



SOS Mangrove Project Phase 2
16th April 2023



Agenda

- About Reef Conservation
- Why mangroves?
- The SOS Mangrove Programme
 - Research and Monitoring
 - Education
 - Restoration



Reef Conservation

Creation

Created in 2004, Reef Conservation is an accredited N.G.O and registered Training Institution

Mission & vision

Holistic, ridge to reef approach to conservation, restoration and sustainable development of the coastal and marine environment of Mauritius through integrated programs and projects

Team

Qualified Marine Biologists, Zoologist/Botanist, Biologist/ Environmentalist, Community Psychologist

National committees

National Coral Reef Network, National Turtle Committee

Regional and international membership

WIOMSA, EEASA
Associated member of FEE - Foundation for Environmental Education, ISME

National operator for international programs

Eco Schools, Young Reporters for the Environment

Ongoing Projects and Programs

Created in 2004, Reef Conservation is a registered charitable organisation & accredited N.G.O dedicated to the Conservation and restoration of the freshwater, coastal and marine environments of Mauritius through research, education and community integration.

4 main programme areas

Project based NGO

Education, Awareness & Sensitization,
with Development of Tools & Materials



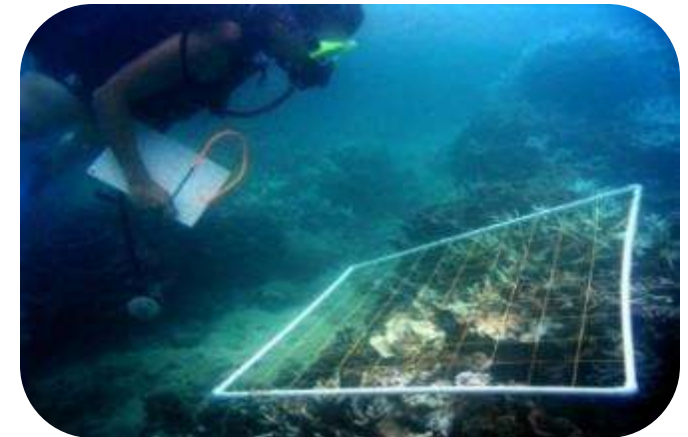
Capacity Building & Training



Community Outreach &
Conservation

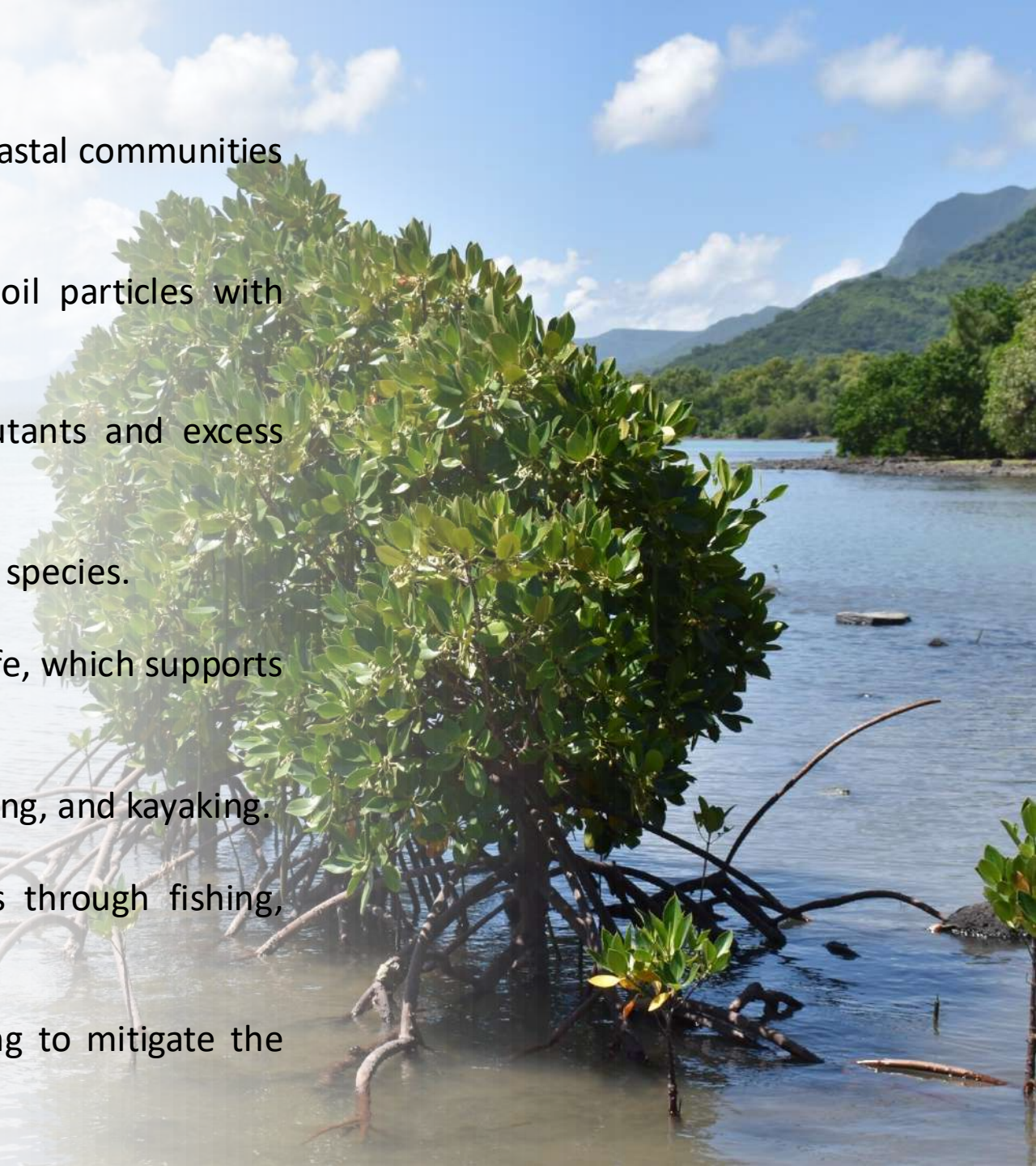


Research & Monitoring



Why Mangroves?

- **Coastal protection:** act as natural barriers that protect coastal communities from storm surges and other extreme weather events.
- **Soil stabilization:** prevents erosion, by holding onto soil particles with dense network of roots and hinder tidal movements.
- **Water quality:** filters and purify water, removing pollutants and excess nutrients from the water.
- **Biodiversity:** home to a diverse range of plant and animal species.
