

PERHENTIAN TURTLE PROJECT 2022 REPORT



ACKNOWLEDGEMENT



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Our deepest gratitude to everyone who has been involved with our project this season especially;

- **2022 staff & interns** - Zafirah, Amanda, Izzah, Piqa, Mukmin, Syafiq, Intan, Naomi, Afiqah, Irfan, Faris, Athirah.
- **Volunteers and visitors** - without their contributions, our work would be impossible.
- The **residents of Kampung Pasir Hantu** for their patience, understanding, and knowledge. Special shout out to the boatmen for always being there.
- **Stakeholders** - chalets & resorts, dive centers, cafes & restaurants - for their support and constructive feedback that inspire us to do better.
- **Terengganu State Department of Fisheries (DoF)** and the Marine Park Division for permitting us to conduct our work.
- Fuze Ecoteer team (**Perhentian Marine Research Station & Eco-Education Project**) for their support and motivation as well as all the laughter shared.
- The **Turtle Elders** - Seh Ling, Wid and Melisa - for their advice that inspired and improved our ideas, and prevented us from re-inventing wheels.
- Our generous funders, **Yayasan Sime Darby and Ministry of Finance**, without whom, we would not be able to continue protecting & conserving the sea turtle population in the Perhentian Islands



Figure 1: PTP team photo



Figure 2: FE team photo

INTRODUCTION

Overview



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The Perhentian Islands, besides its natural beauty, are unique as they host both foraging and nesting populations of green turtles. Hawksbill turtles are also frequently sighted at coral reefs during dives. Despite being the Terengganu state's icon, natural heritage, and tourist attraction, there is a lack of data on the Perhentian Islands' sea turtle populations. Moreover, other than Bubbles Dive Resort and local TDoF rangers - both of which focus their efforts on the nesting population - there are no other parties actively engaging in the foraging sea turtle population.

Thus, PTP was established with the hopes of addressing the lack of data by monitoring the foraging and nesting populations of sea turtles in the Perhentian Islands. PTP's strategic locations in the village (Perhentian Kecil) and on the main nesting beach, Tiga Ruang, (Perhentian Besar) also facilitates better conversation and relationships among stakeholders, especially the local community, who are key to the success of any conservation efforts.



Figure 3: Sunny day view from the *kampung* jetty



Figure 4: Sunrise view from PTP house verandah

INTRODUCTION

Who is PTP?



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- A sea turtle conservation initiative under Fuze Ecoteer Outdoor Adventures Sdn Bhd at Perhentian Islands Marine Park.
- Currently based in Kampung Pasir Hantu (Fisherman's Village) on Perhentian Kecil and Pantai Tiga Ruang (Turtle Beach) on Perhentian Besar.
- Monitors sea turtle population through photographic identification (photo ID).
- Work in support of the Terengganu State Department of Fisheries and Marine Park Division.
- Associated with the local communities (villagers, resorts, dive centers, etc) to raise awareness on marine life conservation.
- Hopes to facilitate better conservation practices amongst the Perhentian communities to better care for their home.



Figure 5: PTP interns & volunteer

INTRODUCTION

Aim & Objectives



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Aim:

To protect and conserve the sea turtles of the Perhentian Islands Marine Park while raising awareness amongst the Perhentian communities on marine life conservation.

Objectives:

- To estimate the Perhentian sea turtle population size and dynamics
- To identify the Perhentian sea turtle habitat use and connectivity
- To respond to and determine causes of Perhentian sea turtle strandings
- To create and raise awareness about sea turtles and marine conservation among the Perhentian Community (i.e. local community, stakeholders, tourists, and government)



Figure 6: Swimming juvenile green sea turtle



Figure 7: Nesting green sea turtle during sunrise

KAYAK SURVEY



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Figure 8: Interns checking the photo that they captured

PTP conduct in-water surveys at Teluk Pauh (Figure 1), a foraging site for the sea turtles of Perhentian. Surveys are conducted twice or four times a week depending on the number of people in the project team including volunteers. The survey is done by following a transect line. The top of body, head and facial scales are photographed using the Olympus TG-6 underwater camera.

