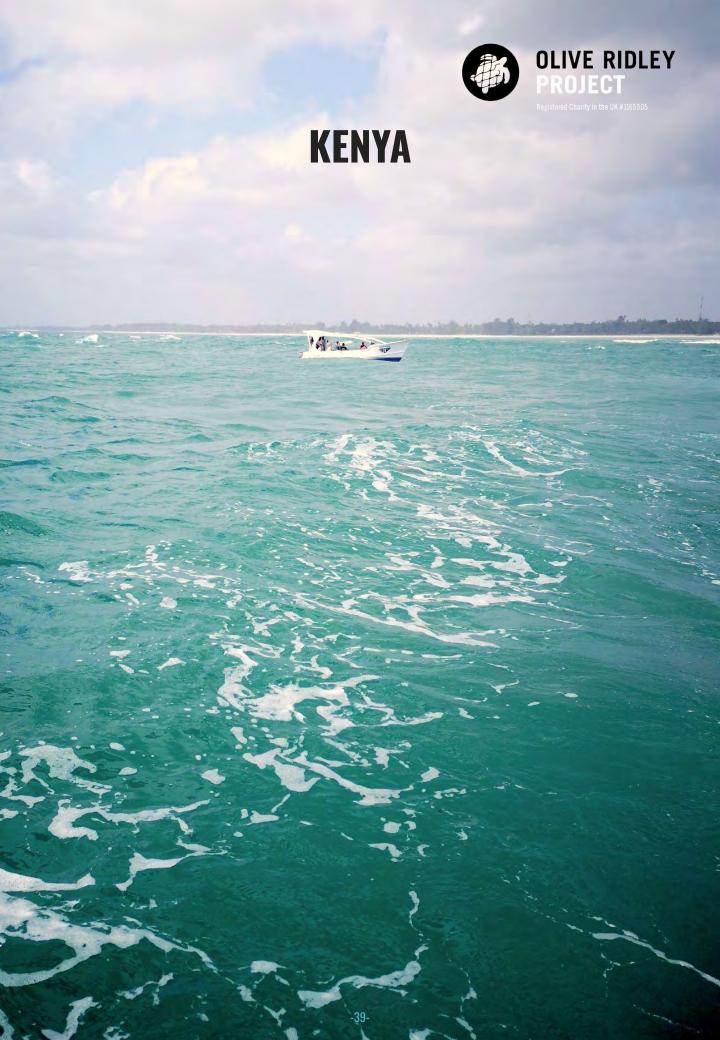
150

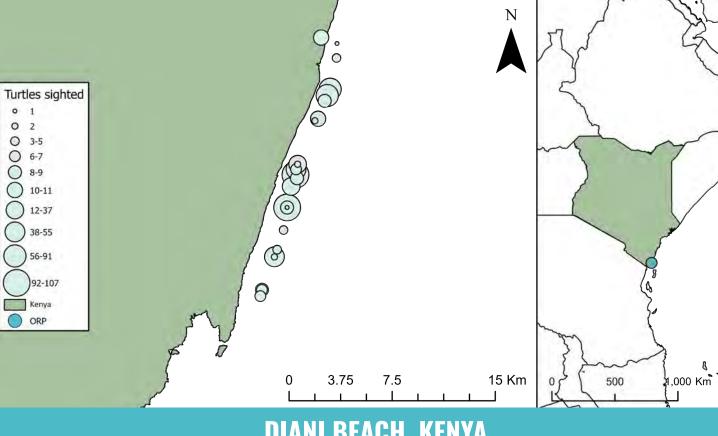
100

50

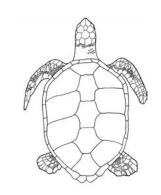
Nooru Laaru Baa Irraiyari Dhaau Ari Baa Rorrinda Vaaru Laaru Vaaru

58





DIANI BEACH, KENYA



GREENS

Total Sightings: 2,906 Total Individuals: 515

HAWKSBILLS

Total Sightings: 464
Total Individuals: 69

	This Quarter	This Year	Since Project Began
Total Number of Turtle Sightings	58	912	3,428
Total Number of New Individuals	6	103	734



DIANI BEACH

July and August are synonymous with very poor diving conditions in Kenya, and most dive operators close down for the season. Therefore our field activities were limited, slowly resuming in early September as the conditions improved.

