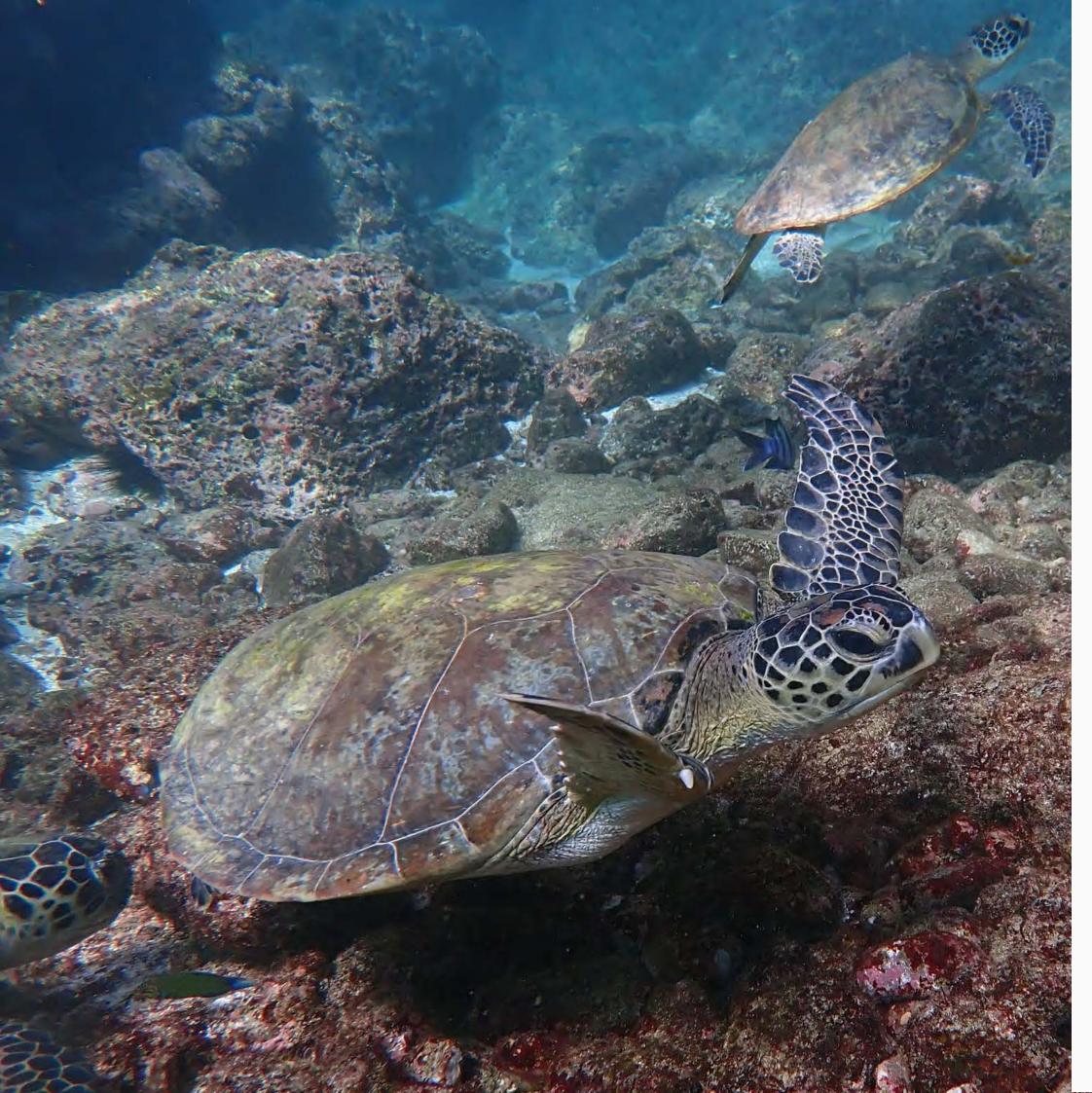


NEWS FROM THE FIELD

OCTOBER - DECEMBER 2023 VOL4



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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.

Oceans play a critical role in sustaining human life by providing essential resources such as food, freshwater, and oxygen. Therefore, preserving and protecting our oceans is crucial for the survival of our species.

As "keystone" species, sea turtles play a vital role in maintaining the health of the ocean, including protecting fish stocks, keeping coral reefs healthy, and preventing sea grass meadows from overgrowing and dying.

However, sea turtles face many threats to their survival.

ORP IS ON A MISSION TO PROTECT SEA TURTLES AND THEIR HABITATS THROUGH RESCUE AND REHABILITATION, SCIENTIFIC RESEARCH, AND EDUCATION AND OUTREACH.

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

OUR WORK



Sea Turtle Rescue & Rehabilitation
We treat injured sea turtles rescued
in the Maldives at our Marine Turtle
Rescue Centre, which has a fully
equipped veterinary clinic and a
resident veterinary team. We also
operate a Sea Turtle Rehabilitation
Centre. Both are located in the
Maldives.



Environmental Education

Education is a powerful tool to
increase awareness, engage people
and stimulate action. We educate
school children, communities, divers,
fishermen, tourists, resort staff,
biologists, and the general public, in
person and <u>online</u>. We also offer
<u>volunteer</u> and internship programs.



Scientific Research

We conduct research on sea turtle populations, distribution, health and threats to improve scientific knowledge and inform sea turtle conservation policy.



Collaboration & Community Outreach
To create long lasting change, we
ensure that our conservation
initiatives are practised from groundup. We therefore collaborate with
affected industries, communities,
governments, local and International
NGOs, in order to apply research to
practice.

BY THE NUMBERS

Since each project's inception



7,458 Sea turtles identified









Sea turtle sightings recorded in the Indian Ocean

759 Sites w/sea turtles sighted







Nests Recorded



>14.2 Kgs of ghost gear



Rehabilitated olive ridley turtles satellite tagged

Square metres of ghost net repurposed

Volunteers

hosted at the

Rescue Centre

Individuals educated

Sea Turtle Guardian Graduates



Publications



~2.3M

YouTube Views

HIGHLIGHTS FROM THE FIELD



Sea turtle nest monitoring in

Pakistan is off to a strong

start

We closed 2023 with exciting new developments and achievements in research, sea turtle care and medicine, as well as outreach and education.

In the Maldives, we saw an increase in ghost gear reports and sea turtles in distress, as is typical during the onset of the northeast monsoon season. Our team was very busy removing nets and rescuing sea turtles - ten new patients were admitted to our care!

We are happy to report that our North Malé
Rehabilitation Centre re-opened in November
after renovation works and can now support the
care of our turtle patients. Patients such as Fida,
who are suffering from buoyancy syndrome, are
now being treated with Targeted External Weight
Therapy at the Rehabilitation Centre to support
their recovery. We are aiming to restore natural
swimming and dive behaviours and reduce overall
treatment time at the rescue and rehab facilities.

Our Photo-ID programme reached new heights with registered encounters returning to prepandemic numbers. A milestone was reached in Laamu Atoll, where the team celebrated the 1,000th identified individual turtle! HK5721 is a juvenile hawksbill who mostly resides on Olhuveli Point and has been named Nora (left).

In Kenya, our team braced for challenging weather conditions at the beginning of the quarter, but in the end added hundreds of turtle sightings to our database. We were also rewarded with the resighting of several turtles who had not been seen for up to five years – highlighting the importance of long-term monitoring projects.

While the nesting season for hawksbill turtles started in Seychelles, we said goodbye to Sea Turtle Biologist Lara, who established our monitoring programmes over the last two years. We wish her all the best for the future and look forward to continue working with her on several research projects. In her place, we welcome Olivia, who previously worked with ORP in the Maldives. We are happy to have Olivia back and hope the turtles are too! There are already 25 hawksbill nests on the island, efficiently monitored by Olivia.

In the most northern region of Oman, the Musandam Peninsular, our Sea Turtle Biologist, Davide, was reminded of the influence human activities have on the marine ecosystem by witnessing another tar spill. He has also been busy rescuing marine creatures from accidental fishing net entanglements (bycatch). One of our identified turtles was among the trapped animals, but luckily we were able to return him to sea safely.

