

PMRS ANNUAL REPORT

2019



PMRS
PERHENTIAN
MARINE RESEARCH
STATION
FUZE ECOTEER
CONNECTING PEOPLE WITH NATURE

OVERVIEW

Why PMRS?



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**FUZE
ECOTEER**
CONNECTING PEOPLE
WITH NATURE

- We conduct dive surveys to assess the health of coral reefs surrounding the Perhentian Islands, while working closely with stakeholders to engage them in preserving the islands from the influx of tourists
- We do direct action conservation through our artificial reefs, beach clean ups, & awareness talks, plus training our volunteers in scientific diving methods
- We improve volunteer's scientific diving skills, by partaking in various scientific diving surveys such as transect & quadrat laying, underwater data collection on slates & RUVs, coral & fish identification & photo ID
- We are integrated within the local community by living in the heart of the village & contributing by helping to create awareness & education to the community & stakeholders between the two islands



OVERVIEW

Who We Are



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- PMRS began in February 2017, taking over from 'Blue Temple' in August 2016, concluding our third year on the islands
- Aims to assess diver impact on coral reefs, & to encourage waste management schemes around the island
- We offer scientific diving & conservation programmes to our volunteers
- In 2017 & 2018, PMRS mapped marine habitats in the Marine Park to make a health assessment of the coral reefs & seagrass beds
- In 2019, we conducted shark distribution surveys, trialed seagrass survey methodologies, & constructed our first artificial reefs and monitoring



OVERVIEW

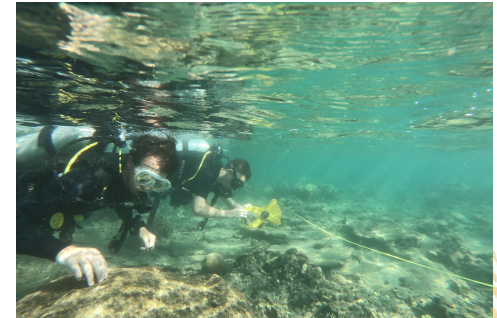
Aims and Objectives



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- To create a baseline of data to continue to monitor the environmental impacts surrounding the islands
- To preserve the reefs & marine life from tourist impacts, & create awareness to the community & stakeholders so we can eventually become obsolete
- Assess the effectiveness of artificial reefs attracting fish life
- Educate resorts, dive centres & tourists to be more sensitive to the marine environment
- Lead recycling and waste separation schemes by resorts & dive centres



OVERVIEW

Thank you



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We would like to thank the following businesses & organisations for working closely with us over the 2019 season, & supporting us with our projects. We couldn't have done it without you!

- *Taman Laut Pulau Perhentian*
- *American Express Malaysia*
- *Reef Check Malaysia*
- *Anti Gravity Divers*
- *Sea Voice Divers*
- *Panorama Divers*
- *Alunan Resort*
- *Mimpi Resort*

And the many other local businesses who did so much for conserving our beautiful Perhentian Islands with your many beach and dive cleans, hosting our awareness talks and showing your endless support and passion.



Sustainability Impact

Social



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During our 2019 season, PMRS had a strong social impact within the community on Perhentian Island.

- 389 awareness talks were given to various stakeholders and tourists
- 42 eco snorkel briefings conducted to tourists
- 29 local businesses committed to being on our Plastic Free Perhentian Map
- 6 local businesses involved in our Jumbo Bags scheme
- 44 eco snorkel boat trips booked with tourists
- 3 joint stakeholder meetings had with dive shops, with 31 attendees
- 40 volunteers dedicated their time during our 2019 season
- 7 hardworking interns & 2 project managers who we couldn't have done it without you all!



Sustainability Impact

Environmental



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Even though PMRS is only officially in its 3rd year, we believe we have made a great environmental impact within the Perhentian Islands this season.

- 32 dive coral reef surveys conducted
- 5 dive seagrass surveys conducted (in its trial phase)
- 29 dive shark surveys conducted
- A distance of 4,050 metres was surveyed
- 25 beach clean ups & 18 underwater clean ups with a total of more than 450kg of trash collected
- 63 bottle reefs submerged with 15 attached, healthy coral fragments undergoing monitoring



Sustainability Impact

Financial



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We deliberately choose to base ourselves within the local fishing village of Perhentian Island so we can make a financial impact to the local community here.

A total of 71,568.10 Malaysian ringgit was put into the local community on Perhentian Island by PMRS through various spendings such as food, boatmen, dive courses & transport. This does not include personal spendings by our 40 volunteers and 9 staff during the season.