We used this time to focus on non-field related activities, such as planning the upcoming season, and setting up a new outreach campaign. The database was also updated, and a fresh counting system was implemented with only sea turtles with their right facial profile recorded (or both left and right) being accounted for in the total number of identified individuals. This has resulted in a lower number of turtles effectively confirmed in our database.

September started with fresh activities and partnerships. We were delighted to officialise a collaboration agreement with local NGO Bahari Hai, based in Watamu, which coincided with initial training sessions on Photo-ID facilitated by our in-field supervisor Jenni. The same training was

provided to local conservation group Shimoni Turtle Watch, based in Shimoni, as well as Oceans Alive, based in the Vipingo area.

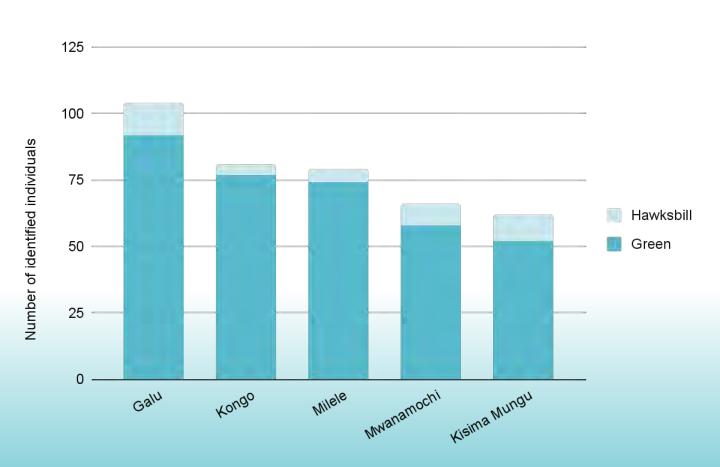
Towards mid-September, we welcomed a new team member, Kenya-based Biologist Juma Gwerenya, who is on a three-month volunteer placement with us and has taken on the role of a community and outreach researcher. September 19th, Juma and our Proiect Coordinator Leah Mainye, represented ORP in the activities that took place in Diani to celebrate this year's International Coastal Clean-Up Day.

Towards the end of September, our in-water surveys resumed. Our project coordinator managed to conduct a total of 12 dives, that resulted in 58 sightings, of which six new green turtles were added to the database.

- Dr Joana Hancock, ORP Project Manager Kenya



SEA TURTLE SIGHTINGS & NEW INDIVIDUALS: KENYA



KENYA



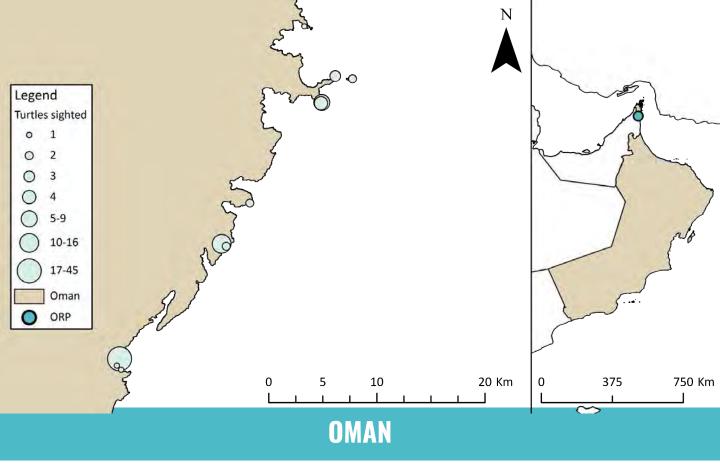
(Left) Our team engaged and partnered with several other conservation projects who wished to initiate Photo-ID in the protected areas where they work over the past three months. One such organization is Shimoni Turtle Watch, a grassroots group of young and motivated conservationists who we have been training and assisting in setting up the in-water turtle monitoring project in Kisite-Mpunguti National Marine Reserve. Photo-ID data will contribute to the IoT and help characterise the population in this MPA, ensuring an extensive and stronger Kenvan Photo-ID database.