Over in Pakistan, our team focused their efforts on nesting beach monitoring on two beaches around Kakapir village in Karachi. They recorded over 200 sea turtle activities and witnessed four nests hatching, thus establishing the ORP nesting database for the region. This information will provide the basis to evaluate population trends and developments in the future.

Our education and outreach activities continued to reach a wide variety of people in the last months. Many team members took to providing extensive training and refresher courses for our collaboration partners, especially focusing on sea turtle rescue and ghost nets, considering the onset of 'entanglement season' in Maldives. Several social media campaigns in English and Dhivehi proved fruitful and we continue to receive reliable and helpful reports about entangled sea turtles in need of support.

In Oman, we had the unique opportunity to talk about sea turtle biology, conservation, and ORP's work at a school in the town of Dibba. The students showed great interest and engagement in these topics.

In Kenya, our BMU Programme reached an important first milestone with 57 participants successfully completing the programme. These members are now equipped to provide information about sea biology and conservation within their communities.

Read on for more details on all of these stories on the following pages!

North Malé Rehabilitation

Centre reopens its doors and

welcomes first patient, Fida

The first year of our BMU

READ MORE ON PAGE 14

a festive finale

Programme concludes with

During the past three months, our dedicated veterinary team has been facing the challenges posed by the Iruvai monsoon (northeast monsoon) and its impact on sea turtles in the Maldives. The monsoon's currents have led to an increase in the number of entangled sea turtles reported and rescued in the Maldives. During this period, we admitted ten new patients, three of them within a 24-hour timeframe. All sea turtle patients are now receiving medical therapy, including innovative treatments, which you can read more about on page 10.

Four of the new turtle patients, Iru, Bulbul, Nooru and Moodhu, were rescued from ghost nets in Baa Atoll, where the Rescue Centre is located. Two of these, Iru and Bulbul, were rescued near the island where the Rescue Centre is located – and our veterinary team helped rescue them!

Iru and Bulbul were entangled in the same huge ghost net. They were found by a team from Odi Watersports, who are based at our partner resort Coco Palm Dhuni Kolhu. They promptly called our veterinary team who wasted no time getting into the water to carefully disentangle them (see image on the right). Both patients are recovering well.

One of the highlights from the past few months was the release of Faiymini, a strong and feisty adult female olive ridley. She is one of the largest olive ridleys we have treated here at the Rescue Centre! While at the Rescue Centre, Faiymini received intensive treatment for wounds we suspect are form a shark attack. However, she displayed restless behaviour and seemed agitated in her tank. Her ultrasound showed that she was in peak follicular development. It is normal for females in the reproductive season to be fasting and more aggressive, so her behaviour was not unexpected.

Once her infection was under control, to avoid causing any more stress to Faiymini, we released her off the beach. After spending a few minutes to orient herself in the water, Faiymini disappeared into the deep blue with full use of her flippers and buoyancy control. We hope her wounds continue to heal nicely and that she can find her nesting grounds soon.



Rescue Centre intern, Athif, introducing students of Irushadhiyya School, S.Maradhoo to our turtle patients

In October, we welcomed five students and their teacher from Irushadhiyya School, S.Maradhoo, to the Rescue Centre. They were the winners of a video competition organised by the Ministry of Environment, Climate Change and Technology for the World Environment Day.

We also hosted a virtual tour of the Rescue Centre for the Swiss International School in Qatar which has adopted Handhu. The students were very curious about our turtle work and they sent us a list of interesting questions to answer. They also expressed their desire to implement sustainable measures in their country to protect sea turtles.

ADAM ATHIF MOHAMED - RESCUE CENTRE INTERN

Adam Athif, our new Rescue Centre intern, joined us in October. Athif has a Bachelor's degree in Marine Science from Maldives National University.



Athif's journey in marine conservation kicked off with an internship at Maldives Underwater Initiative earlier in the year. In July, he joined ORP as a Sea Turtle Biologist intern at Six Senses Laamu. During his three-month tenure, he delved into Photo-ID research and sea turtle nest monitoring.

At the Rescue Centre, Athif gained hands-on experience in sea turtle husbandry, managing daily patient feeding, tank upkeep, water quality checks, aiding in clinical care for sea turtle patients, and engaging with visitors. Athif believes that exploring various fields of conservation is crucial for a better understanding of our environment and its future.



OUR TURTLE PATIENTS

NEW PATIENTS ADMITTED

10
34

PATIENTS RELEASED
1
13

PATIENTS DECEASED
2
15

PATIENTS TREATED
21
34

PATIENTS STILL IN CARE
11

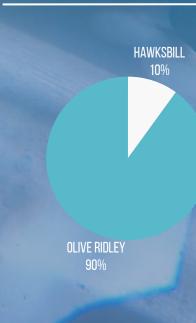
REASON FOR ADMITTANCE (NEW)

Found Entangled Found Floating

Trauma

■ Olive Ridleys ■ Hakwsbills

PATIENTS BY SPECIES (NEW)



Since 2017

230

131

NEW PATIENTS ADMITTED

Aisha, a sub-adult olive ridley, was found floating and unable to dive, with partial loss of her back left flipper in Dhaalu Atoll. She required amputation on her left front flipper and now is a single-side double amputee. Admitted 4/11/2023.

Nakaiy, an adult olive ridley, was found entangled in a ghost net with flipper, neck, and mouth injuries and unable to dive in Lhaviyani Atoll. Admitted 14/11/2023.



Faiymini, one of the largest female olive ridley turtles we have ever treated at the Rescue Centre

Faiymini, an adult female olive ridley sea turtle, was rescued by staff from Kuramathi Resort in Rasdhoo Atoll after a suspected shark attack. After providing treatment for her wounds, we released Faiymini. Admitted 11/11/2023. Released 24/11/2023.

Dhontha, an adult female olive ridley, was found entangled in a ghost net in Lhaviyani Atoll. She had injuries on three flippers and a hook lodged in her oesophagus which had to be removed surgically. Admitted 6/12/2023.

Bulbul, an adult female olive ridley, was discovered entangled in the same ghost net as our other new patient, Iru, off Coco Palm Dhuni Kolhu in Baa Atoll. Admitted 16/12/2023.

Iru, a juvenile olive ridley, was found entangled in the same ghost net as Bulbul. Iru had severe injuries to her flippers, with bone exposure and a fracture in the right hind flipper. Admitted 16/12/2023. **Nooru**, an adult olive ridley with injured flippers, was rescued by the Coco Dive team from Coco Palm Dhuni Kolhu, in Baa Atoll. Admitted 17/12/2023.



Modhu, one of the smallest turtles to ever undergo surgery at the Rescue Centre

Moodhu, a juvenile olive ridley, was found entangled in marine debris in Baa Atoll. He had a deep ligature injury around his right front flipper which required amputation. He is one of the smallest patients to ever have had surgery with us, with a weight of only 400gr! Admitted 20/12/2023.

Ayaan, a small juvenile olive ridley, was discovered floating, weak, and unable to dive in Kaafu Atoll. Ayaan unfortunately passed away, likely due to toxicity associated with the ingestion of microplastics. Admitted 19/12/2023. Deceased 24/12/2023.

Ummeedhuu, a juvenile hawksbill, was found washed up on the beach at Coco Palm Dhuni Kolhu in a critical state. She became further depressed the next day and sadly passed away despite our best efforts. Arrived 2/12/2023. Deceased 2/12/2023

RELEASED PATIENTS

Faiymini 24th Dec

Ummeedhuu 3rd Dec Ayaan 24th Dec

DECEASED PATIENTS

October saw the reopening of our newly refurbished North Malé Sea Turtle Rehabilitation Centre, located at our partner resort One&Only Reethi Rah.

Thanks to the Engineering Department at One&Only, the Rehabilitation Centre now has a new hand-made treatment table with fresh water access where we can perform regular health checks and hygiene on our patients. A camera system has also been installed to help the on-site ORP sea turtle biologist and the Rescue Centre veterinary team keep an eye on future patients.