Our main source of income is through the various volunteers we host throughout the season, plus school and corporate groups:

Volunteer income: RM171,611

Volunteer expenses: RM77,796

Project expenses: RM53,124

Project profit/loss: Profit of RM40,691

Finances

Project Profit/Loss

11.9%

Project Expenses

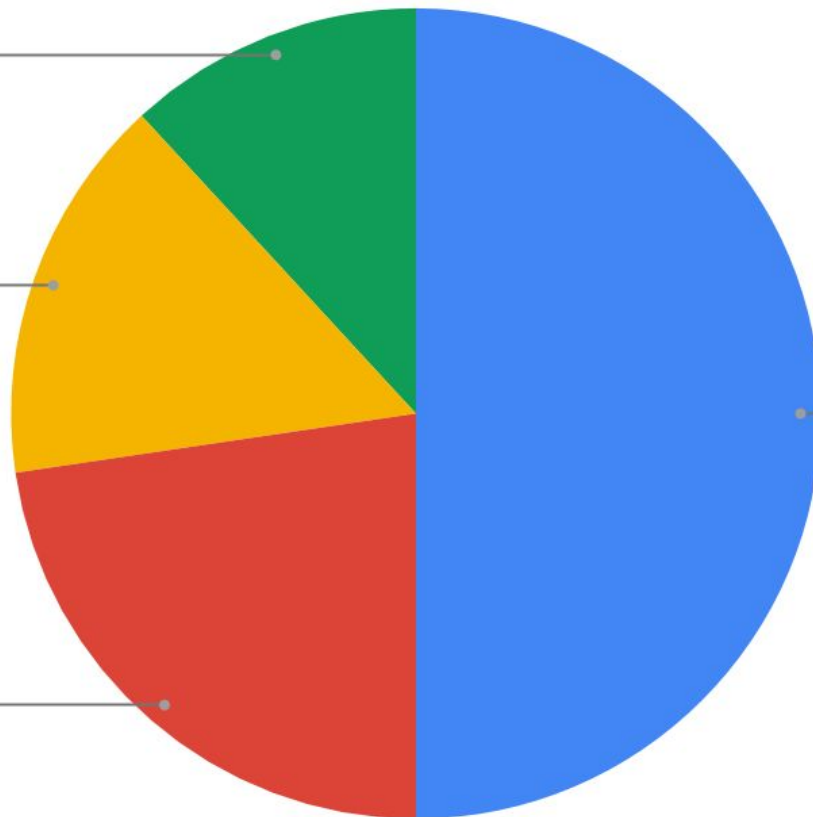
15.5%

Volunteer Expenses

22.7%

Volunteer Income

50.0%



Project Activities

Artificial Reefs & Nurseries



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A measure of the benthic species & resident fish species living on a reef in order to monitor the health of the reefs.

BOTTLE REEFS

A low cost method of artificial reef, utilising empty bottles found around the islands, to allow a depleted area to become an area of high coral & fish diversity. In partnership with *American Express Malaysia*.

- 63 bottle reefs submerged in 2019 by the south village 'Nemo' Beach, at 5m depth
- 15 successfully attached fragments with growth rate monitored
- 25+ fish species & 6 benthic species identified
- 32 reef maintenance dives conducted

CORAL LINES

A low-tech & high-efficiency coral reef recovery technique, to be used as a coral nursery. In partnership with *Sea Voice Divers*. Please find our coral lines proposal [here](#).

- Planning began in 2019, to be constructed in 2020.
- Every rope will be planted with 50 small, living coral fragments.

AR PYRAMIDS

An extremely low cost method that utilises natural resources to mimic the complexity of a natural reef.

- 4 AR Pyramids constructed in 2019 by 'Nemo' Beach in the village.

INITIAL BOTTLE REEF BIODIVERSITY SURVEY RESULTS



7

FISH FAMILIES
PRESENT

25+

FISH SPECIES PRESENT



6

BENTHIC SPECIES
PRESENT

1400%

MORE MARINE ORGANISMS IN
BOTTLE REEF AREA THAN
COMPARISON STUDY AREA



3.01

SHANNON-WIENER
BIODIVERSITY
INDEX FOR BOTTLE
REEF

THANK YOU FOR MAKING A
DIFFERENCE!

Coral Fragment Code	Genus	Size (greatest measurement)	Notes
AB1	<i>Acropora</i>	15.0cm	branching
MB1	<i>Montipora</i>	9.5cm	branching
MB2	<i>Montipora</i>	13.0cm	branching
MB3	<i>Montipora</i>	5.5cm	branching
ME1	<i>Montipora</i>	15.0cm	encrusting
ML1	<i>Montipora</i>	9.0cm	laminar
ML2	<i>Montipora</i>	4.2cm	laminar
PM1	<i>Porites</i>	3.5cm	massive
PB1	<i>Porites</i>	8.0cm	branching
PB2	<i>Porites</i>		branching
PB3	<i>Porites</i>	12.0cm	branching
PB4	<i>Porites</i>	13.4cm	branching
PB5	<i>Porites</i>		branching
PB6	<i>Porites</i>	13.4cm	branching
PB7	<i>Porites</i>	6.5cm	branching
PB8	<i>Porites</i>	6.0cm	branching



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Project Activities

Artificial Reefs & Nurseries



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Bottle Reefs



Coral Lines



AR Pyramids

You can find our Bottle Reef Proposal [here](#).

You can find our bi-monthly Bottle Reef Reports and updates [here](#).



Project Activities

Elasmobranch Surveys



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Reef sharks are important to the overall health of the coral reef assemblage, & their presence is generally an indication of a coral reef in good shape.