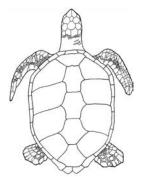
(Right) Kenyan Biologist Juma Gwerenya, joined our team as a volunteer research assistant for our outreach program. Some of Juma's tasks involve compiling relevant baseline information regarding threats to sea turtles at foraging areas along Kenya's south coast (e.g. ghost nets, bycatch, identifying potential diseases. etc.) and conservation partnerships with local stakeholders in the area. He will also be helping us conduct community awareness and project outreach activities regarding sea turtle conservation, with a special focus on building partnerships with local organisations.

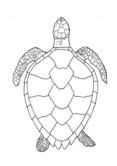


	This Quarter	This Year
Hours Spent Surveying	9.35	138.2
Sites Surveyed	6	18
Adopted Turtles	8	17









GREENS

Total Sightings: 166 Total Individuals: 71 HAWKSBILLS

Total Sightings: 13 Total Individuals: 8

	This Quarter	This Year	Since Project Began
Total Number of Turtle Sightings	26	113	179
Total Number of New Individuals	2	46	79



MUSANDAM

In the last three months, the weather conditions in the Musandam area of Oman observed peak summer temperatures averaging 39°C and reaching up to 45°C. The end of July and start of August saw us hit with uncharacteristically out of season storms - large waves for two weeks made it impossible to collect any sea turtle data either on the house reef or at any dive sites further afield. This resulted in in very little diving, mostly limiting sea turtle surveys to the house reef.

In spite of these circumstances, there were 19 turtle sightings this quarter, including a new hawksbill sighting on the house reef for the first time this year! The hawksbill is a juvenile, only measuring around 40 cm carapace length, so they fit in with the size of the other turtles on the house reef as well. This is the 10th hawksbill sighting across all of the survey sites in Musandam since the start of the project in 2019.

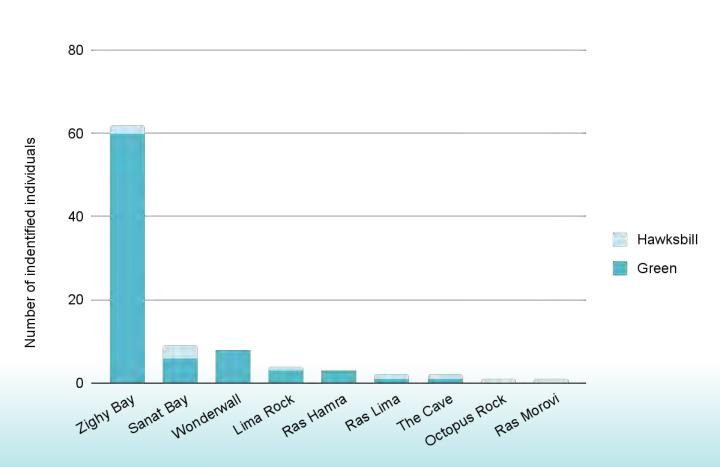
This quarter has also seen the plans for a turtle rescue centre in Oman take some significant steps forward, with meetings between ORP, veterinarian Dr Elias Nikolakopoulos, who is the honorary consul of Greece in the Sultanate of Oman and was previously the Oman royal vet, and 50Ceans, an NGO based in Muscat. The government wants to enable necropsy studies on sea turtles, marine mammals and birds. A sea turtle rescue centre may therefore help enable one aspect of the government's objective.

We have discussed potentially placing the rescue centre at the Sultan Qaboos University which would also allow it to be used as a training centre for Omani vets and provide a centre for visiting practitioners to disseminate their specialist knowledge. There is still a long way to go before the rescue centre becomes a reality, but we are heading in the right direction!