The large tank at the Rehabilitation Centre is shining anew, thanks to the fresh paint job and glass polishing. Additional plants have also been brought into the Rehabilitation Centre to provide a pleasant guest experience. Furthermore, we are working with a local artist to create a beautiful sea turtle mural at the centre.



North Malé Sea Turtle Rehabilitation Centre

Due to its central location and proximity to the airport, the Rehabilitation Centre also functions as a holding facility. Newly rescued sea turtles are brought here for brief stays under the direction of the veterinary team until further transportation can be made to the Marine Turtle Rescue Centre. If clinical care is not required, the patients either remain at the Rehabilitation Centre until they are ready to be released or transferred to another rehabilitation facility.

The first critical patient to be admitted after reopening was Aisha, a sub-adult olive ridley who was rescued in Dhaalu Atoll. She spent a night in North Malé before being sent to the Marine Turtle Rescue Centre in Baa Atoll, where our veterinary team sadly had to amputate her front left flipper.

FIDA'S NEW HOME



Sea turtle Biologist Pippa lifting Fida out of the main tank for a health check-up © Ali Khlais & Imran Ahmed

The Rehabilitation Centre also houses long-term non-critical patients and patients being staged for release.

Fida, a juvenile olive ridley and single-side double amputee, was first admitted to the Rescue Centre in August 2022. After 15 months, her medical check-ups normalised, and her wounds healed. Our focus then shifted to providing her with behavioural training to encourage diving.

In November, we transferred Fida to North Malé, where she has access to a spacious enclosure dedicated solely to her. The tank here is particularly suited for Fida's need for long-term rehabilitation, as it is big and deep enough for her to practice diving. Fida remains under direct, daily supervision by entire veterinary team.

Fida is continuing her specialised buoyancy therapy programme, called Targeted External Weight Therapy (TEWT), combined with submersible buoy feeding sessions. TEWT allows our veterinary surgeons to refine therapy by placing specific weights in precise locations on the patient's carapace with the goal of developing acceptable diving behavior. Fida's strong food motivation allows her to adapt well to these new buoy heights, exemplified by her recent attempt to retrieve a fallen piece of fish from the bottom of the tank. This is excellent progress for Fida and we are optimistic about her continued improvement.



RESCUE & REHABILITATION INNOVATIVE SEA TURTLE MEDICINE



FIRST CROSS MATCH STUDY FOR OLIVE RIDLEYS

A "blood cross-match study" refers to a specific procedure performed in the field of blood transfusion medicine. This study is conducted before a transfusion to ensure compatibility between the blood of a donor and the blood of a recipient. The main goal is to prevent transfusion reactions which can occur when incompatible blood is transfused

Cross-match studies are applied to sea turtles in the same way they are for human blood transfusions. In sea turtle medicine, blood tests are commonly conducted to check parameters such as blood cell counts, biochemistry, and infectious diseases. These tests provide crucial insights into the turtle's overall health, aid in diagnosing illnesses or injuries, and help guide tailored treatment plans.

Our veterinary team has begun carrying out crossmatch testing on our current patients, with a special focus on olive ridley sea turtles.



Veterinary nurse, Tristan, studying the blood of a patient in the microscope

This testing allows for the identification, or 'matching', of suitable donors to recipients, which is required before our veterinary surgeons can administer life-saving blood transfusions to critically ill patients.

This groundbreaking cross-match study on olive ridley sea turtles is the first of its kind globally. It will provide valuable insights for veterinary surgeons across the world, enabling them to safely transfuse blood for critically ill olive ridley sea turtle patients.

TARGETED EXTERNAL WEIGHT THERAPY

Buoyancy disorder, also known as inappropriate floating, is a prevalent condition observed in sea turtles worldwide, including those we treat at our rescue and rehabilitation facilities in the Maldives.

Its primary characteristic is the abnormal accumulation of air in the patient's body cavity, leading to the turtle floating at the ocean's surface. Various factors, such as entanglement in marine debris or exposure to polluted ocean water, can trigger this condition.

DID YOU KNOW?

Buoyancy disorder can be potentially deadly for sea turtles. When a sea turtle experiences buoyancy disorders, it faces significant challenges in maintaining its normal behaviour and functions in the water.

For example, if a sea turtle is unable to dive to find food or escape from predators due to buoyancy issues, it may suffer from malnutrition, weakness, or increased vulnerability to predation.

To address this issue, our veterinary team has developed a comprehensive treatment programme, with one of the key modalities being Targeted External Weight Therapy (TEWT).

This innovative approach involves the strategic application of small weights of various sizes in precise locations by our skilled veterinary surgeons to "target" the specific area of the patient that needs correction. The therapy facilitates a gradual restoration of normal swimming, and diving behaviours, expediting a safe and quick return to the wild.

The application of TEWT demands exceptional precision, and our veterinary team exercises the utmost care in its implementation. However, the results are notably promising, showcasing significant success in the treatment of buoyancy disorder in sea turtles.

ORP has been based in the Karachi region of Pakistan since 2015. In the final quarter of 2023, we launched a continuous nest monitoring and data collection initiative on Pakistan's primary nesting beaches, marking the first such effort since 2007. These beaches, interlinked along Hawke's Bay and Sandspit, span approximately nine kilometres in total.

This area, bordering the village of Kakapir, has a rich historical reputation as a sea turtle nesting zone. In the past, green turtles and occasionally olive ridleys have been recorded nesting here year-round with a peak in July to December. More recent anecdotal evidence hints at a shift in peak nesting activity towards October to February.

Our monitoring initiative began with the division of the nine-kilometre beach strip into transects — designated paths along which we count objects of interest, such as nesting sea turtles and nests. The transects were spaced 500 metres apart, resulting in 18 marked zones. This approach allows us to record nesting activity within each zone, helping us study and understand beach use by nesting sea turtles.

The use of transect surveys is instrumental in efficiently recording and monitoring data across large areas by breaking down the field site into smaller manageable plots. Since this is our first effort to monitor nesting activity along this stretch of beach, these surveys will enable us to gather essential preliminary field observations.

DID YOU KNOW?

Until the 1990s, five species of sea turtles have been known to nest in Pakistan: greens, olive ridleys, leatherbacks, loggerheads, and hawksbills. Now, only green turtles are assumed to still nest on beaches in the country.

We are now conducting regular surveys in the evening and early morning along the beach, recording all sea turtle tracks, nesting females, and hatchlings we encounter. Since starting the surveys, we have found just over 200 tracks on the beach, which is proving to be a busy nesting area. All tracks were identified as green sea turtles.



Programme Manager, Usman, and Sea Turtle Biologist, Kashif, collecting data on sea turtle tracks

Additionally, we observed four of 119 suspected nests hatch. The nests are currently left unmarked to protect them from unwanted attention as these beaches are popular with tourists and visitors.

We also noted 51 sightings of green turtles that had nested on the beaches of Hawke's Bay and Sandspit. The recorded size range of nesting females varied significantly, with the largest measuring 109cm Curved Carapace Length (CCL) by 93cm Curved Carapace Width (CCW), and the smallest female measuring 86cm (CCL) by 58cm (CCW).

Through our nest monitoring project, we are aiming to provide a sound scientific basis of knowledge to evaluate the number of nests, the species, and the timing of the nesting season in Hawke's Bay and Sandspit. This contemporary data can then be compared to past records to allow for an informed decision on the current status of turtle populations in Pakistan and drive necessary conservation measures.

Furthermore, we are currently working on a collaboration with other local and governmental stakeholders to establish uniform nest monitoring practices and improve environmentally friendly management practices on these beaches.





During the last three months of the year, we observed a weather shift in several locations where we operate. Generally, this means better dive conditions and underwater visibility - a great boon for our in-water research!

In the Maldives, however, this marks the onset of "Iruvai," translating to hot and dry in Dhivehi. Commonly known as the northeast monsoon, during "Iruvai", the wind and currents flow from the northeast direction of the Bay of Bengal. It's also the time of year when thousands of olive ridley turtles make their way towards Odisha on India's east coast for a synchronised mass-nesting event known as *arribada*.

