



**MARINE  
MEGAFUNA  
FOUNDATION**

# **ANNUAL REPORT**

# **2020**





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This report, along with other information about MMF, is available online at [www.marinemegafauna.org](http://www.marinemegafauna.org)

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Centro de Investigação Científica Megafauna Marinha  
Associação Megafauna Marinha  
Praia do Tofo, Inhambane, Mozambique

MMF is a tax-exempt non-profit charitable organization under section 501(c)(3) of the US tax code (Tax ID #46-0645082).

All contributions are tax-deductible in accordance with US tax law.

The Associação Megafauna Marinha is also a registered not-for-profit association in Mozambique.



# OUR THREE PRIORITY REGIONS

**TRUCKEE,  
CALIFORNIA**  
MMF HQ

North  
Pacific  
Ocean

**FLORIDA**  
Regional HQ

North  
Atlantic  
Ocean

Yucatán

Galápagos  
Islands

South  
Pacific  
Ocean

South  
Atlantic  
Ocean

Arabian  
Sea

Indian  
Ocean

**TOFO**  
Regional HQ

Port St. Johns

**NUSA  
LEMBONGAN**  
Regional HQ

Americas • Western Indian Ocean • South East Asia

MMF was founded in 2009 by renowned marine scientists Dr. Andrea Marshall and Dr. Simon Pierce to further their mission to save the world's ocean giants from extinction. Since then, many others have joined the team. The organization has expanded to worldwide research, education, and outreach on marine megafauna conservation.

Our team has conducted pioneering work on sharks and rays, particularly manta rays and whale sharks, which has helped these species move towards global protection. These iconic animals are also excellent flagships for the marine environment. Our work has broad benefits for the other lesser-

known threatened species that share their habitats and the creation and management of protected areas to ensure their survival.

Our work focuses on strategic locations with large or otherwise important populations – such as breeding areas – of threatened marine species. In these areas we work to develop effective conservation solutions that minimize human threats to marine life, we work with communities to create sustainable livelihoods so they benefit from a healthy marine environment, and we build national science capacity to help ensure long-lasting research and monitoring.



# FROM OUR CO-FOUNDERS

Dr. Simon Pierce & Dr. Andrea Marshall



“

From helping remote Mozambican fishing communities get access to hand sanitizer, to Zoom becoming a noun, we've all had to adjust to the realities of life during a global pandemic.

There's no getting around the fact that 2020 has been the most challenging year in MMF's history. Borders were slammed shut, in some cases trapping our staff on the 'wrong side'. We lost donors as the global economic crisis mounted. We had to intensely restrict or suspend many of our ongoing research and conservation projects. Planned collaborations, fieldwork, and fundraising events couldn't go forward. It's been really, really tough.

That said, we've been immensely proud and inspired by the way the whole MMF team managed to adapt to the ever-evolving "new normal" in 2020. From helping remote Mozambican fishing communities get access to hand sanitizer, to Zoom becoming a noun, we've all had to adjust to the realities of life during a global pandemic. While it did slow us down, it by no means stopped MMF from working towards our core goal: saving ocean giants from extinction.

A highlight was the progress that MMF continued to make in Mozambique. In a country that is logistically challenging at the best of times, the supply chain was further disrupted, our partners in the ecotourism industry had to close, and the Bazaruto Archipelago National Park itself shut for a period. Whenever they could, though, the MMF team was still out doing scientific surveys and community work to the fullest extent possible. Almost 3,000 children have now learned from MMF's marine conservation curriculum, working with 9 schools since 2012, and we've taught almost 1,000 children how to swim and be safe in the water over that period.

Our extensive scientific work and partnership-building efforts in Mozambique also resulted in some big, tangible wins in 2020. We celebrated the withdrawal of a major proposed oil and gas project that would have affected the Bazaruto Seascape. Our data was also used to support the designation of an Important Marine Mammal Area in the Inhambane Province. A huge result for us was the passing of national REPMAR legislation, providing full legal protection to both manta rays and whale sharks. That's something we've been working towards since MMF was just the two of us arguing in a grass shack at the beach. There is huge momentum for marine conservation in the country now, and we are so proud to be helping to motivate and support Mozambique's transition towards a sustainable blue economy.

Internationally, the new MMF-led global conservation assessment for giant manta rays documented them as endangered, along with some of their smaller cousins. The mobulid rays, as a group, are now recognized as some of the most threatened marine animals. We will continue to focus on helping them bounce back.