- **Fisheries:** habitat for a variety of fish and other marine life, which supports local fishing communities and the seafood industry.
- **Tourism:** recreational activities such as bird watching, hiking, and kayaking.
- **Livelihoods:** Many communities depend on mangroves through fishing, tourism, and harvesting of non-timber forest products.
- **Carbon sequestration:** capture and store carbon, helping to mitigate the impacts of climate change.



MV Wakashio oil spill

Timeline:

25th July 2020 – MV Wakashio stranding

06th August 2020 – Start of oil spill

12th August 2020 – approx. 32 km of coastline impacted

Ecosystems affected

- Coral reefs
- Seagrass bed
- Mangroves
- Rocky shores
- Beaches





Local context

- Historical extent of 20km² (2000ha)
- Dwindled to 45ha by 1980's.
- Protected by law in Mauritius since 1998.
- Today approx. 200ha in Mauritius

Threats

- Extensively logged in the past and ongoing.
- Affected by plastic and chemical pollution.
- Recently affected by the MV. Wakashio oil spill.
- Highly impacted by coastal development.
- Coastal erosion and sea level rise.



SOS Mangrove Programme

1.
Monitoring

2.
Education

3.
Restoration

6 Main project components

1. Evaluate the long-term impacts of oil on mangrove forests impacted during the 2020MV. Wakashio oil spill.
2. Carbon sequestration and the mangrove ecosystem structure along the Mauritian coast.
3. Inventory of commercially important species diversity across spatial and temporal scale in mangrove forests through eDNA analysis.
4. Promote citizen science and mangrove monitoring using the newly developed mangrove app that allows the collection of reliable visual data on mangrove by trained volunteers.
5. Continue sensitisation and education campaigns that delivers scientific results in an accessible and visual format for the public.
6. Promote mangrove restoration in collaboration with community members and other stakeholders.