Arribada comes from the Spanish word for arrival. Only olive and Kemp's ridley turtles display this behaviour of synchronised massnesting events.

Regrettably, numerous migrating sea turtles encounter ghost gear (lost, abandoned, and discarded fishing gear) while traversing the Bay of Bengal, leading to entanglement. Carried by currents, they frequently find themselves in the Maldives. Hence, during this period of "entanglement season," we observe a significant rise in victims of entanglement.

Over the past few months, our education and outreach initiatives in the Maldives have therefore predominantly centered around safe sea turtle rescue. The greater the number of individuals who are informed about ghost gear and trained on how to respond when encountering an entangled, injured, or unwell sea turtle, the higher the likelihood of the turtle's survival.

We also concluded our Raa Atoll Community Tour, where we held education sessions and met with the stakeholders of the islands to identify opportunities for collaboration. Across 15 islands, we met 245 members from the councils, WDCs, NGOs, and fishing communities, as well as 271 school children. We distributed our Sea Turtle Handbook to the schools and councils as an educational resource, as well as displaying ORP's entanglement protocol posters around the islands.



BMU Celebrations in Kwale, Kenya

In Kenya, we celebrated the completion of our first successful year of the BMU Programme with grand festivities that engaged over 150 participants (see page 14). Over in Pakistan, our team led by Programme Manager, Usman Iqbal, and Community Leader, Mohamed Waqar, collaborated with SS Design for a booth at the Fall Festival, attended by over 5,000 individuals! The booth featured ORP's circular economy ghost leash project, an interactive area of a mock ghost net with children's toys depicting marine life, and a "Match the Photo-ID" game. The audience was quite young at this event, so the ghost net activity proved to be the most popular. Overall, it was a great event with an excellent turnout.

Our sea turtle biologist in Oman, Davide, visited a school in Dibba, a small town located 30 minutes from our base in Six Senses Zighy Bay. Here, he addressed a group of 25 enthusiastic 16-year-old students. Davide shared insights about ORP's work, sea turtles, and conservation initiatives across the Musandam Peninsula. The audience actively engaged in the discussion and the school has expressed genuine interest in facilitating future visits by ORP, including even arranging a trip for the students to Zighy Bay for a firsthand experience of our conservation work.

Encouraged by the favourable responses received during the education sessions across our bases, we intend to expand our awareness efforts in the upcoming year. We aim to communicate our findings and knowledge to wider audiences within the communities we serve and work with.

To raise awareness about 'entanglement season' in the Maldives, we run social media campaigns in both English and Dhivehi, share our Sea Turtle Entanglement Protocol widely, and conduct training workshops in local communities and for employees in hospitality, water-sports, and maritime transport. These efforts appear to have been successful, as evidenced by the reports of 20 sea turtles in distress and the admission of 10 new patients in the last three months of the year.

In December, we conducted several interactive workshops on threats to sea turtles and sea turtle rescue, particularly aimed at a younger audience our hope for the future of conservation – and the staff at our partner resorts.



Bringing Girl Guides on Board - Training session with Young Leaders Of Malé (YLs)

The Young Leaders (YLs) is a youth-led association run by the Girl Guides of the Maldives. They primarily focus on enhancing the potential and capabilities of young women all across the Maldives. At the beginning of October, we brought girl power to sea turtle rescue by conducting training for 13 members of YLs aged between 16 and 25 at the Girl Guides Association in Malé City.

The workshop included presentations about sea turtle biology as well as sea turtle rescue, activities, and a quiz. This was a big hit with the audience, many of whom showed interest in ORP's Internship Programmes in the Maldives. We look forward to building our connections with YLs and further expanding our activities to empower and build the skill set of girl guides from other atolls.



A Milandhoo School student cleaning the beach

In late October, Sea Turtle Biologist Neus, along with the Sustainability Department at our partner resort Fairmont Maldives, embarked on a sea turtle awareness initiative at the school on Milandhoo Island in Shaviyani Atoll. The day kicked off with a beach clean-up, engaging 53 12-year-old students and five teachers who collectively gathered five jumbo bags filled with plastic debris, totalling 208kg!

Following the cleanup, the team provided insights into the distinct characteristics of various plastics and explained their unique recycling processes. Fairmont Maldives recycles types 2 and 5 plastics in the resort, turning them into furniture, souvenirs, and school equipment like rulers and clipboards. All the plastic was later taken to the resort to be sorted and recycled.

ORP Biologist Neus then led a presentation highlighting the challenges faced by sea turtles in the Maldives, complemented by a workshop on sea turtle first aid and rescue. The students proved to be an exceptional audience, actively participating with numerous questions and displaying keen interest throughout the team's activities and discussions.

Educational initiatives like these are beneficial because in-depth marine science is not taught in the school syllabus outside of the capital city of Malé, hence there is very little knowledge about Maldivian marine habitats in island communities. Part of our mission in the Maldives is to change this and we are actively working with the Ministry of Education on several initiatives for next year.





In the world of sea turtle conservation, blending scientific research with community involvement is crucial for making a real impact. In Kenya, ORP's Sea Turtle Conservation Training Programme with fisherfolk members of the Beach Management Units (BMUs) does just that, seamlessly combining scientific inquiry with active community engagement.

The BMU Programme is a collaborative journey where communities not only learn but also embrace a shared responsibility. From discussing species identification to addressing threats and promoting sustainable practices, this programme showcases a harmonious mix of scientific knowledge and local insights.

The programme officially launched in May 2023 with workshops in four of Kwale County's BMUs: Chale-Jeza, Mwaembe, Munje, and Funzi. 60 volunteer participants had been nominated by the chairmen of the BMUs and represented all the landing sites within each BMU as well as diverse age groups from youth to the elderly. They were all proficient in reading and speaking Kiswahili (the local language) and committed to learning and disseminating information within their landing site, BMU, and the surrounding community.

The Sea Turtle Conservation Training Workshops aim to bridge the gap between communities and authorities, empower men, women, and youth to actively participate in sea turtle conservation, and increase awareness of ORP's initiatives. They were developed in collaboration with the Kenya Wildlife Service, with rangers attending and presenting. Participants actively engaged in the workshops, posed thoughtful questions that reflected their eagerness to enhance their understanding of sea turtle conservation.

In October, our team met 57 of the original 60 participants to evaluate learning retention and practical application, and to gather feedback on the programme as well as the educational resources provided, which included a booklet in Kiswahili and information panels.

The overall performance was commendable, with an average score of approximately 76%. Notably, one participant from Chale-Jeza achieved a perfect score! Topics related to feeding behaviours, global distribution, threats, benefits, and legal and illegal fishing gear garnered the highest average scores, indicating a higher level of understanding. Yet, we encountered certain obstacles in conveying the significance of sea turtles and the proper measures to take when encountering entangled sea turtles. These hurdles led to lower average scores and diminished comprehension in these specific areas.