While we've published a bunch of new scientific discoveries over the year, the best news from our science team was that three MMF-supervised research students, all studying manta rays, either submitted or were awarded their PhDs. Dr. Elitza Germanov is now back at home in Indonesia to resume her work on manta rays and plastic pollution, while Dr. Steph Venables has returned to Mozambique to lead the threatened species research program, as MMF's work expands to include more of the endangered marine species that live along this amazing coast. Congratulations to both of you, and to almost-Dr. Rob Perryman who'll be following soon!

Thanks so much to all of MMF's donors, partners, and supporters for your patience and encouragement throughout this disrupted, frustrating, and at times frightening year. We literally could not do this work without you. And to our staff and volunteers – we are honored to work alongside you every single day. Even if it had to be socially distanced this year.

We're looking forward to a better 2021, and can't wait to share it with you.

Dr. Simon Pierce

Dr. Andrea Marshall



# CONSERVATION HIGHLIGHTS



We use scientific research to develop evidence-based conservation solutions

## PROTECTING MOZAMBIQUE

New regulations for commercial fishing now fully protect whale sharks and all mobulid rays, including mantas. At-sea shark finning is now banned, and bycatch reduction devices – to avoid accidental sea turtle catches – are now mandated for trawl fisheries.



### SAFEGUARDING MARINE MAMMALS

MMF's long-term megafauna sighting database contributed to the declaration of the Inhambane Province as an Important Marine Mammal Area by the IUCN.

### DEFENDING BAZARUTO

MMF helped to successfully protect the seascape to the immediate north of the iconic Bazaruto Archipelago National Park from a major oil and gas project.