-Tom Osborne, ORP Sea Turtle Biologist, Oman



SEA TURTLE SIGHTINGS & NEW INDIVIDUALS OMAN



OMAN



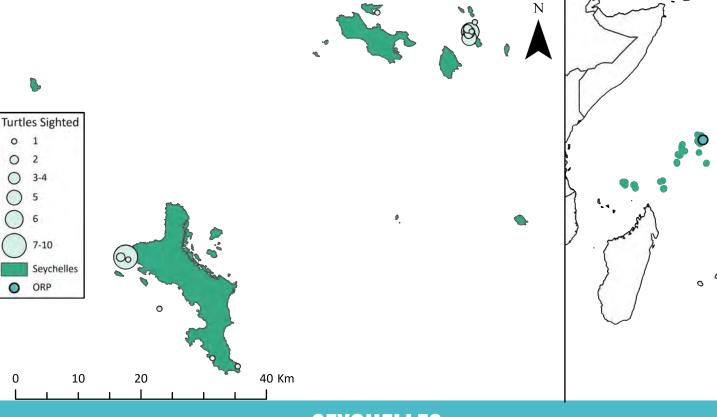
(Left) Unfortunately, one of the main themes of this quarter has been consistent influx of oil and tar from the shipping lane of the Strait of Hormuz which passes across the top of the Musandam peninsula. Luckily we haven't recorded any dead sea turtles and we are working with the Environment Authority to take samples, find the cause of the problem and how damaging this has the potential to be. This data will help us devise an action plan for limiting and preventing these occurrences.

(Right) Some of our commonly sighted sea turtles haven't been seen since the bad storm in August, but we are hopeful that they will return soon. However, one of our identified turtles GM055, is ever resilient and is carrying on their daily life, unperturbed by the bad weather. Luckily for us, they are as unbothered as ever when being photographed for identification, and are happy to just continue swimming in search of more food.

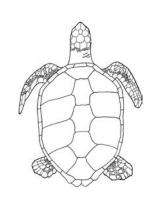


	This Quarter	This Year	Since Project Began
Hours Spent Surveying	25	210	1711
Sites Surveyed	6	9	9
Ghost Nets Removed	0	37	65





SEYCHELLES

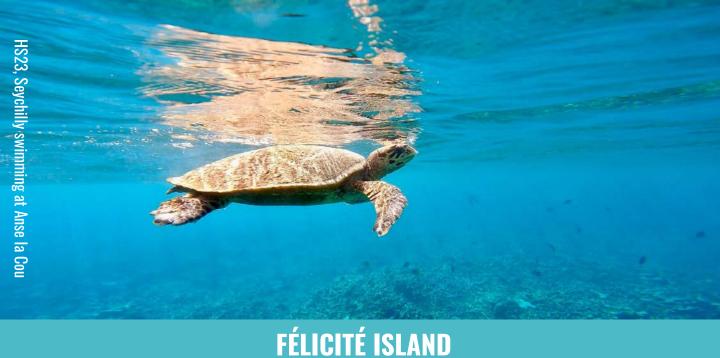


GREENS

Total Sightings: 8 Total Individuals: 7 **HAWKSBILLS**

Total Sightings: 161 Total Individuals: 71

	This Quarter	This Year	Since Project Began
Total Number of Turtle Sightings	9	169	169
Total Number of New Individuals	2	78	78



Rainy days and extremely rough sea conditions Ne

prevailed through the months of July and August in Félicité. During this period, sea turtle sightings dropped significantly with only two sea turtles

being sighted.

Several factors contributed to the reduced sightings - our turtles may have likely migrated towards different sites that are calmer or changed their feeding grounds towards deeper water surrounding Félicité Island. Research by Crowe et al. (2020) has shown that loggerhead turtles changed their dive depth and dive time during a Hurricane in the Atlantic Ocean. Therefore, it is likely that our resident turtles also adapted their diving behaviour during this stormy season. Additionally, survey efforts were reduced due to unsafe water conditions and low visibility, which also reduced chances of sea turtle sightings.