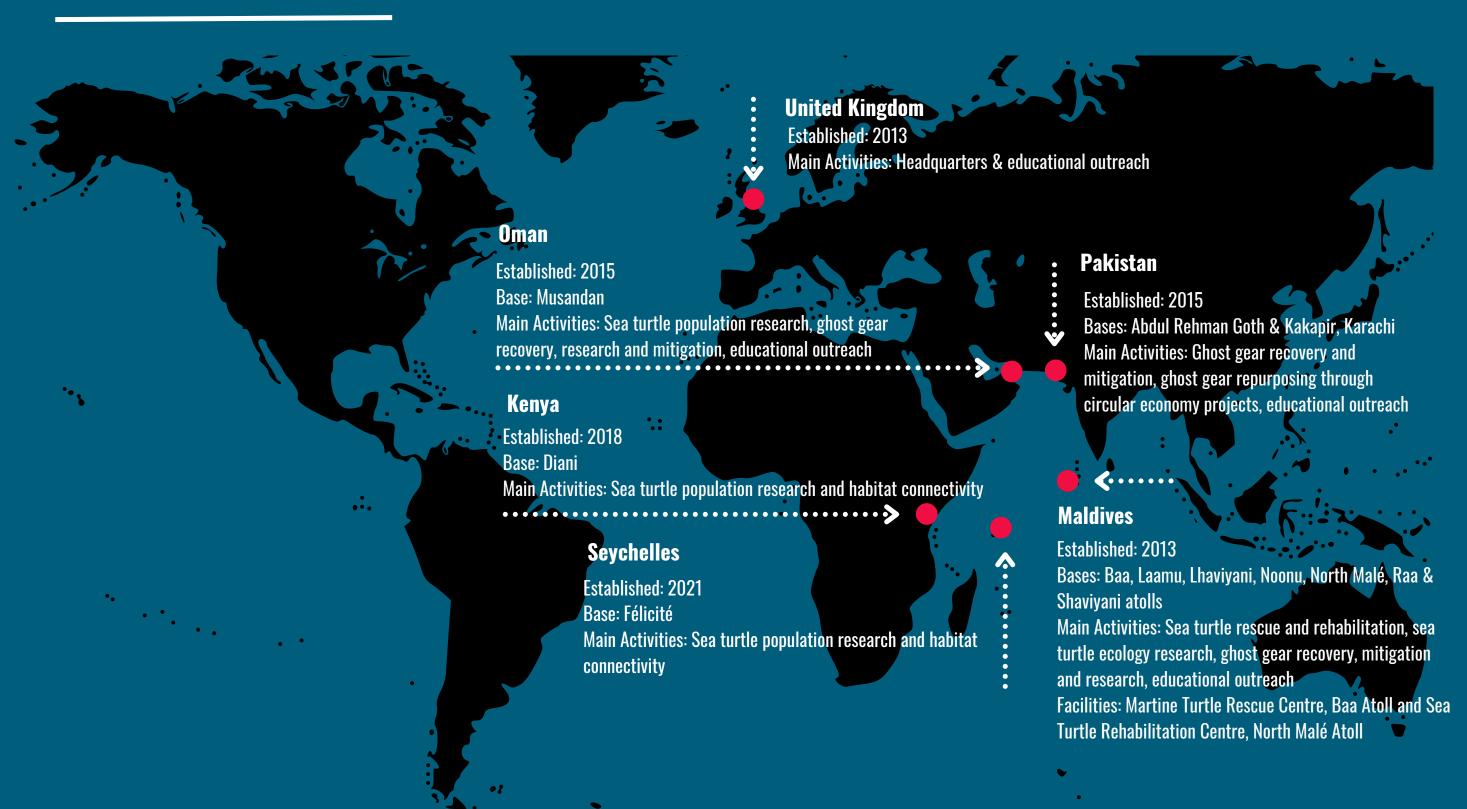
The booklet was found to help enhance understanding about sea turtles. Nonetheless, its limited availability underscored the effectiveness of workshops, where participants directly engage with ORP trainers, ensuring a more impactful learning experience. Participants also reported to have implemented changes, spreading awareness in their communities, and even forming new sea turtle groups.

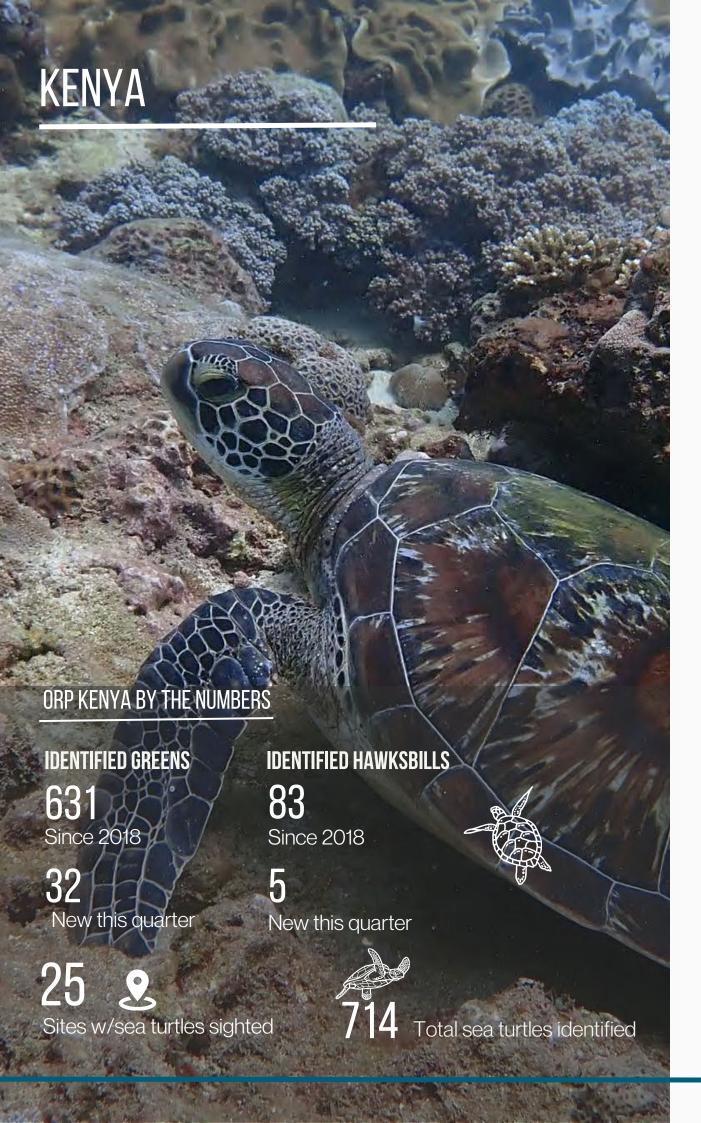
At the end of November, we hosted a grand community celebration in Munje to celebrate the completion of our BMU Programme and to honour the unwavering dedication of our 57 participant fisherfolk from four BMUs. This momentous occasion, brimming with inspiring speeches, cultural performances, and the presentation of certificates and t-shirts to participants, served as a fitting tribute to their dedication and achievements.

The celebration was graced by the presence of over ten organisations and officials from various departments in Kwale County, highlighting the programme's growing impact and the recognition it has garnered across the region. The gathering provided a platform for participants to share their stories, reaffirm their commitment to supporting community-led conservation initiatives, and showcase their role as catalysts for change.

In a touching gesture of recognition, these exemplary individuals were proclaimed as "Balozi wa Kasa" (Sea Turtle Ambassadors), a testament to their remarkable contribution to sea turtle conservation efforts. This symbolic title elevates their standing within their communities, empowering them to further advocate for the protection of these endangered marine reptiles.

OUR PROJECTS





Despite widespread flooding along Kenya's coast, attributed to El Niño activity — a climatic phenomenon renowned for disrupting weather patterns worldwide — together with an overflow of the Kongo River just north of Diani, the team conducted some exceptional dives in the past few months that culminated in truly remarkable encounters. Among these was the re-sighting of two of our most venerable sea turtles in Diani - Ina (G043), last seen in October 2018, and Skvrnka (G080), last seen in November 2020, both spotted in the vibrant Galu reef!



Valarie Silali, our intern in Kenya from October to December

In October, we happily welcomed Valarie Silali, our new intern, to the team for the remaining three months of the year. Valarie spent one month receiving her PADI dive training from our partners Diving the Crab, and learning all about underwater sea turtle monitoring. She then put her new skills to use, clocking in over 50 dives and many sea turtle encounters. She also assisted with our educational outreach programmes.

As diving conditions gradually improved by late November and December, we embarked on a mission to explore remote locations of Diani's reef and joined dives around Chale Island. As we look back on the year's overall sea turtle count, we are immensely proud of recording over 1,000 sea turtle sightings and identifying 116 sea turtle individuals in Diani's reef alone.

Our project's success has garnered significant attention, leading to invitations for participation in high-profile events. In November, Project Manager, Joana, traveled to Nairobi to deliver an in-person presentation at the prestigious Muthaiga Country Club, hosted by the East African Wildlife Society. Here she discussed threats to sea turtles and emphasised the importance of sea turtle conservation. We are grateful to Seas4Life for providing logistical support.