1. Evaluate the long-term impacts of oil on mangrove forests impacted during the 2020 MV. Wakashio oil spill.

From April 2023 to March 2024

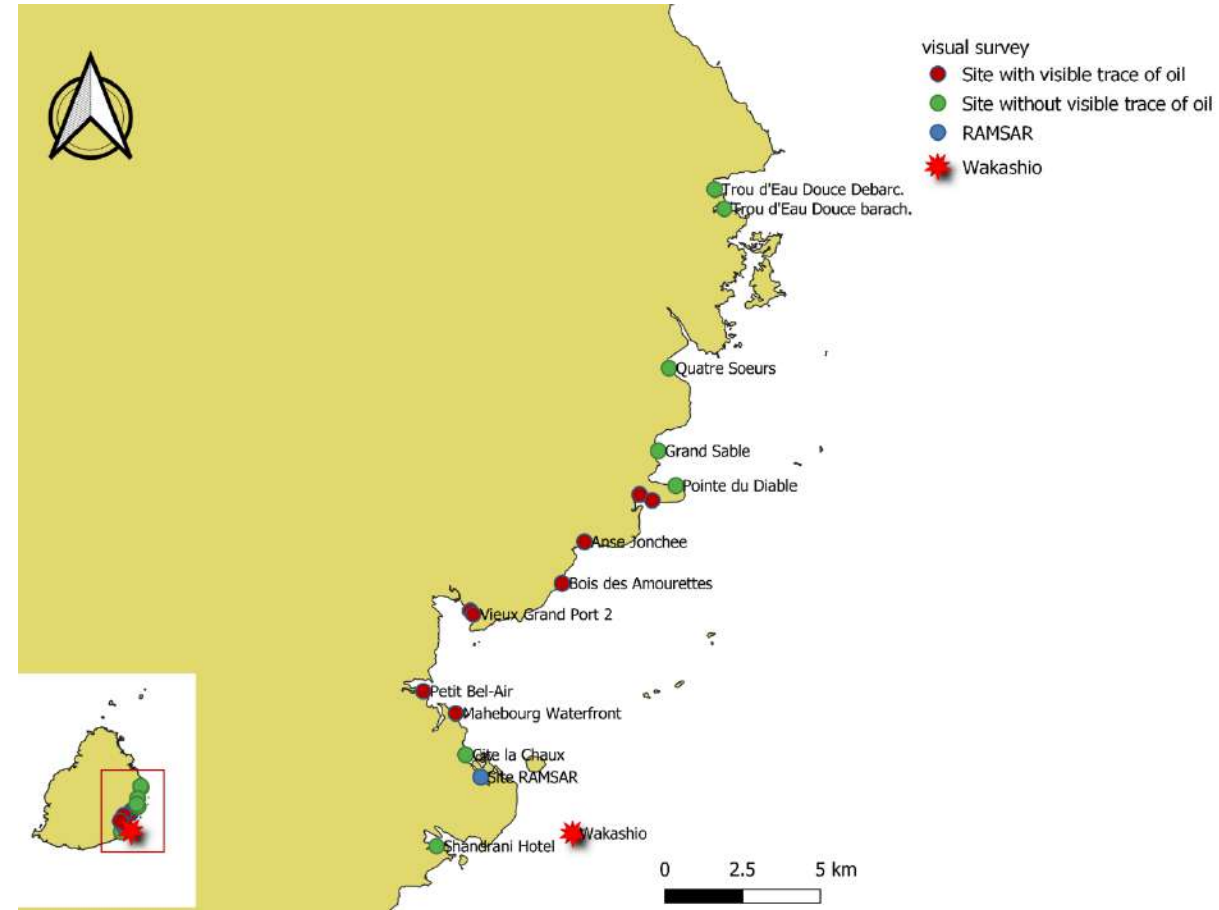
1 visual surveys conducted in **15** sites

Post-Wakashio (IEMP) Monitoring scheduled for 2024 in impacted sites with collaboration with AFRC.

Since 2020

18 visual surveys conducted in **15** sites

6 Post-Wakashio (IEMP) Monitoring conducted in impacted sites collaboration with AFRC



Post Wakashio Monitoring (Visual surveys)

71 mangrove trees have been tagged across all sites, around **9** for each site including some juvenile trees.

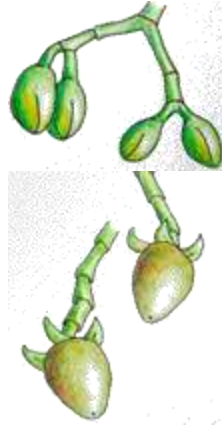
Visual observations were recorded for each tree such as:



Abnormal leaves,
Curling, burned,
etc...



Herbivory scars,
Fungus impact,
etc...



Budding, fruiting,
and flowering,
etc...



Propagule development,
and deformities, etc...



Yellowing leaves,
etc...



Tree defoliation,
etc...

Sediment and roots were also visually inspected to record any root deformities or present of oil within the sediment.

Mangrove Visual Surveys started monthly in 2021, quarterly in 2022 and bi-annually in 2023 in **15** sites following which **18** reports were produced.