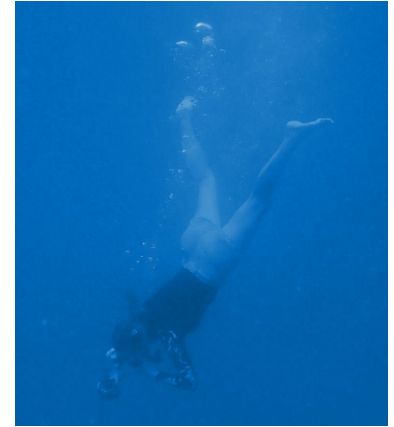


Figure 9: A volunteer freediving to photograph a turtle

As part of our Citizen Scientists initiative, we encourage tourists to submit any photos taken while encountering sea turtles in Perhentian. These photos might display unique features, allowing us to identify the individual. We also receive photos from local stakeholders of Perhentian. Dive centres, boatmen and tour guides give us photos of sea turtles they encounter during diving or snorkeling trips. This initiative contributes greatly to our growing database of sea turtle populations in the Perhentian Islands.

KAYAK SURVEY



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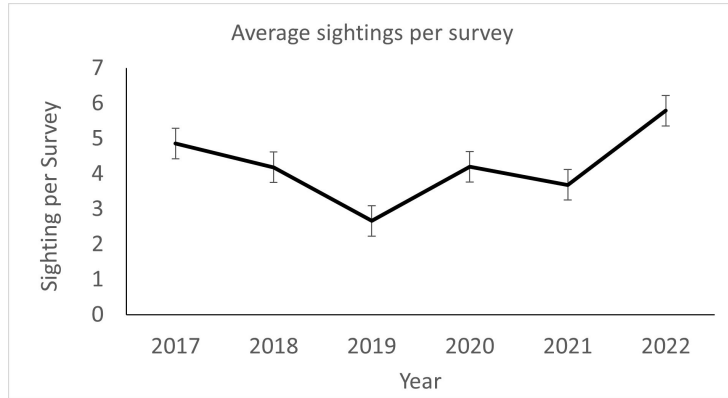


Figure 10: Average Number of Sightings per Survey

A total of 231 sea turtles were photographed by the team in 51 surveys throughout the 2022 season. 196 of these sightings were able to be identified as re-sighted or new individuals. IN 2022, the team was able to sight an average of 5.8 individuals per survey, The highest average since PTP started our efforts in 2015.

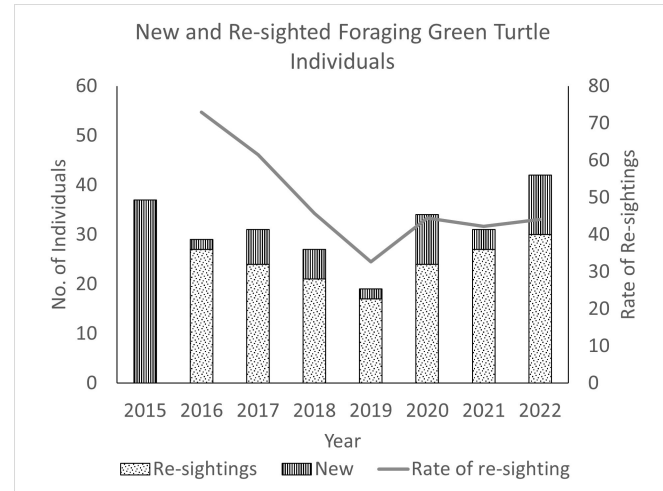


Figure 11: New and Re-sighted Foraging Green Sea Turtle Individuals

There is an increase in the number of new individuals sighted (2021:5; 2022:12) at Teluk Pauh while number of resightings shows no major difference (2021:28; 2022:30). PTP added 12 new individuals to the database and re-sighted 30 existing individuals throughout the season.

KAYAK SURVEY



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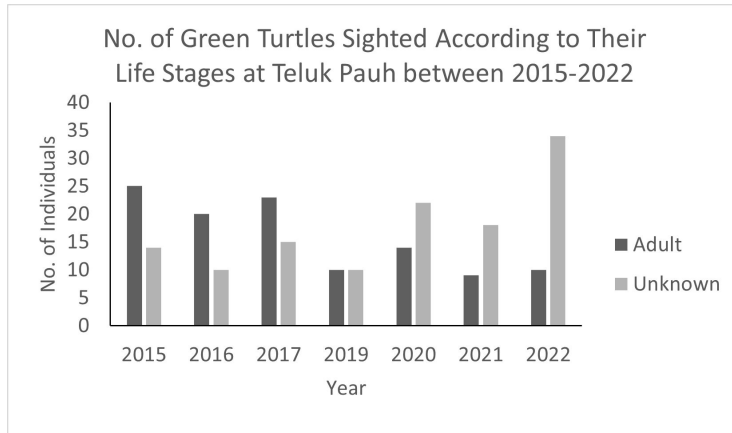


Figure 12: Average Number of Sightings per Survey

There was an increase in the number of juveniles and sub-adults (*unknown) photographed in 2022 (34 individuals). This trend might indicate that the sea turtle population of Perhentian is expanding as more juveniles/sub adults are using the foraging site.