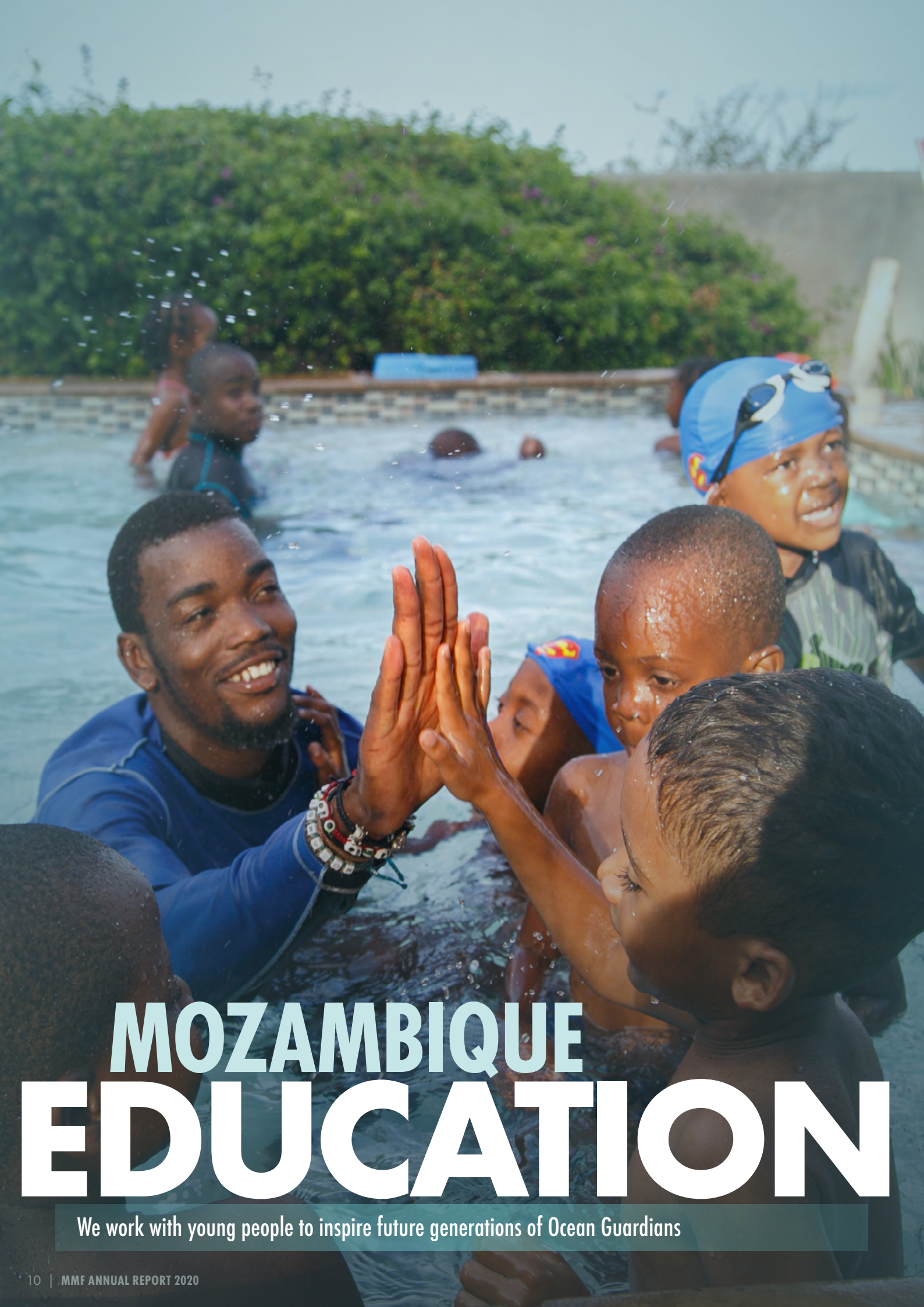




**MMF ADVOCACY HELPED STOP A NEW MAJOR OIL AND GAS PROPOSAL THAT THREATENED THE ICONIC BAZARUTO ARCHIPELAGO NATIONAL PARK, ALONG WITH THE PEOPLE AND ENDANGERED SPECIES THAT RELY ON THIS PROTECTED AREA.**

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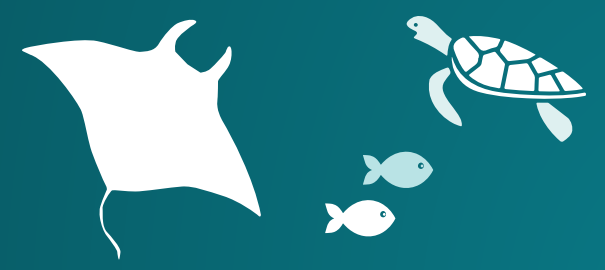
# MOZAMBIQUE EDUCATION

We work with young people to inspire future generations of Ocean Guardians



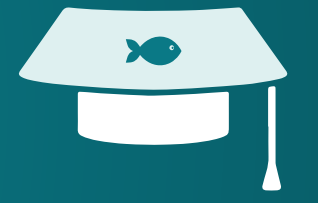
**952**  
**NEW SWIMMERS**

trained by MMF from 2012–20.



**2,802**  
**MINI MARINE  
CONSERVATIONISTS**

through the MMF curriculum from 2012–20.



**9**  
**SCHOOLS**

have worked with MMF in  
Mozambique from 2012–20.

**9**  
**ECOTOURISM  
GRADUATES**

from MMF's Coral Reef Club Vocational  
Program have secured paid internships  
for a career in marine tourism.



*I learned many professional skills through the Coral Reef Program by MMF. I learned to swim, even though my parents thought that swimming was only for men. Then, last year, when I had my swimming certification, I joined an institution called Surf Club where I am now giving surf lessons to about 70 children. We help to provide them with school supplies if they need them, while at the same time they have conservation and swimming lessons. I am very happy about the job I have.*

**Julia, Coral Reef Club Graduate**





A GRADUATING CLASS OF SWIMMERS FROM  
MMF'S PROGRAM IN TOFO, MOZAMBIQUE.

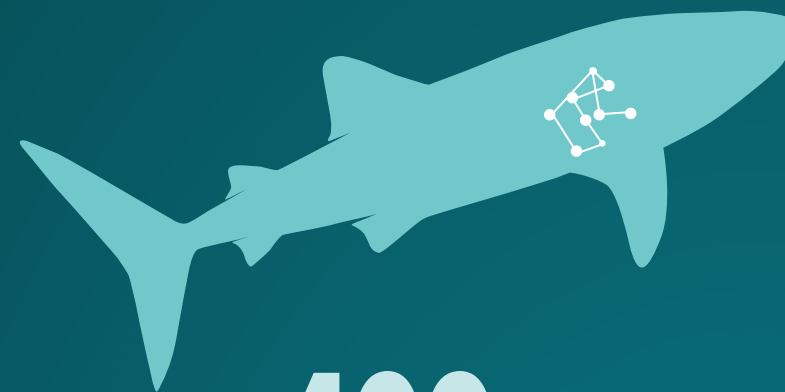
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# WHALE SHARK RESEARCH

We conduct pioneering research on whale sharks around the world



## 400 NEW SHARKS

have now been identified from Nosy Be by the Madagascar Whale Shark Project from 2015–20.