Our Project Coordinator, Leah Mainye, delivered a captivating plenary address at the 21st Oshwal Academy Mombasa Model United Nations conference – an annual gathering of approximately 250 bright students from various Mombasa schools. The conference's theme "Many worlds, one planet" provided an ideal platform for engaging in discussions on pressing global issues and exploring potential solutions. During her keynote address, Leah highlighted ORP's unwavering commitment to sea turtle conservation, emphasising the crucial role of bridging gaps and fostering meaningful conservation practices that resonate with diverse perspectives.



Project Coordinator Leah giving a plenary address at the 21st Oshwal Academy Mombasa Model United Nations conference

Leah also participated in the inaugural "Let's Chat" discussion organised by Blue Ventures, held at the Close the Gap offices in Mombasa. This event brought together emerging leaders in marine conservation for an open dialogue on networking, fostering collaborations, and exploring professional growth opportunities within the field. The forum also served as a platform to champion community-led conservation strategies, cultivate mentorship opportunities, and ignite innovative ideas that will propel the marine conservation movement forward.

Furthermore, our Beach Management Unit (BMU)
Programme is also reaping significant successes under the guidance of our community education and outreach officer,
Juma. Read more on page 14.

Reflecting on our achievements, we ended the quarter with a profound sense of accomplishment and an unwavering determination to continue our mission of protecting sea turtles and empowering communities in Kwale County.

TOTAL IDENTIFIED SEA TURTLES BY ATOLL

Baa	259	895
Laamu	390	643
Lhaviyani	436	373
Noonu	70	127
North Malé	90	972
Raa	5	187
Shaviyani	11	56

MALDIVES



ORP MALDIVES BY THE NUMBERS

IDENTIFIED GREENS

1,549

New this quarter

66

678 👤

SITES W/SEA TURTLES SIGHTED

IDENTIFIED HAWKSBILLS

4,824

New this quarter

115

NEW NESTS LAID

14

HATCHLINGS COUNTED

423





TOTAL SEA TURTLES IDENTIFIED





The end of 2023 brought three busy and remarkable months for our team in the Maldives: the onset of the 'entanglement season' hit the country with full force, we received some mystery satellite data from Hawwa, and our Photo-ID programme reached exciting new heights.

From October to December, we received reports of 20 sea turtles in distress from all over the Maldives, including 15 olive ridleys. Our veterinary team and sea turtle biologists were very busy organising transport and emergency treatment for these animals. 10 new patients were admitted to the Marine Turtle Rescue Centre. See pages 7 and 8.

Luckily, our rehabilitation centre in North Malé finally reopened in November after a full makeover. After 15 months of treatment at the Marine Turtle Rescue Centre in Baa Atoll, Fida was transferred to North Malé and is now on 'dive training' with Sea Turtle Biologist, Philippa. Moving Fida to the North Malé facility freed up urgently needed critical care space at the Rescue Centre in Baa Atoll. Read more on page 9.

DID YOU KNOW?

Most sea turtles entangled in ghost nets found in the Maldives are olive ridleys. This pelagic species spends most of its life in the open seas. It is suspected that olive ridley habitat overlaps greatly with commercially used fishing grounds, which is why they are prone to entanglement.

The final quarter of the year revealed contrasting developments in the tracking of our satellite-monitored turtles, Hawwa and Shara. Hawwa had initially traveled north along the western coast of India. In November, we recorded no further diving, but very fast and straight directional movement between offshore and harbour locations. Given the prevalent fishing activity along the Indian coast, there is a possibility that Hawwa might have unintentionally become entangled in a fishing net. Presently, Hawwa's whereabouts are unknown, and her tag likely remained on a boat for several weeks, leading to the generation of unusual tracking data.

Shara on the other hand has continued her trip in the Bay of Bengal, coming very close to the east coast of India near Odisha. Regular mass olive ridley nesting events, called *arribadas*, usually occur in the area in February and March. We are looking forward to the first quarter of 2024 to see if Shara will join the nesting activities!

In the last quarter of 2023, we registered an amazing 1,287 sea turtle encounters and a total of 181 new individuals through our Photo-ID programme. We have now identified a total of 6,373 sea turtles in the country, including 1,549 greens and 4,824 hawksbills. On average, we registered 12 sea turtle encounters per day and identified 12 new individuals every week in 2023! We would like to give our heartfelt thanks to all the enthusiastic citizen scientists and supporters for their submissions, which allowed us to achieve these numbers.



ORP Sea Turtle Biologist Julian celebrating 1,000 identified sea turtles in Laamu with the Maldives Underwater Initiative team

Sea turtle nesting activity was lower this quarter, which did give us some time to recapture all nests laid in the past year. In Noonu Atoll, we found a shift in nest site locations, which showed how female sea turtles adapt to changes in beach profile and vegetation along the coast. Female sea turtles might have their preferred nesting spots, but sometimes they have to divert when confronted with high tides or fallen trees.

The team in Lhaviyani was going out in full force for Sea Turtle Photo-ID and ghost net retrieval with Sea Turtle Biologist Afrah moving to the atoll on the island of Kanuhura. Together with Maria, based on Kuredu, they retrieved over 800kg of ghost gear in the last three months!

The ORP Maldives team also continued their outreach activities. Sea Turtle Biologist Shah joined forces with Education and Outreach Officer Risha and Project Assistant Dan for the second half of our Raa community tour in October. During their trip, they met with over 500 stakeholders and school children, providing an overview of ORP's work and sea turtle conservation in the Maldives. The team was met with high interest and is looking forward to future education sessions and meetings.

As the year draws to a close, the relentless summer heat of the Middle East eases in the Musamdam region, bringing cooler temperatures on land and in the sea. Usually, this means better underwater visibility and more opportunities to sight sea turtles. However, in late October, an unfortunate incident unfolded as tar spilled onto the beach at Zighy Bay. Tar is a dark brown or black viscous liquid obtained through the distillation of various organic materials such as coal, wood, petroleum, or peat.



Black tar washing up on the beach at Zighy Bay

Due to our field site's proximity to the Strait of Hormuz, a crucial route for oil ships, the region faces constant risk of oil leaks that could potentially damage the entire ecosystem. Fortunately, the Six Senses resort team demonstrated swift action, efficiently cleaning the affected beach and mitigating the environmental impact. Despite this setback, we recorded 55 green sea turtle sightings in October, of which eight were new individuals.

We continued with our education and outreach initiatives throughout the last three months of the year. In October, we launched a series of comprehensive training sessions for the Six Senses Zighy Bay team. Sea Turtle Biologist Davide both enlightened the resort staff about the impactful work ORP is conducting in Oman and other places and provided hands-on experiences to the participants through various in-water activities, including snorkelling with sea turtles.

In December, we had the unique opportunity to engage with students from a girls' school in Dibba, the nearest town to our Oman base. We conducted an extensive sea turtle lesson for 25 enthusiastic 16-year-old female students, encompassing different facets of ORP's activities, sea turtle biology, and the broader conservation initiatives in progress in the Musandam region. The young audience displayed significant interest and actively participated in the lesson.