2. Carbon sequestration and the mangrove ecosystem structure along the Mauritian coast.

2.1. Procurement

- 2 Laptops
- 1 Camera + Lens kit
- 2 GPS
- other equipment



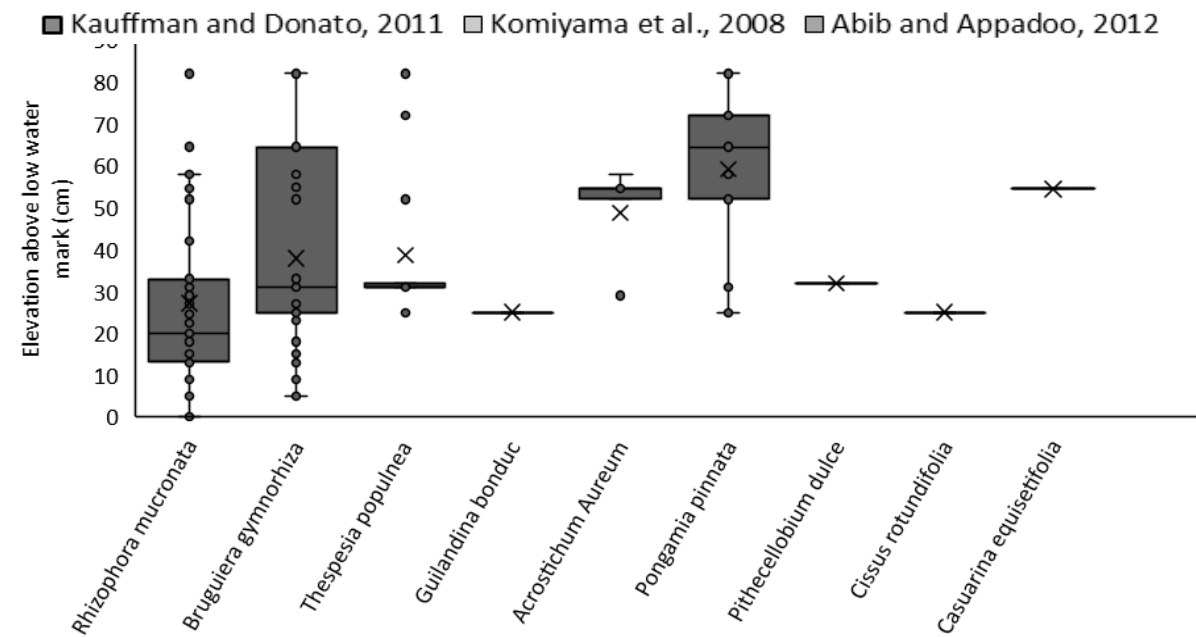
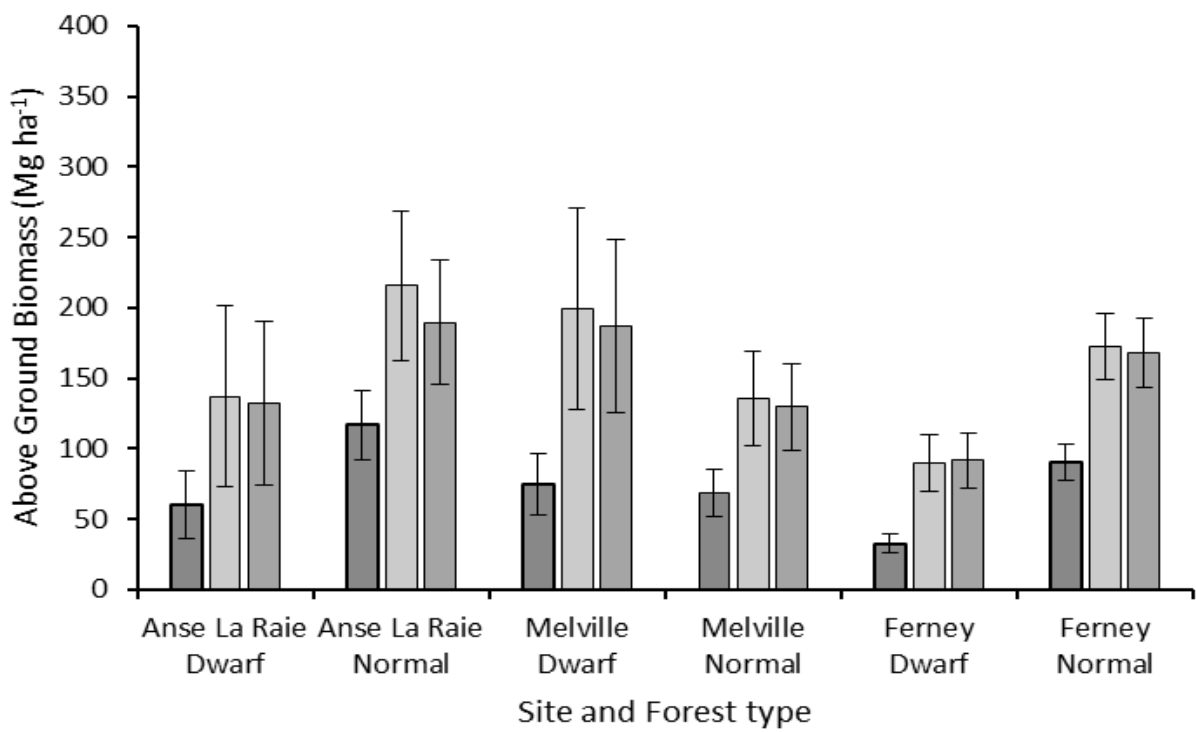
2. Carbon sequestration and the mangrove ecosystem structure along the Mauritian coast.