## 2 SCIENTIFIC PAPERS PUBLISHED



## SEXY SHARKS

Two observations of whale shark mating were documented from St. Helena in the Atlantic, a first for the species.



## 51 SHARKS TRACKED

with acoustic tags, for up to 5 years each, in the uniquely-resident population in Tanzania.

## SHARK ECOTOURISM

regulations were formalized in Madagascar to support the long-term sustainability of whale shark interactions.





MMF COLLABORATOR DR. RUI MATSUMOTO, FROM THE OKINAWA CHURAMI AQUARIUM, USES A WATERPROOF ULTRASOUND UNIT TO COUNT A WHALE SHARK'S HEARTBEATS AT ST. HELENA ISLAND.



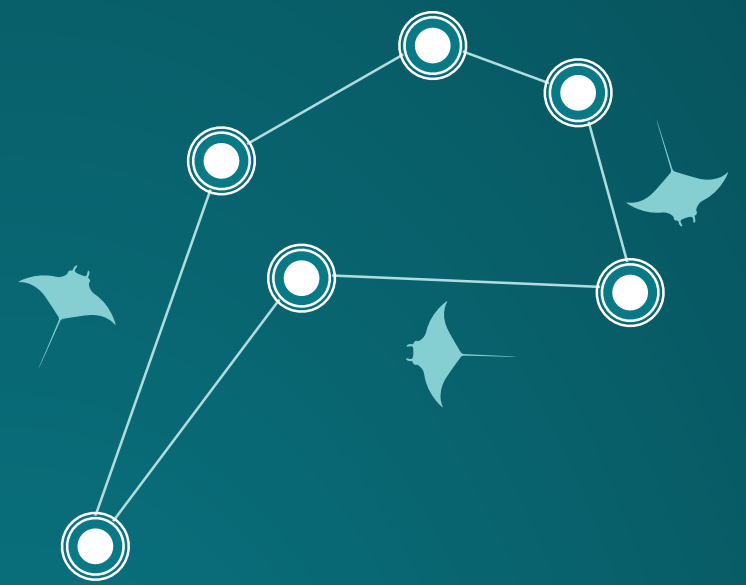


# MANTA RAY RESEARCH

We conduct pioneering research on manta rays around the world

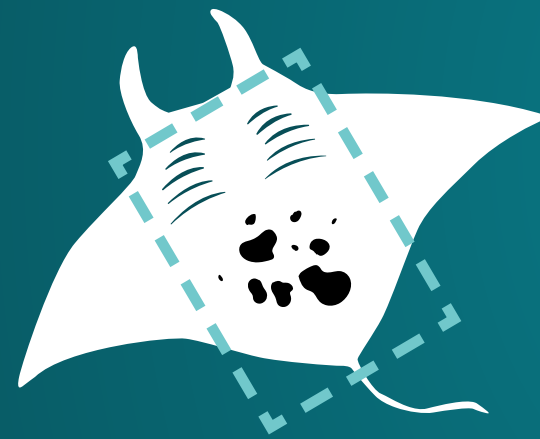
## ENDANGERED RAYS

Dr. Andrea Marshall reassessed the conservation status of mobulid ray species for the IUCN Red List. Sadly, all mobula are now threatened, and some – including giant mantas – are now Endangered.



### 5 TAGS DEPLOYED

on juvenile mantas off Florida.



### 3,000 MANTAS

now identified by our Indonesian team from four areas through the country.

### 4 SCIENTIFIC PAPERS PUBLISHED







**DR. ANDREA MARSHALL LED THE NEW GLOBAL CONSERVATION ASSESSMENT FOR GIANT MANTA RAYS IN 2020, UPLISTING THIS SPECIES TO ENDANGERED ON THE IUCN RED LIST.**

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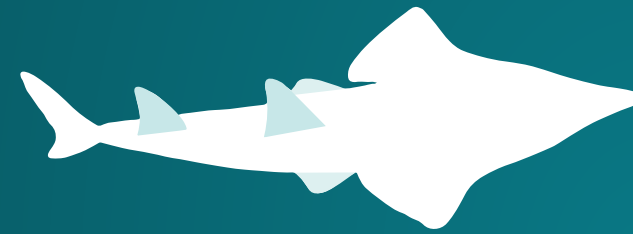
# RESEARCH IN MOZAMBIQUE

We monitor threatened marine species along the Mozambican coast



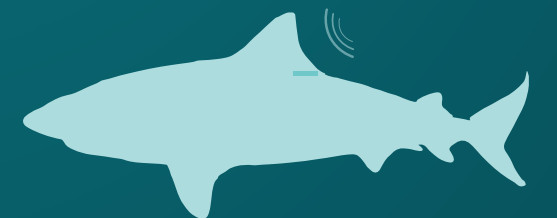
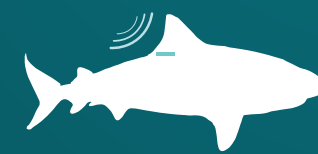
## NEW PROJECTS

on enigmatic species including huge  
smalleye stingrays and critically  
endangered wedgefish.