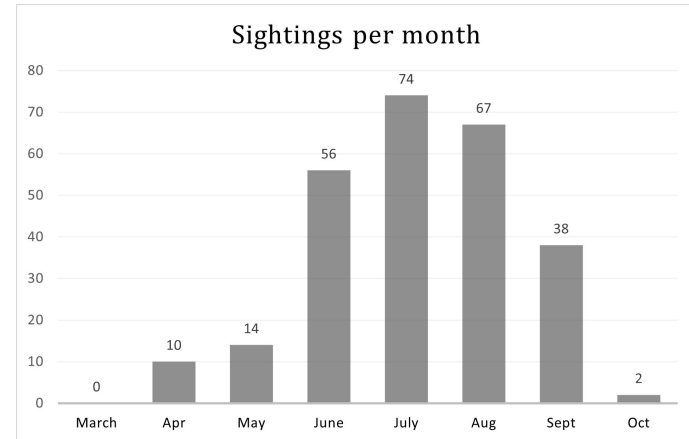


Figure 13: New and Re-sighted Foraging Green Sea Turtle Individuals

Figure 13 shows the pattern of sea turtle presence at Teluk Pauh throughout the season. June to August shows the most sightings especially in *unknown individuals until the frequency dropped to half in September. As PTP are always looking to improve our survey methodology, this will be observed further in the 2023 season.

WELCOME, NEW TURTLES!



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Figure 14: PG0389U Mari Carmen



Figure 15: PG0383U Śnieżka

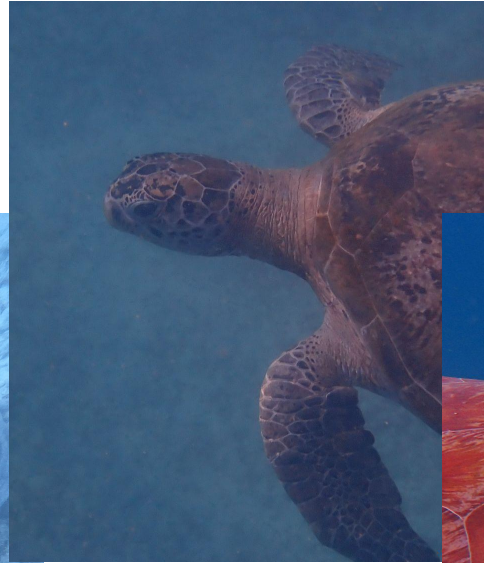


Figure 16: PG0029U

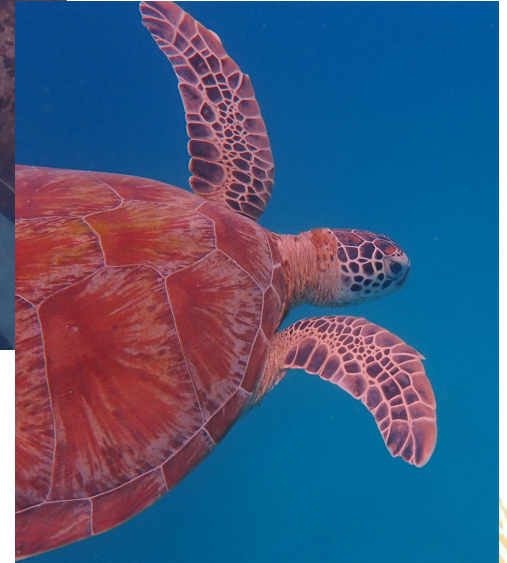


Figure 17: PG0208U Alina



MEET OREO!