In the beginning of September, the sea started to calm down and turtle sightings increased again. We are looking forward to seeing the return of all our resident sea turtles! Some of them have already shown their faces, like our famous Seychilly and Topi. Fingers crossed that Fibi also moves back soon.

Nesting season in Seychelles has kicked off with three green turtle nests being laid at our main nesting beach Grand Anse. This is amazing news, given that there has been no record of green turtle nests on Félicité in recent years. The hawksbill nesting season is around the corner as well, and we are looking forward to an exciting season.

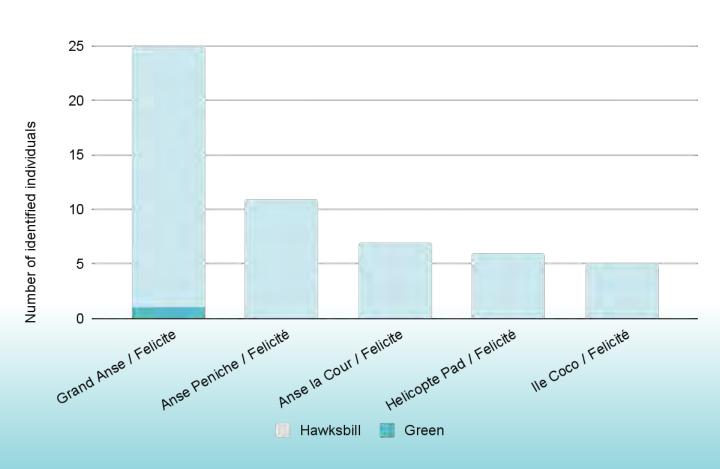
Monitoring efforts in the coming season will be increased with the help of a drone, which, thanks to our generous guest Gitta Raulin, we were able to secure funding for. The drone will aid data collection and be used as an anti-poaching tool.

We have further been working on a sea turtle adoption board which is now being displayed outside of Six Senses Zil Pasyon Earth Lab. Sea turtle adoptions for Seychelles have increased in the last months with a total of seven adoption in August. We are thankful to you all for your continued support of sea turtle conservation!

- Lara Kalisch, Sea Turtle Biologist, Seychelles



SEA TURTLE SIGHTINGS & NEW INDIVIDUALS: SEYCHELLES



SEYCHELLES



(Right) Bad weather conditions and the supermoon in July caused some extremely high tides, leading to accelerated beach erosion. Our sea turtle biologist has started to conduct frequent beach profiling to assess the changes on the beaches on Félicité in order to protect future sea turtle nests. High tides and erosion can cause nests to be inundated or washed away. Given the endangered status of these animals, it is critical to conserve every single nest through nest relocations - which can only be done under a license from Seychelles Bureau of Standards.

(Left) The 19th of August marked a special day on Félicité Island with our very first green turtle nest! GS7 first approached our beach around 11 pm trying to find a suitable spot for nesting. Unfortunately, she was not lucky with her first few attempts and ended up digging five egg chambers before finding the perfect spot to lay! She spent about nine hours on our beach before safely returning to the sea. While this was a truly exhausting journey for her, many of the resort staff were excited to witness this beautiful encounter.



	This Quarter	This Year
Hours Spent Surveying	70	180
Sites Surveyed	7	7
Nests Laid	4	10
Nesting attempts	9	22



Pakistan





PAKISTAN

This quarter has been difficult for Pakistan due to the exceptionally harsh monsoon this year. The country observed 181% above average rainfall which triggered severe flooding, causing unfortunate destruction of property and life. July received torrential rain - 177.5 mm against its usual 63.1 mm and August recorded 192.7 mm against its average 56.2 mm.