2.2. Research and monitoring

1 Technical report produced compiling data collected within **39** plots have been set up in Melville, Les Paletuviers and Ferney.

551 mangrove trees have been tagged across Anse La Raie, Melville barachois and Ferney since the start of the SOS Mangrove Programme.

122 mangrove trees were tagged in dwarf forests and **429** trees tall forests.



2. Carbon sequestration and the mangrove ecosystem structure along the Mauritian coast.

2.2. Research and monitoring

Literature review and assessment of different crab and mollusc species of Mauritius.

Ongoing Monitoring for benthic organisms conducted in Melville.

39 Litter traps setup in Melville Barachois, Les Paletuviers and Ferney, Nyon river for leaf productivity assessment.

63 Litter trap samples collected and currently being processed.



2. Carbon sequestration and the mangrove ecosystem structure along the Mauritian coast.

2.3. Remote sensing

3 Reef staff attended training for drone pilot.

1 Additional drone pilot certified.

Several Mapping flights were conducted around Mauritius in Melville, Paletuviers, Anse La Raie, Bel ombre, St Martin...etc

1 Agreement letter for mapping of Paletuviers signed.



2. Carbon sequestration and the mangrove ecosystem structure along the Mauritian coast.

2.4. International collaboration


Support of ISME delegation in August 2023 and collaborative research.



4. Promote citizen science and mangrove monitoring using the newly developed mangrove app that allows the collection of reliable visual data on mangrove by trained volunteers.




12 Citizen science surveys were conducted.






Rejoins-nous


et contribue à la conservation des mangroves à l'île Maurice.
Join us and contribute to mangrove conservation in Mauritius.




Télécharge l'app "Mangrove Matters" et deviens un scientifique citoyen!
Download the App "Mangrove Matters" and become a Citizen-Scientist!



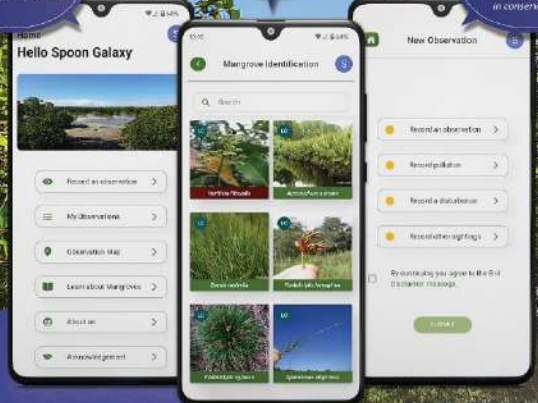
Expérience immersive
Immersive Experience



Sensibilise l'opinion publique
Raise awareness



Deviens un acteur de la conservation
Become an actor in conservation





"Mangrove Matters" est une application mobile de science citoyenne développée par Reef Conservation dans le cadre du programme SOS Mangrove.

Ce programme à long terme a été lancé suite à la marée noire causée par l'échouement du MV Wakashio en 2020 sur la côte sud-est de l'île Maurice. Il vise à promouvoir la recherche, l'éducation et les efforts de restauration des mangroves à Maurice.

"Mangrove Matters" is a citizen-science application developed by Reef Conservation under the SOS Mangrove Project Programme.

This long-term programme was launched following the oil spill caused by the grounding of the MV Wakashio in 2020 on the South-East Coast of Mauritius. The aim is to promote research, education and restoration efforts on mangrove ecosystem in Mauritius.