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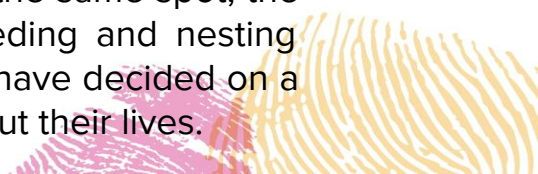


Figure 18: PG0171U Oreo photographed in 2018



Figure 19: PG0171U Oreo photographed in 2022

Meet this juvenile green sea turtle, Oreo who has been photographed twice in a span of 4 years. Oreo was first photographed by our friends from Bubbles Resort in 2018 and secondly by our intern in 2022. Both pictures were photographed in the same spot, the Batu Layar dive site. Interestingly, sea turtles are loyal to their feeding and nesting grounds as well as their migratory routes. This means that once they have decided on a specific area, they will stay there and follow the same routes throughout their lives.



TIGA RUANG



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The nesting population survey is conducted via night patrols at the nesting beach, Tiga Ruang Tiga Ruang is a 400-metre stretch of beach where the Department of Fisheries hatchery is located. This beach is a protected area under the jurisdiction of Fisheries Dept rangers. PTP team members stay at the campsite area rotationally to assist the rangers with night patrols whilst they patrol the other nesting beaches in their boat, photo ID, nest relocations, hatchling release, hatchery upkeep and deterring potential egg collectors.

The team walks the beach from 7pm to 7am. Once a turtle is spotted, her activities are recorded. If she lays eggs, they are relocated into the hatchery. The turtle's facial scales are photographed and data collected.



Figure 20: Intern Athirah observing the nesting process



Figure 21: Hatchlings first steps & strokes



Figure 22: Volunteer waiting for night patrol



Figure 23: A mother turtle nesting at Tiga Ruang



Figure 24: Rangers leaving Tiga Ruang after a night of patrolling

TIGA RUANG

Night patrols



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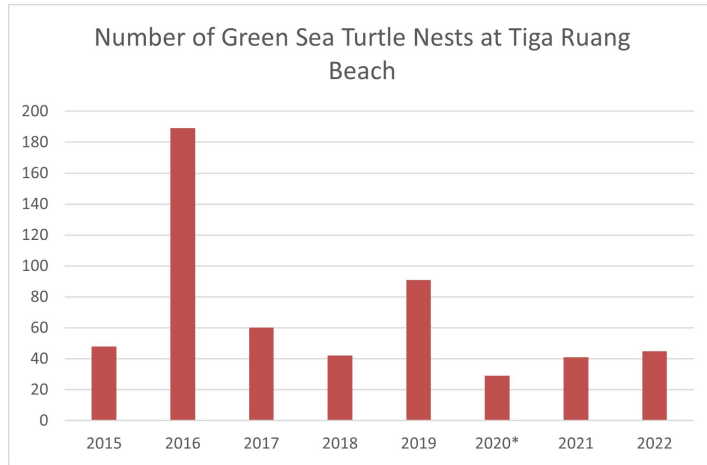


Figure 25: Number of Green Sea Turtle Nests at Tiga Ruang Beach

The PTP team has conducted more than 450 hours of night patrol at Tiga Ruang, looking out for any nesting mothers. A total of 127 nests were relocated from Tiga Ruang beach into the hatchery with a combination of effort from DoF rangers as well as PTP interns and volunteers.

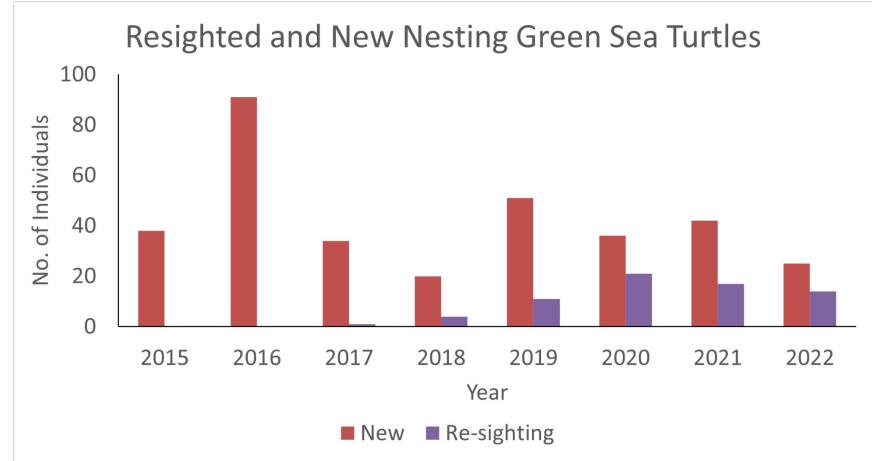


Figure 26: Re-sighted and New Nesting Green Sea Turtles

The team managed to photograph and identify 43 turtle mothers that came up and nested on Tiga Ruang beach. 9 individuals were newly identified while 11 individuals are returning mothers from PTP's existing database.