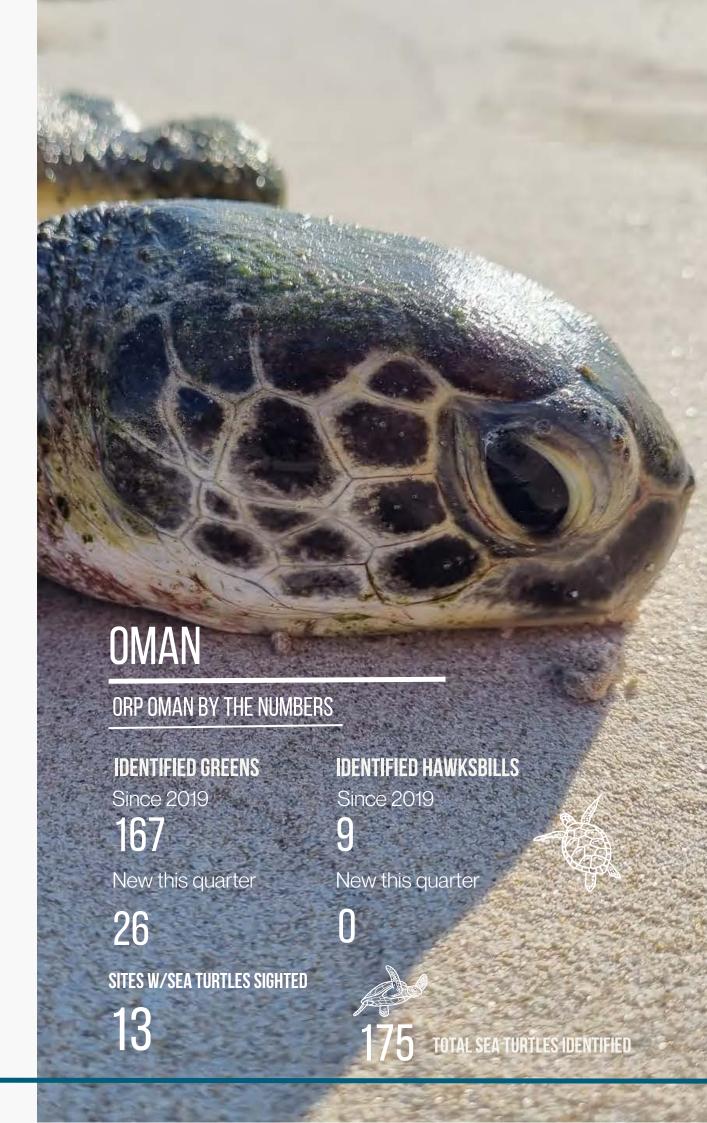
Davide measuring GM056, Squirt, who was caught as bycatch

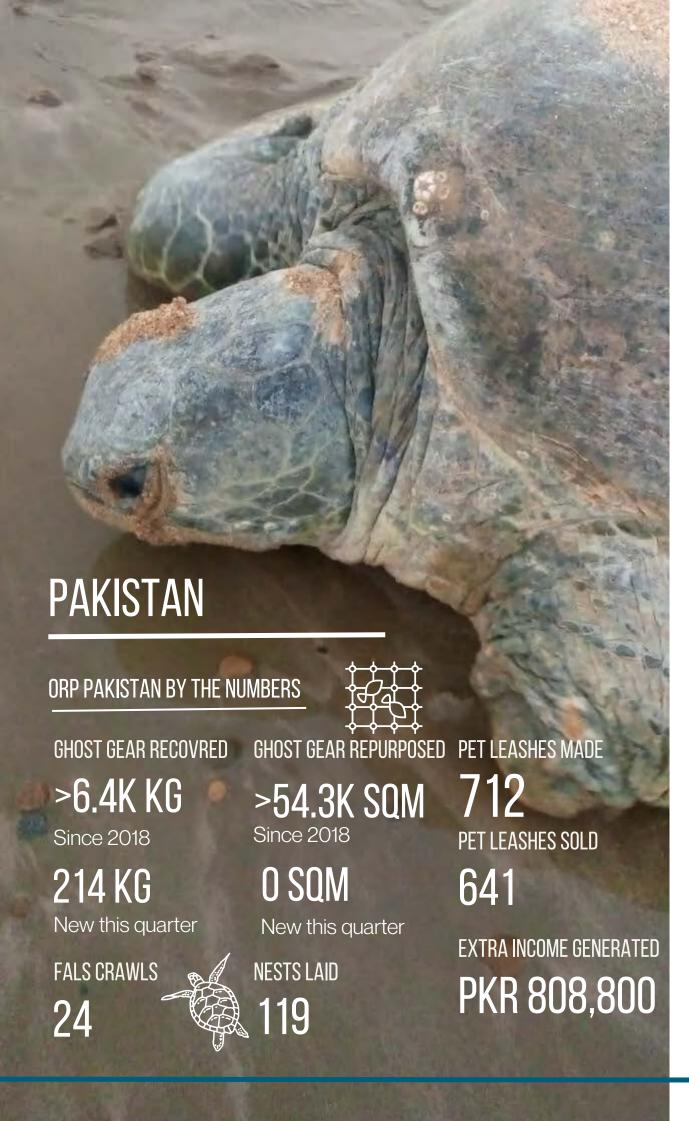
We also continued to collaborate with the local fishermen. In the last two months of the year, we recorded two green turtles and two stingrays accidentally caught in fishing nets. Thankfully, all of them were uninjured and released safely back into the wild. Notably, among these rescues was a familiar face – GM056 from our Oman database, affectionately known as Squirt.

Our collaborative effort with fishermen helps us both record and rescue sea turtle bycatch. The turtles caught in the nets are often identified using our Sea Turtle Photo-ID database. This allows us to understand sea turtles' interactions with active nets and the impact that local fisheries have on the marine environment.

Unfortunately, December also brought a somber moment as a weak and sick green turtle was discovered near the Zighy Bay shoreline. Acknowledging the absence of veterinary facilities in the vicinity, we made the difficult decision of returning the sea turtle to the sea, allowing it to spend its last moments in its natural environment. This incident underscores the urgent need for a dedicated rescue and rehabilitation centre in Oman.

November and December's Photo-ID efforts culminated in the sighting of 95 sea turtle sightings, including 18 new individuals. In total, the last three months of the year yielded 25 new identifications - all of green turtles. While the numbers reflect progress, we are reminded daily of the myriad of challenges faced by marine life. As we navigate through these challenges, our vision of a sustainable future for the Musandam region drives our continued efforts to protect and preserve its unique marine ecosystem.





In the final quarter of 2023, we reached a huge milestone in Pakistan by adding sea turtle population research to our initiatives here. This has been made possible by the addition of a Sea Turtle Biologist, Kashif, to our team earlier in the year. After much planning and preparation, we initiated a continuous nest monitoring and data collection effort on Pakistan's main nesting beaches along the interconnected beaches of Hawke's Bay and Sandspit. This area is historically known as a sea turtle nesting area, but no regular monitoring has been carried out since 2007. Read more on page 11.

Both nesting sea turtles and hatchlings face a variety of threats in Pakistan. On the beaches, an increase in construction and the associated need for space and waste pose a serious threat. In addition to rubble from construction, the global and ever-present amount of plastic waste is impacting Pakistan's coasts. Additionally, sea turtles face potential disturbance through light pollution, illegal take and traffic of eggs and hatchlings, as well as predation.

Over the course of 22 visits we made to the beaches, we observed two three-flippered females that had come ashore for nesting. Despite the severe impairment of a missing limb, one of them successfully nested (see image on the left), while it was unclear whether the other one managed to do so. We are now hoping to encounter her hatchlings in two months. Although we do not know how these two females lost their flippers, a strong possibility is ghost gear entanglement – ghost gear is rampant in the area. These cases highlight the resilience of sea turtles, showing that they are capable of survival and reproduction even after severe injuries. It is very demanding for a sea turtle to move on land, and therefore very impressive for a female to do so missing a flipper.

We are continuously working on removing and repurposing ghost gear from the beaches, which helps preserve the nesting habitat and provides the local community with an income from the repurposed material. In addition, we recovered a total of 214 kgs of ghost gear from Charna Island and Abdul Rehman Goth! All the ghost gear is upcycled into saleable products such as ghost leashes and bracelets as part of our circular economy project. So far, we have repurposed more than 54.3 square metres of ghost gear, which has generated more than 800,000 Pakistani Rupees in additional income for the artisans making the products.



A green sea turtle hatchling on the sandy beach in Hawke's Bay

During our beach visits, we also observed four hatchling events on Hawke's Bay Beach. In three instances, the majority of hatchlings successfully reached the water. However, during one hatching event, some of the hatchlings were unable to make it to the sea due to the presence of predators such as feral dogs and birds.

Tragically, we also witnessed two deceased juvenile turtles on Sandspit Beach. The cause of death for these juveniles was unclear, but we still recorded the incidents.



ORP Pakistan recovering ghost gear during a dive

Throughout November and December, we undertook dives to conduct a preliminary assessment of popular sea turtle feeding and foraging grounds. During this time, we spotted three sea turtles - an adult male green, a hawksbill with 3 flippers seen on Bhit Khorri, and a juvenile green. Unfortunately, we also came by a deceased adult green off Manjhar Beach. Similar to the juvenile turtles found on Sandspit Beach, the cause of death is unknown. Often deceased turtles found on the coast of Pakistan are in a state of advanced decomposition and even a professional necropsy would not be conclusive.