5. Continue sensitisation and education campaigns that delivers scientific results in an accessible and visual format for the public

4.1. bis Lamer sessions and mangrove field trips.

4 bis Lamer sessions and mangrove field trips conducted with schools, community members and private companies.



BisLamer sessions				
Date	Venue/Location	Visitors (Childrens)	Visitors (Teens)	Visitors (Adults)
6/22/2023	St Leon RCA Quartier Militaire	125		13
7/19/2023	Bois Marchand Community Centre	122	5	6
8/15/2023	Maison Familiale Act Together		11	10
12/1/2023	Scout Line Barracks	1	25	3
Total		248	41	32

Field Trip				
Date	Venue/Location	Visitors (Childrens)	Visitors (Teens)	Visitors (Adults)
26/02/2024	Bel ombre government school	10		3
27/02/2024	Vatel			4
28/02/2024	Northfields International school		9	1
29/02/2024	Floreal SSS		12	3
1/02/2024	Notre dame de Fatima school		10	2
Total		10	31	13



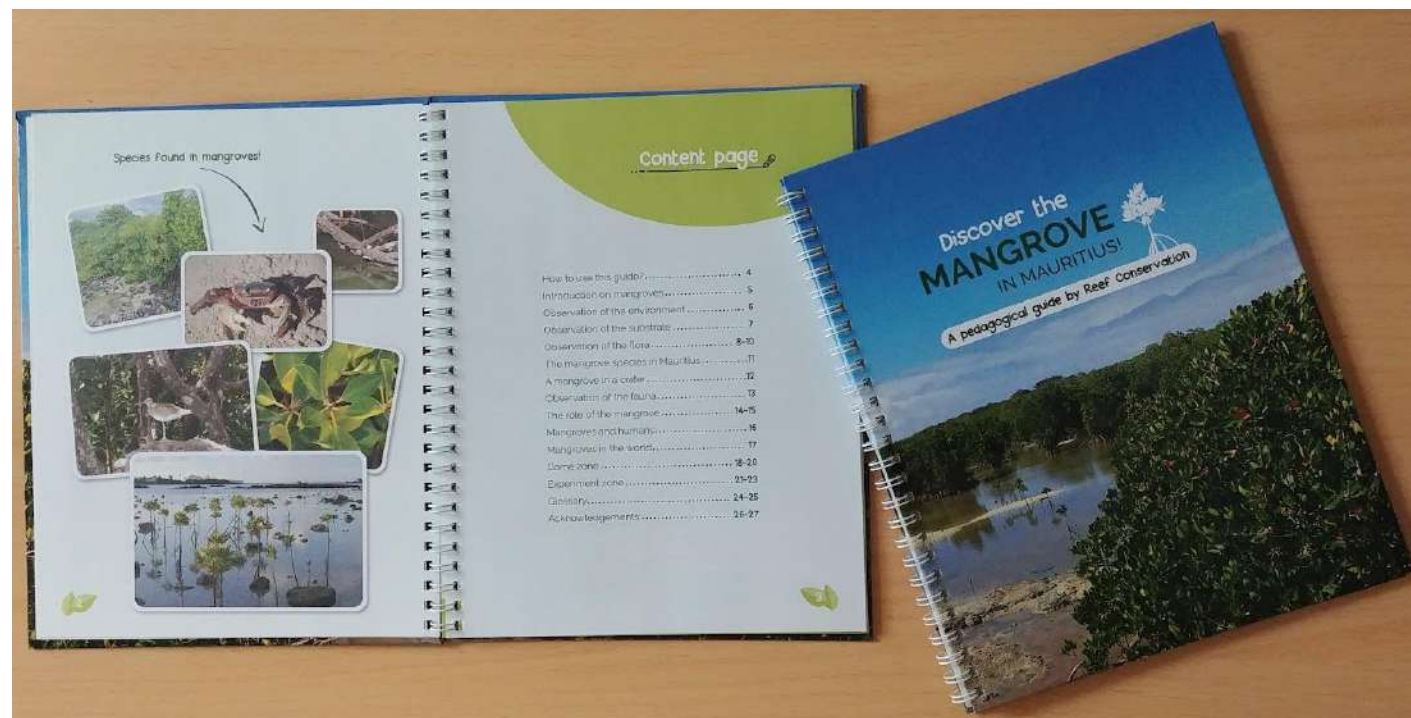
5. Continue sensitisation and education campaigns that delivers scientific results in an accessible and visual format for the public.