TIGA RUANG

Night patrols



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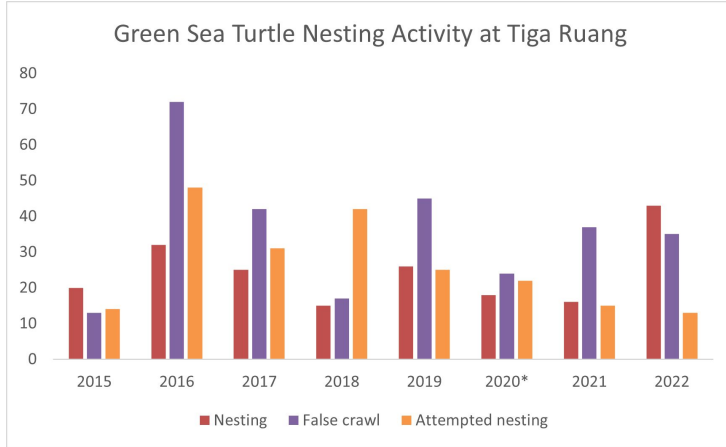
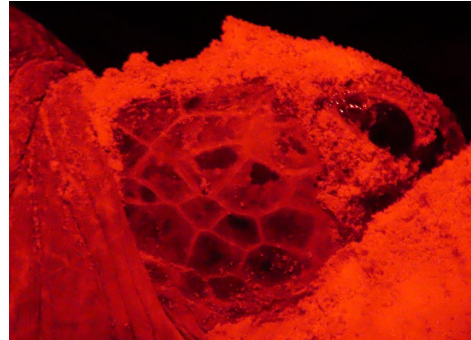


Figure 27: Number of Green Sea Turtle Nests at Tiga Ruang Beach



Figures 28 & 29: A returning mother (ID: PG0186F) photographed in 2019 (left) and 2022 (right)

In 2022, Tiga Ruang recorded the highest ratio of nesting compared to false crawls and attempted nesting (0.47:0.39:0.14). Sea turtles are sensitive when nesting and will only lay eggs when the environment is safe and secure. Not all turtles that visit the beach lay eggs. The team only approach and collect data once a turtle has finished laying eggs and the eggs are safely retrieved. The team will only observe false crawls and attempted nesting from a distance as approaching a turtle before she lays eggs may potentially alarm her. She might avoid nesting at the same location in the future.