Our surveys will give an indication of shark abundance & distribution around the Perhentian Islands, as this has never been studied before. We use diver visual census & RUVs to conduct our surveys. At the conclusion of this study we can expect to produce:

1. Data that can be utilised by Marine Parks for effectively planning shark conservation within Perhentian waters
2. A better understanding of local shark ecology, which provides a baseline for future studies
3. A master's thesis
4. Blog posts highlighting Fuze Ecoteer's commitment to research & conservation planning
 - 29 surveys were completed in 2019, with 2,900 metres covered
 - 2 different shark species monitored (black tip reef shark & bamboo shark)
 - 10 dive sites surveyed around Perhentian Kecil & Besar

You can find our Elasmobranch Project Proposal [here](#).



Project Activities

Waste Management



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Under the slogan *#plasticfreeperhentian*, PMRS has an environmental awareness campaign aiming to reduce plastic waste in the Perhentian Islands, by encouraging local businesses to take responsibility of how eco-friendly they are.

A 'Plastic Free Perhentian' map was continued from 2018, marking businesses who offer water refill stations, recycling bins, eco-friendly bars and shops which are selling eco goods.

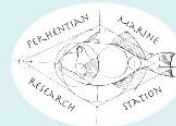
In total, 29 stakeholders contributed to the 'Plastic Free Perhentian' map, two less than 2018.

The map is to be used as a reference for tourists to support businesses who are eco-friendly, & offers great advertising for the local businesses on the island.



- RECYCLING
- FREE WATER REFILLS
- PAID WATER REFILLS
- NO PLASTIC STRAW BARS
- ECO-GOODS ON SALE

PLASTIC FREE PERHENTIAN 2019



- QUIVER DIVERS
- OMBAK DIVERS
- SEAVOICE DIVERS
- ANTI-GRAVITY DIVERS

CROCODILE ROCK

RAINFOREST
CAMPING

CHOMEL
CHALETS

KERANJI
BEACH
RESORT

MARI MARI

Pulau
Kecil

The
Village

ALUNAN

D'LAGOON

MIMPI RESORT

BELOW THE SURFACE DIVERS

PANORAMA DIVER/CAFE

TURTLE BAY DIVERS

OH LA LA DIVERS/BAR

MONKEY DIVES

MATAHARI DIVERS

ANGEL DIVERS

SEAHORSE DIVERS

NEW COCOHUT CHALETS

UNIVERSAL DIVERS

Teluk Keke

PERHENTIAN MARINE
RESEARCH STATION

PERHENTIAN TURTLE PROJECT

PERHENTIAN ECO-EDUCATION
PROJECT

PERHENTIAN
TURTLE PROJECT

Tiga Ruang

Pulau
Besar

THE RESTHOUSE

THE REEF CHALETS

Flora Bay

ALU ALU DIVERS

OCTODIVER

FLORA BAY RESORT

FLORA BAY DIVERS

BUBBLES

Project Activities

Waste Management



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Precious Plastics Machine: 2019 saw the first trial of our Precious Plastics Machine. It is used as an educational tool, & helps to reduce the plastic problem by upcycling the plastic waste found around the islands by shredding, melting & extruding the plastic into a mould to turn into necklaces, keyrings, medals etc.



Conservation Education Station: This year saw the start of the *Conservation Education Station*, aka 'The Booth', in partnership with *Panorama Divers* on Long Beach, which started in May & went on until the end of August. The booth is a working progress. Initially started to give eco snorkelling & dive briefings to the guests of *Panorama Divers*, in the end merchandise was being sold & data was collected for our straw surveys. We hope to expand to more beaches in 2020.



Project Activities

Waste Management

Beach Clean Ups: Once a week PMRS conducted a joint BCU with other *Fuze Ecoteer* projects, plus collaborations with various stakeholders around the islands.

- 25 BCU's conducted in 2019
- 18 underwater reef cleans
- Over 450kg of trash was collected, sorted & weighed

Wire Mesh Bins & Jumbo Bag Scheme: PMRS handmade wire mesh recycling bins to distribute to stakeholders to place at various locations, & initiated jumbo bags to help businesses sort and collect their trash appropriately. Please find jumbo bag information [here](#).

- 24 wire mesh recycling bins were made for 8 different stakeholders
- 21 jumbo bags distributed to 13 different stakeholders

Straw Surveys: We surveyed tourists to gather data on the opinion of straw use on the islands. We collected 284 responses from tourists from 29 different countries. See the results to the right.



Conclusion

Next year and beyond



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- Collab with *Perhentian Turtle Project* turtle sightings photo ID & seagrass beds of foraging turtles
- Collab with *Perhentian Eco-Education Project* to certify more village kids to be scuba divers (3 were certified this season through *Panorama Divers*), & involve them in our underwater surveys
- Collab with *Reef Check Malaysia* for reef health assessments
- Seagrass monitoring using *Seagrass Watch* methods in April and September, respectively, to investigate seasonal effects such as the monsoon season
- Coral lines nursery project with *Sea Voice Divers*
- Communicate with stakeholders for more waste management schemes (composting, solar power etc.)
- Expand the 'Conservation Education Station' to more locations around the two islands





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THANK YOU