These conditions made it difficult for the team to collect data or to go out to sea during the months of July and August. Despite the circumstances, we witnessed sea turtle nestings this quarter, although it was much earlier than expected. Green turtle nests were spotted on Hawke's Bay beach in July during the monsoon season, which was an unusual occurrence since at this time of the year, the sea water is rather high and most of the beach is inundated.

In late August the weather became drier and activities resumed in September. We recovered a large ghost net conglomerate, weighing 134 kg

from Hawke's Bay beach on 1st August. Then on 18th September, fresh green turtle nests were observed at Hawke's Bay by our Field Coordinator Hanif. One nest seemed to have hatched as well, despite the bad weather. We will continue our monitoring efforts along the beach and remain vigilant for any unexpected nesting.

Unfortunately, two dead green turtles were spotted by the team in different areas in Karachi. One green was spotted by Hanif on Hawke's bay and another juvenile green turtle shell was found by Project Manager Usman at Mubarak beach. The cause of death remains unknown.

-Usman Iqbal, Project Manager, Pakistan

PAKISTAN



(Left) A Ghost net, weighing 90 kg, was recovered from Abdul Rehman Goth beach by our Field Coordinator Asif and other fishers on 18th September. Plastic pollution. including abandoned ghost gear on the beaches in Pakistan remains a crucial issue, impeding the of both marine and sea turtle cause conservation. However, our outreach activities with local fishers has created better awareness. with many taking responsibility to alert our team in case of ghost gear sightings and even helping with collection and retrieval.

(Right) A green turtle shell was found on Mubarak beach, in Karachi during a beach monitoring by our project manager. From the carapace length, it appears that the shell belonged to a juvenile sea turtle. While we spotted another dead green turtle at Hawke's beach, in some better news, there were also fresh green turtle tracks that were discovered, indicating ongoing nesting. We plan to increase monitoring along Hawke's beach in the coming year.



	This Quarter	This Year	Since Project Began
Ghost Nets Recovered (kg)	134 kg	222 kg	5360 kg
Overall Growth Ghost Net Recovery	60%	4.1%	2.5 %
Ghost Leashes Made/Sold	0/9	132/98	580/508
Ghost Net Jewellery Made/Sold	0/0	100/73	565/438



EDUCATION & COMMUNITY OUTREACH



(Right) We are working with the Maldivian government and UN Environment Programme (UNEP) for the Endheri Project - dedicated to protecting biodiversity in marine Protected Areas (MPAs). In August, we met with Mr. Max Zieren, Task Manager for Ecosystem Division in UNEP Asia Pacific Office along with Dr. Abdulla Naseer, State Minister of Environment, Climate Change and Technology. In this meeting we discussed our ongoing country-wide research, the conservation work carried out with the communities in Laamu and ways of incorporating our research into courses at the Maldives National University. We also discussed possibilities of building local capacity within the atolls to protect wildlife and habitats.



(Left) ORP presented at the Fourth Maldives Marine Science Symposium (MMSS) held by the Maldives Marine Research Institute, on 13th and 14th August 2022. The MMSS is an event that brings together marine researchers across the country to share their work. We presented the assessment of hawksbills and green sea turtles from from the first National Red List Assessment of Marine Reptiles, the preliminary findings from our study into the socio-economic value of sea turtles to the tourism industry in the Maldives, and a summary of nesting research based on the data from 2018-2020. The event was successful with nearly 100 plus people in attendance.



(Left) We held a training session for staff from the Ministry of Environment, Climate Change and Technology (MoECCT) on 12th September. The event, held collaboratively by MoECCT and ORP, allowed us to share updates from ongoing projects and upcoming ones. We presented on sea turtle biology, sea turtle nesting summaries from 2018-2021, sea turtle Photo-ID project updates, and also went over the specifics of how to rescue sea turtles.

EDUCATION & COMMUNITY OUTREACH



(Right) Our project staff in Maldives, along with visiting Senior Project Scientist Dr. Stephanie Köhnk, hosted the event 'Becoming a Sea Turtle Citizen Scientist' in Malé on 17th September.