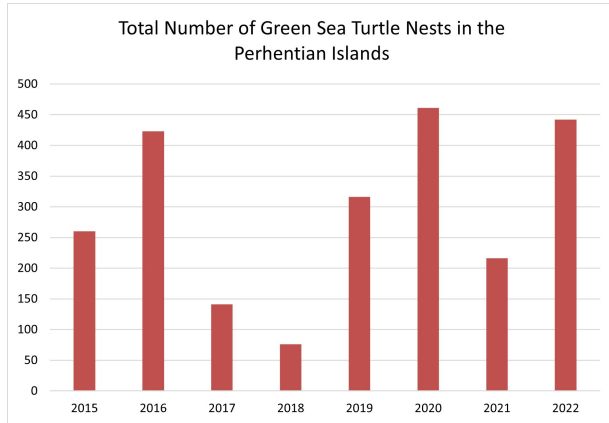


Figure 30: Number of Green Sea Turtle Nests in Perhentian

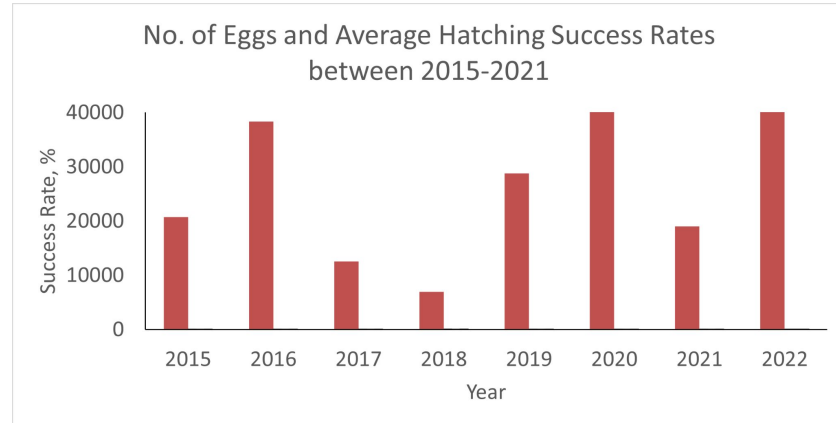


Figure 31: Number of eggs and average hatching success rates between 2015 - 2022

We are delighted to announce that 443 green sea turtle nests were safely retrieved and relocated into the hatchery in the 2022 season incubating 40,461 eggs in total. Nests come from all around the Perhentian Islands with the most productive beach being Pinang Seribu (133 nests). The hatchery has a 90% hatching success rate even with the issue of ant infestation this year. We have successfully released 36,414 hopeful hatchlings into the sea in hope that they will return to continue the population in Perhentian 25 years from now.

Stranding Response



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The Perhentian Turtle Project has been responding to stranding (dead or injured turtles) reported by the community. Commonly, reports are made by the local community through calls, text messages and word of mouth. Once the team identify the location, they will take immediate actions depending on the conditions of the turtle. In case of injuries, PTP will contact Marine Park for advice on further action. In cases where a turtle was found dead, the team will retrieve the carcass, record visible injuries, facial profile and biometric data.

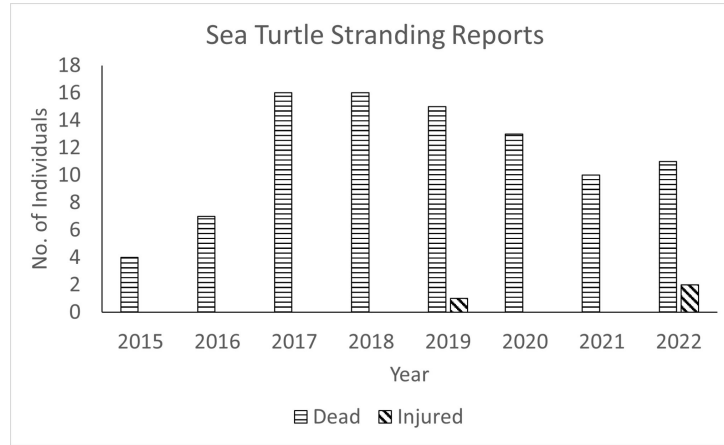


Figure 32: Sea Turtle Stranding Reports.



Figure 33: Dead sea turtle found near the *kampung* jetty.

Throughout the 2022 season, we received 13 reports of stranding cases involving both green and hawksbill turtles. Most often, the most visible injury on a dead turtle in Perhentian are signs of boatsrike. With all tourism aspects fully operational, there was an increase in boat traffic thus might be the reason in the increase of stranding cases.

Volunteer Programme



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Figure 34: Volunteers identifying foraging sea turtles using photo ID.

A total of 34 volunteers – 12 international and 22 Malaysians, participated in the volunteer program that ran between March and September 2022. PTP's volunteers range from nomad travellers on their 6-months long journey around the world to high school students looking to explore the wildlife and nature conservation world for the first time. Volunteers stay with the project for a minimum of 1 week to assist the staff and interns with project activities. During the course of their stay, they experience life on the island as the staff and interns do; living in a *kampung* house amidst local villagers, having meals at local restaurants or home cooked meals at the project house.