4.2. Printing of additional mangrove pedagogical guides.

The production of educational tools such as the mangrove pedagogical guide is currently **ongoing**.

The booklet is currently being redesigned with the addition of a chapter on restoration.

These booklets will be distributed during sensitization sessions.



6. Promote mangrove restoration in collaboration with community members and other stakeholders

From April 2023 to October 2023

Completion of mangrove nursery structure and watering fixtures in **June**.

Permit to collect and plant mangroves currently underway, letters sent to Ministry of Blue Economy, Housing and Lands, Beach Authority and Forestry Services.

Mangrove-associated plants are currently being propagated in the nursery.



6. Promote mangrove restoration in collaboration with community members and other stakeholders.

6.2. Support for restoration

Support for NGO, ADD (Association pour le developpement durable) for monitoring mangrove restoration and sensitization of public.

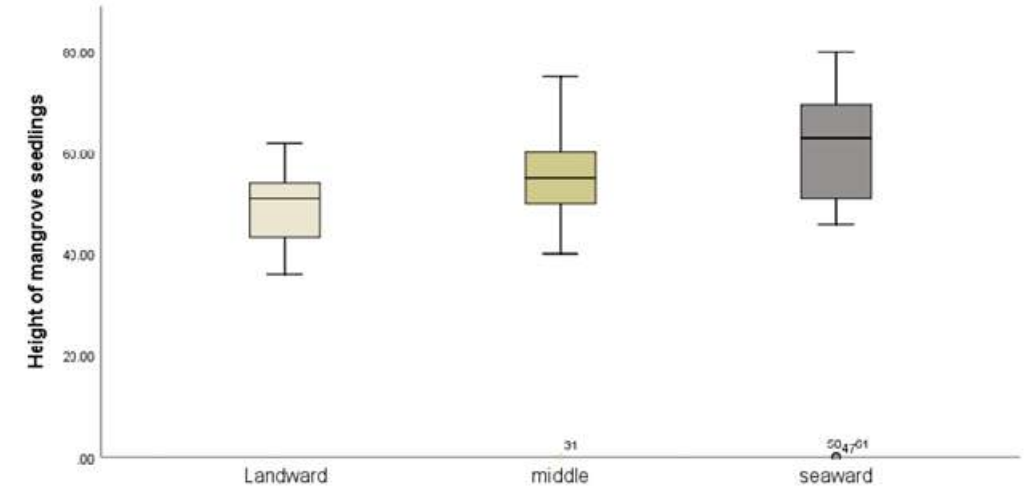


Figure 3 shows a boxplot of height of mangrove seedlings at landward, middle and seaward sites

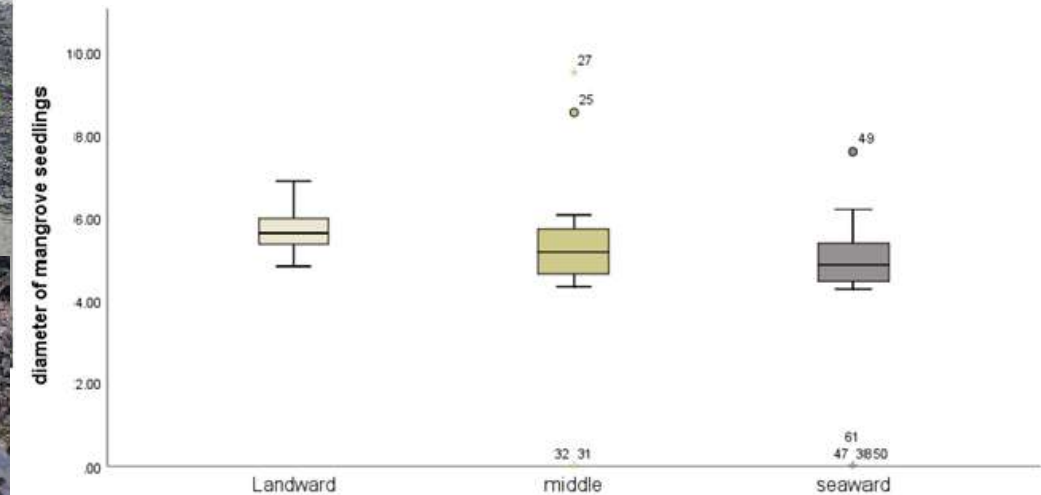


Figure 4 shows a boxplot of diameter of mangrove seedlings at landward, middle and seaward sites