The event, supported by Maldives National University (MNU), was attended by members of the public and MNU students. We presented ways in which individuals could get involved in sea turtle conservation work, an overview of sea turtle biology, and also an in-depth guide on how to collect and submit sea turtle Photo-ID data.

(Left) The ORP team, with Enas Mohamed Riyaz from the Environment Protection Agency, met with the President of Maldives, H. E. Ibrahim Mohamed Solih, to raise concerns about poaching on Gaadhoo's nesting beach. The beach had 75% of its nests poached this year, with recent surveys showing clear and open signs of poaching. We requested the president to help establish a monitoring program on Gaadhoo's beach within the year, and along with stakeholders, facilitate enforcement of sea turtle-related laws.



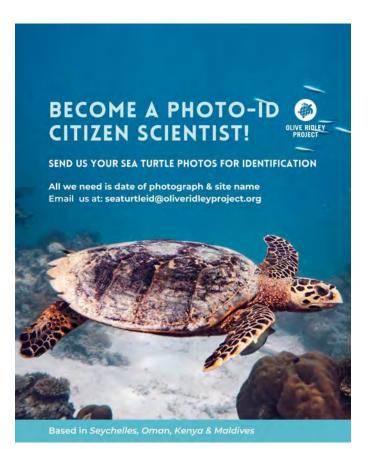
VIRTUAL AWARENESS AND OUTREACH



(Left) Children's author Molly Oldfield visited Soneva Jani this quarter and met Rosie, our sea turtle biologist in Noonu Atoll. Together with the resident astronomer and senior marine biologist, they created a new podcast episode as part of the author's 'Everything Under the Sun' series, available on iTunes.

The podcast involved all of the adults answering all sorts of wonderful and curious questions from children at Soneva Jani's kids club, such as 'do sea turtles make sounds?', 'why do turtles hide in their shells?' and 'why do spinner dolphins spin?'.

VIRTUAL AWARENESS AND OUTREACH



On 11th September, we launched a digital sea turtle Photo-ID campaign aimed at increasing Photo-ID submissions from the general public and citizen scientists. Spanning a week, the campaign introduced Photo-ID to our online audience, highlighting its importance for sea turtle research and conservation, explained the procedure for submitting an entry and covered Photo-ID progress across our field sites of Seychelles, Kenya, Oman and the Maldives.

The campaign emphasised the value of citizen science in monitoring and protecting sea turtle populations, and encouraged participation from individuals across all spheres of life. Through interactive posts across our social media channels, we were able to reach an average of 5K individuals, and even had our campaign spotlighted by popular Maldivian media like Maldives Business Review, Hotelier Maldives, and Sosal.My

RECENT SCIENTIFIC PRESENTATIONS

Afeef FI, Mundy E and Köhnk S 2022. Where the baby turtles come from: summary of nesting from 2018-2021. Presented at the Fourth Maldives Marine Science Symposium. Maldives National University, Malé, 13th&14th August 2022.

Köhnk S and Stelfox M 2022. Endangered and critically endangered: summary of the first marine national red list assessments for green and hawksbill turtles. Presented at the Fourth Maldives Marine Science Symposium. Maldives National University, Malé, 13th&14th August 2022.

Painton C, Köhnk S and Petros C 2022. Entanglement in sea turtles risk factors, health impacts and influences on successful conservation outcomes in the Maldives. Presented at the Fourth Maldives Marine Science Symposium. Maldives National University, Malé, 13th&14th August 2022.

Petros C, Mundy E, Köhnk S, Afeef FI, Rasheed RA and Rigby J 2022. Assessing the socio-economic value of sea turtles to the Maldives' tourism industry in 2019 (pre-pandemic). Presented at the Fourth Maldives Marine Science Symposium. Maldives National University, Malé, 13th&14th August 2022.

PARTNERS, COLLABORATORS & DONORS 2022













































































We would like to express our sincere gratitude to all our partners, supporters, fundraisers, donors, adoptive parents, and volunteers! We are only able to do this work thanks to your generosity and support.