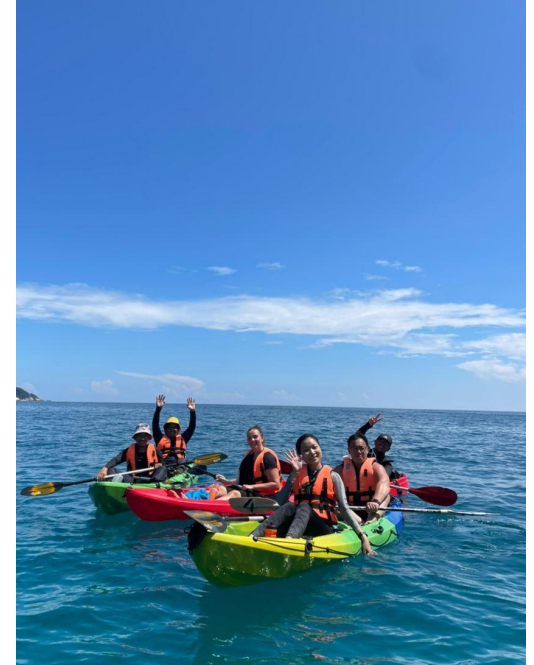


Figure 35: Volunteers and interns on a kayak survey

Volunteer Programme



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Volunteers spend the first 3 days at the kampung conducting the in-water survey before spending 2 nights under the stars at Tiga Ruang conducting night patrols. They are free to explore the island during their free time with the interns; diving, hiking, beach sports and checking out other conservation projects on the island. They are exposed to sustainable conservation activities such as beach clean ups, eco-snorkel tours, sustainable waste management practices as well as plastic recycling. To end their week, volunteers are treated to a delicious Malay dinner at the best place the island has to offer; *makcik's house!*



Figure 36: Staff, interns & volunteers group photo



Figure 37: Volunteers & interns on International Coastal Cleanup day



Figure 38: Volunteers & interns at a Malay dinner



Figure 39: Lunch at Tiga Ruang

Adopt-A-Turtle Programme



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Adopt-A-Turtle programme is a great way for PTP to engage with the public audience who are always supporting our cause. The programme was first introduced in 2020 where patrons can symbolically 'adopt' pre-selected individuals from our database that have been actively sighted the previous year for a period of 6-months or 1 year. In return, adopters receive an adoption packet that includes an adoption certificate, information about their adopted turtle, a guide on how they can be a #penyuwarrior as well as a copy of the annual report of the previous year.

This programme has contributed tremendously to our research. The funds from our adoption programme has gone towards new equipment for our in-water and nesting population studies including a new underwater camera, kayak paddles, camping essentials as well as materials to set up an awareness corner at Tiga Ruang. The selection of sea turtles available for adoption is updated every year to include the most actively sighted individuals at Teluk Pauh. Throughout the 2022 season, Baby Kev was the most popular individual with 23 adoptions. Fortunately, Baby Kev is still active at Teluk Pauh with 5 sightings in 2022.

Keep a look out for announcements regarding next year's turtles!



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CERTIFICATE OF ADOPTION

This is to certify that

has adopted

BABY KEV
the Green Turtle

from

*Thank you for supporting the Perhentian
Turtle Project and helping to protect the
sea turtles of Malaysia!*

Figure 40: Example of a adoption certification for Baby Kev

Financial Impact



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Project budget breakdown 2022