6. Promote mangrove restoration in collaboration with community members and other stakeholders.

6.3. Mangrove platform workshop for networking.

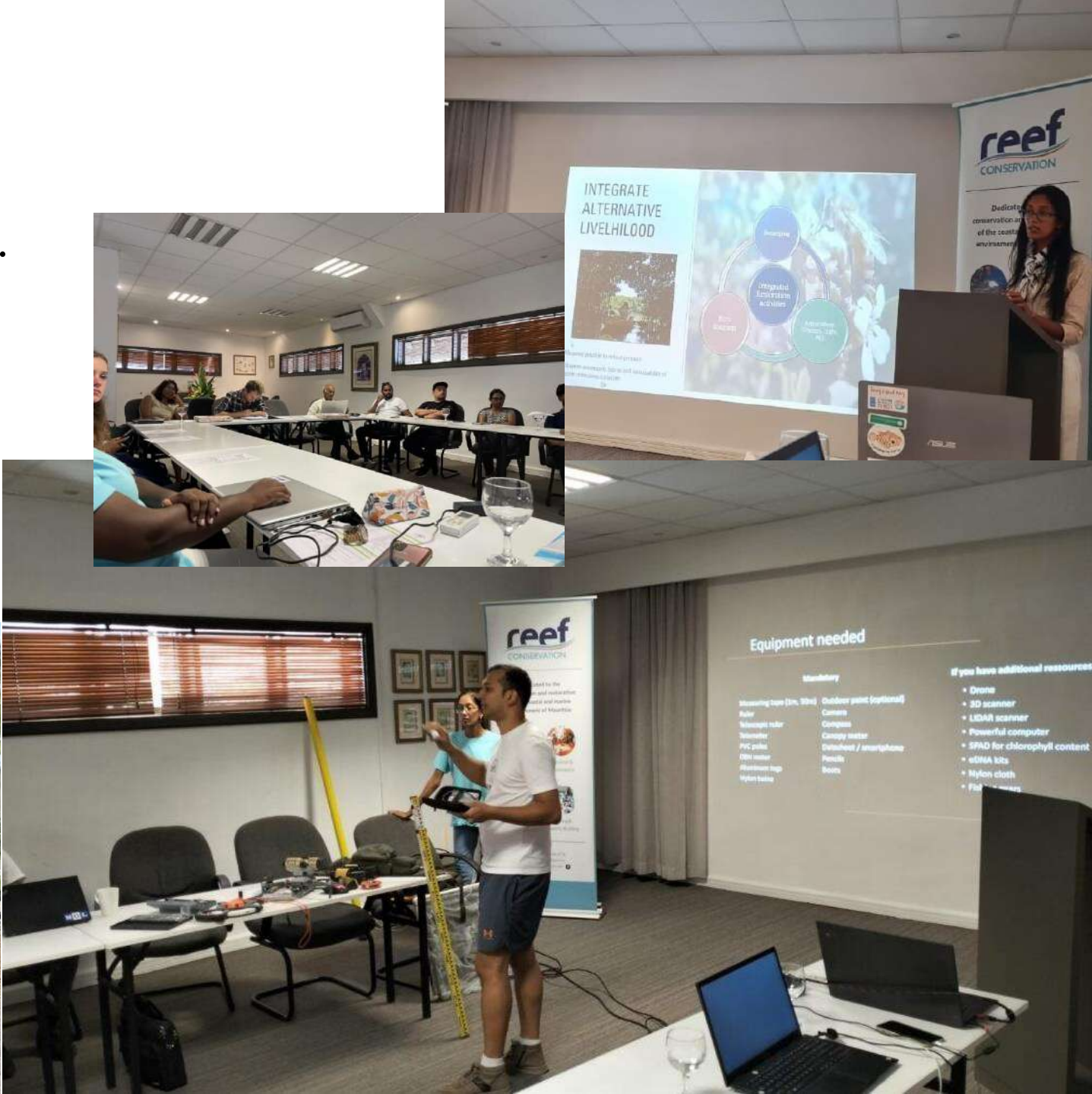
Setting up of a platform to bring together various Ministries, NGOs and international partners (ISME) to share their experiences.



6. Promote mangrove restoration in collaboration with community members and other stakeholders.

6.4. Mangrove restoration training.

2 Restoration trainings organized with the Ministry of Fisheries, NGOs and community members to reinforce implementation of mangrove restoration and its’ monitoring.



A photograph of a dense mangrove forest. The foreground is filled with a complex network of light-colored, woody roots and branches. In the background, a body of water is visible, reflecting the sky and the surrounding greenery. The trees are tall and thin, with green leaves at the top. The overall scene is a lush, natural environment.

Thank you for your attention