## 15 ACOUSTIC RECEIVERS

deployed between the Bazaruto  
Archipelago and Zavora to detect  
tagged animals moving along the  
Mozambican coast.



## 4 SCIENTIFIC PAPERS PUBLISHED



## 385 SURVEY DIVES

along the Inhambane coast.

## 3 ACOUSTIC TAGS

deployed on bull sharks, with 11 now  
tagged in total, to track their movements  
and understand their behavior.

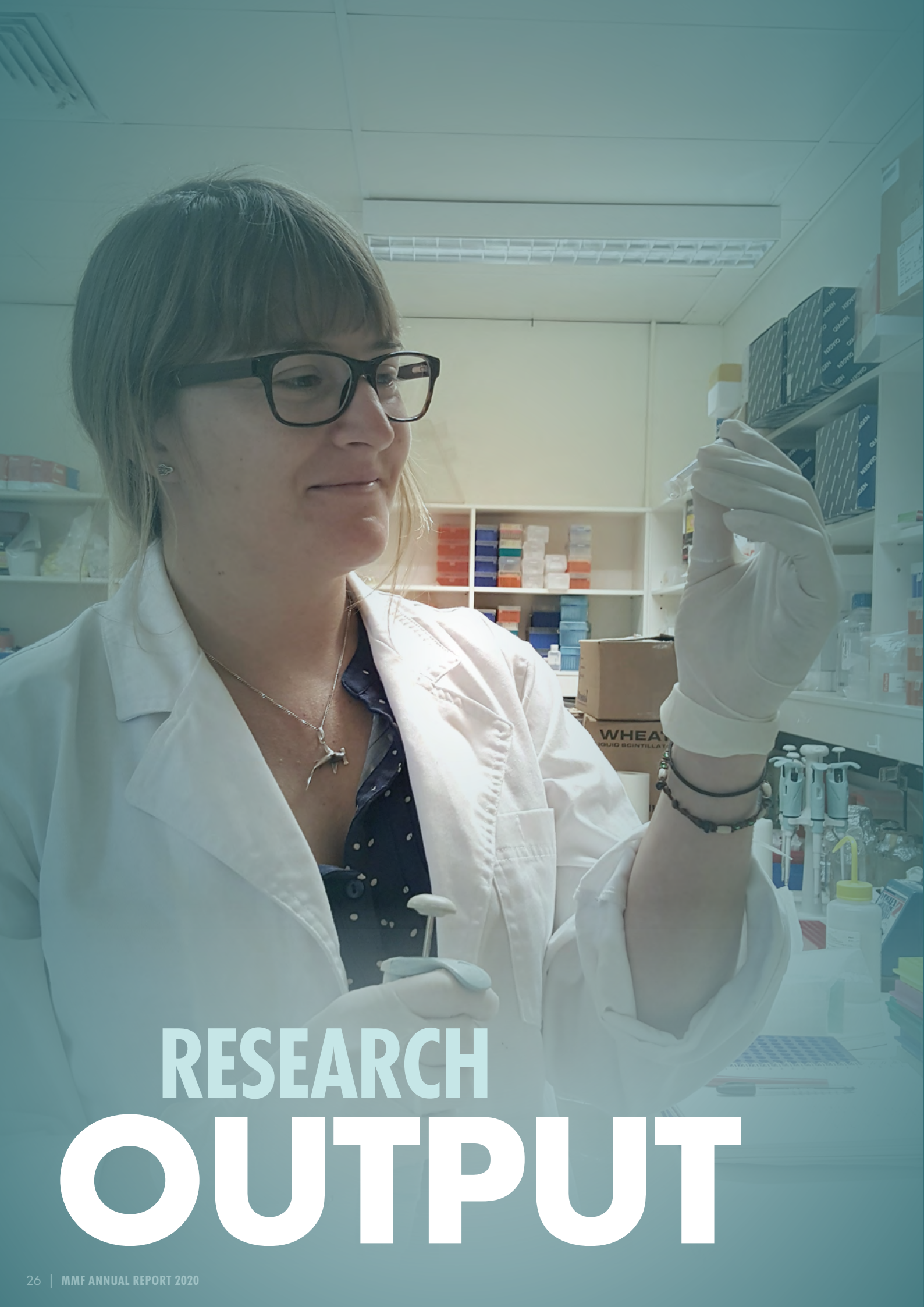




THE POORLY-KNOWN SMALLEYE STINGRAY IS NOW THE FOCUS OF A NEW RESEARCH STUDY BY MMF IN MOZAMBIQUE.

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# RESEARCH OUTPUT

## SCIENTIFIC PAPERS

- 1. Global status and conservation potential of reef sharks.**  
MacNeil MA, [others], A Flam, AD Marshall, A Watts, [others] *Nature* 583: 801–06.
- 2. Surveys of recreational anglers reveal knowledge gaps and positive attitudes towards manta ray conservation in Florida.**  
Pate JH, C MacDonald, and J Wester. *Aquatic Conservation in Marine and Freshwater Ecosystems*.
- 3. Urban manta rays: Potential manta ray nursery habitat along a highly developed Florida coastline.**  
Pate JH, and AD Marshall. *Endangered Species Research* 43: 51–64.
- 4. St. Helena: An important reproductive habitat for whale sharks (*Rhincodon typus*) in the central South Atlantic.**  
Perry CT, E Clingham, DH Webb, R de la Parra, SJ Pierce, A Beard, L Henry, B Taylor, K Andrews, R Hobbs, G Araujo, and ADM Dove. *Frontiers in Marine Science* 7: 899.
- 5. Movement and habitat use of striped marlin *Kajikia audax* in the Western Indian Ocean.**  
Rohner CA, R Bealey, BM Fulanda, and SJ Pierce. *Journal of Fish Biology* 97: 1415–27.
- 6. No place like home? High residency and predictable seasonal movement of whale sharks off Tanzania.**  
Rohner CA, JE Cochran, EF Cagua, CE Prebble, SK Venables, ML Berumen, BL Kuguru, J Rubens, JM Brunnschweiler, and SJ Pierce. *Frontiers in Marine Science* 7: 423.