Total budget received: RM 29 786

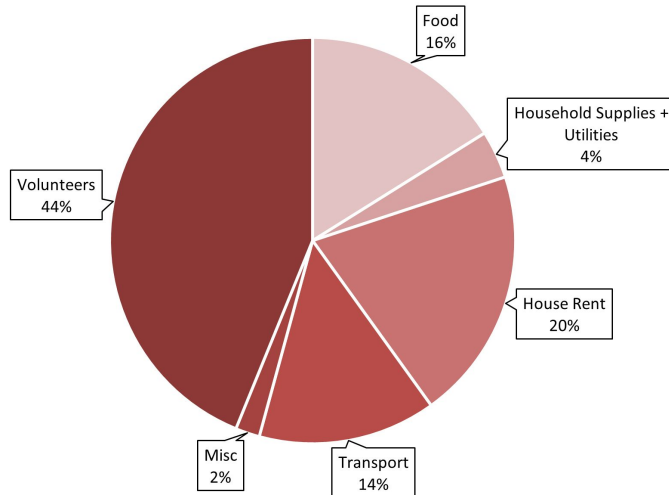


Figure 41: PTP's Overall Budget Breakdown 2022

Volunteer budget breakdown 2022

Total volunteer budget: RM 13 056

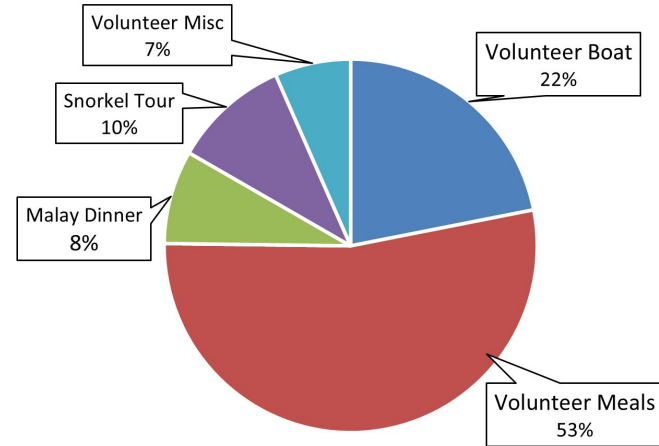


Figure 42: PTP's Volunteer Budget Breakdown 2022

Financial Impact



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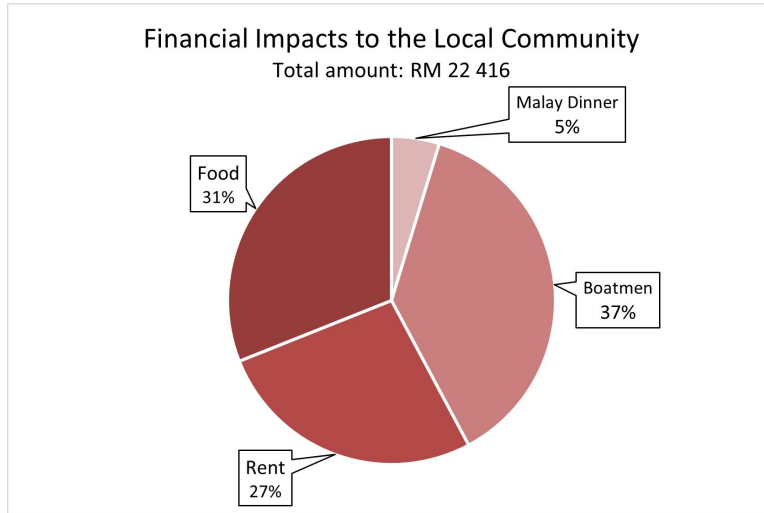


Figure 43: PTP's Financial Impact to the Local Community

75% of PTP's total expenses throughout 2022 was flowed back into the local community through expenditure on food and other household items, rent, and transportation. This is one of the ways we empower the local community of Perhentian by supporting their services and not giving pure donations.

Conclusion

What we learnt



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2022 has been a relatively good year especially after the nationwide Movement Control Order (MCO) was lifted ensuring all our project activities could continue, especially our volunteer programme.

A lot of things have been learnt throughout this season;

- There is a high recruitment rate in the foraging population of green sea turtles in the Perhentian Islands as seen by the high ratio of juvenile individuals sighted compared to adults.
- Utilizing and improving the methodology during project activities is crucial in safety risk management, efficiency of survey and quality of data recorded.
- The importance of engaging with tourists who are visiting the island about proper & sustainable tourism
- Safety training amongst staff & interns living on the island should be prioritized.



Figure 44: Intern Faris relaxing at Tiga Ruang



Figure 45: Diving fins used during kayak survey

Conclusion

Next year and beyond



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In addition to the lessons and plans stated in the 2019 report (which we were unable to act on due to COVID-19), we hope to:

- Develop more interesting and accessible material for our social media and website, focusing on the sharing of data, information, and project outcomes.
- Broaden and advertise options for public engagement especially at Tiga Ruang, a famous tourist spot.
- Continue to look at our data from different angles to see how we can effectively use, convey, and grow on it.
 - This might include reaching out to educational institutions and scholars more proactively for partnerships.
- Ensure that data collection can continue, whether directly or indirectly (e.g., inferred from data analysis or submissions from the citizen science programme), in order to keep the momentum of establishing at least 10-years' worth of data going.
- Studies for Paired laser photogrammetry, hatchling gender ratios and fine scale tracking of nesting female turtles as well as diving behaviour will be started.

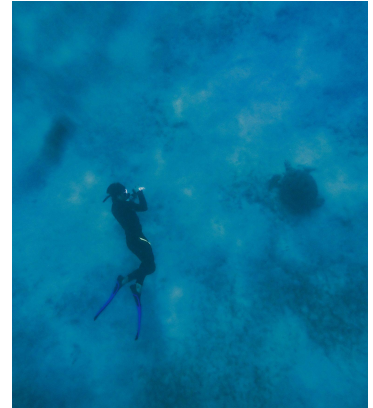


Figure 46: Intern Faris photographing a turtle

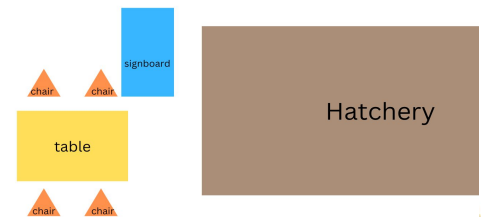


Figure 47: Awareness Corner at Tiga Ruang



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FUZE
ECOTEER

THANK YOU