We were glad to see the hawksbill turtles return to Félicité Island for the nesting season, with the first nest being laid on Anse la Cour by HS188; a newly identified individual. While HS188 is a recent addition to our database, this turtle may have previously nested on Felicite.



Sea turtle biologist Olivia measuring a nesting hawksbill

Hawksbill turtles show high site fidelity to their natal beaches, typically returning to nest every two to five years. Our continued monitoring of the nesting population over the next few years will allow us to unveil crucial insights into individual remigration intervals.

At the start of November, we bid farewell to Lara Kalisch, our former sea turtle biologist at Félicité, Six Senses Zil Pasyon. Lara was ORP's first sea turtle biologist in Seychelles and played a pivotal role in establishing our sea turtle Photo-ID database in the country, managing the nest monitoring programme on Félicité, and creating vital partnerships with local stakeholders.

Her position was taken over by Olivia Foster, who was previously working as our sea turtle biologist in Raa Atoll, Maldives. Olivia arrived mid-nesting season and was given a very warm welcome by the sea turtles with 17 incidents of nesting activity in her first few days on the island, six of which were true nests!

Currently, we have 25 hawksbill nests on Félicité. This is comparable to last year, which saw approximately 30 nests by this time. However, unlike last year, we have not had any nesting activity from green turtles yet. Green turtles in the Seychelles do not seem to follow the same nesting season as hawksbills. They instead nest throughout the year at the Inner Islands, with an apparent peak in January. We are hoping that the new year brings us exciting green nesting.

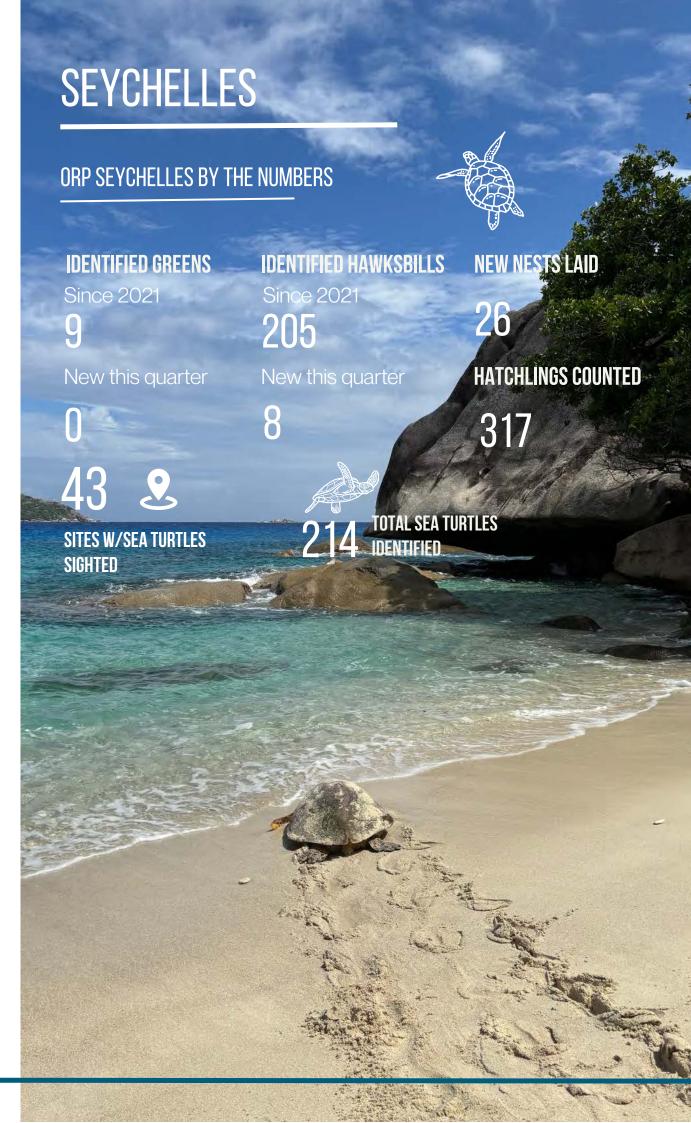
The hatching season kicked off to a great start in November, with the first nest boasting a remarkable 96% success rate. Unfortunately, the next two nests to hatch did not fare so well, with a hatching success rate of 54% and 29%. This low success was unsurprising, as these two nests had been washed over by the high tide halfway during incubation. The physical conditions experienced by eggs during incubation strongly impact embryonic development and hatching success. Inundated nests tend to show a higher percentage of dead embryos, which is exactly what we discovered in nest 3.



A drone shot of Grand Anse

In December, we reinstated drone surveys to continue monitoring the beach erosion occurring at Grand Anse, the main nesting site on Félicité. As the seasonal erosion we see here began earlier than usual this year, with the northwestern end of the beach eroding completely by December, fewer nests were laid in the risk area this nesting season. We relocated only five nests this year, compared to 11 last season. Unfortunately, two nests were also lost as a result of the erosion. The situation in Seychelles demonstrates the reality of climate change-induced rise in sea levels, the subsequent beach erosion, and its effects on nesting sea turtles.

This quarter has also been challenging for conducting inwater surveys. Although December's difficult weather impeded our progress, we are immensely thankful for the invaluable contributions made by citizen scientists. As a result of their Photo-ID submissions, we managed to add a total of 42 sightings to our database, 8 of which were new individuals.



THE TEAM



DR MARTIN STELFOX JANNICKE C HALLUM DR STEPHANIE KÖHNK





SENIOR SCIENTIST



DR MAX POLYAK LEAD VETERINARY SURGEON



DR CLAIRE PETROS VETERINARY PROGRAMME



JUNHO YU FUNDRAISER



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IBRAHIM INAAN SEA TURTLE RANGER LAAMU ATOLL



SEA TURTLE BIOLOGIST



MARÍA ANTONIA IZURIETA AFRAH ABDUL SATHAAR SEA TURTLE BIOLOGIST I HAVIYANI ATOLL



KENYA

SARAH PATMAN PHILIPPA DARBYSHIRE-JENKINS MOHAMED SHAH RASHEED SEA TURTLE BIOLOGIST NOONU ATOLL



SEA TURTLE BIOLOGIST NORTH MALÉ ATOLL



SEA TURTLE BIOLOGIST



NEUS SEGURA SEA TURTLE BIOLOGIST SHAVIYANI ATOLL



MOHMED ZIYAN INTERN, MALDIVES



ABDULLA IYAAN AHMED MOHAMED ATHIF ADAM INTERN, MALDIVES



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CLIONA KIRBY TRUSTEE













THANK YOU

We would like to express our gratitude to all our donors, adopters, supporters, collaborators, and partners who make our work possible by providing financial and logistical support. We would also like to thank the kind samaritans who helped save all the entangled and injured turtles rescued in the last three months and the 14 volunteers who helped us take care of them at the Marine Turtle Rescue Centre. Last but not least, we thank our citizen scientists are invaluable for contributing their Photo-ID data to us - keep those Photo-IDs coming! We couldn't do it without all of you!



Claudia Shankari Zimmermann and the speakers at the annual Yoga Tage summit have raised funds for ORP for the second year running. The 2023 conference named adopted 23 wild turtles. Danke sehr

GIVING TUESDAY CHARITY EVENT, FAIRMONT

On Giving Tuesday, 28th November, our partner resort Fairmont Maldives, Sirru Fen Fushi, hosted a fundraising event in support of ORP, which included a 'Snorkel For A Cause' and a 'Turtle Talk' by our Sea Turtle Biologist in Shaviyani Atoll, Neus Segura. We would like to thank all the generous guests at Fairmont Maldives who participated and raised a total of \$908 – much more than the target goal of \$750! We are also very grateful for the support of Fairmont Maldives for arranging the event. The funds will be spent on much needed scientific research tools, such as temperature loggers and nest-watch cameras.



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