- 7. Contrasting patterns in the abundance of fish communities targeted by fishers on two coral reefs in southern Mozambique.**  
Sancelme T, J Goetze, S Jaquemet, MG Meekan, A Flam, A Watts, and CW Speed. *African Journal of Marine Science*.
- 8. Habitat use and movement patterns of reef manta rays *Mobula alfredi* in southern Mozambique.**  
Venables SK, DI van Duinkerken, CA Rohner, and AD Marshall. *Marine Ecology Progress Series* 634: 99–114.
- 9. Genome-wide SNPs detect no evidence of genetic population structure for reef manta rays (*Mobula alfredi*) in southern Mozambique.**  
Venables SK, AD Marshall, AJ Armstrong, JL Tomkins, and WJ Kennington. *Heredity*.

## PHD'S

- 1. STEPHANIE VENABLES**  
Ecology and conservation of a threatened reef manta ray *Mobula alfredi* population in southern Mozambique.  
*University of Western Australia.*
- 2. ELITZA GERMANOV**  
From megafauna to microplastics: Understanding habitat use reveals potential threats to Indonesia's mantas.  
*Murdoch University, Western Australia.*
- 3. ROBERT PERRYMAN**  
Social organisation, social behaviour and collective movements in reef manta rays.  
*Macquarie University, Australia.*



DR. ELITZA GERMANOV WAS AWARDED A PHD IN 2020 FOR HER WORLD-LEADING RESEARCH ON THE IMPACTS OF MICROPLASTICS ON THREATENED MARINE SPECIES.







# HIGHLIGHTING OUTREACH



## PARTNERED WITH WATERBEAR

to produce online conservation documentaries, including *Queen of Mantas*.



## WE ZOOMED!

for Women in Science, PADI, Conservation Leaders in Africa, the University of Exeter Christmas Conservation Keynote, the Wildlife Trust of India, and many others.

## 2020 MEDIA FEATURES

# 1ST WORLD MANTA DAY

was held on 17th September 2020. MMF helped organize and publicize the event to raise awareness for these threatened species.



## 38 OCEAN AMBASSADORS

have now been trained to promote education and awareness of marine conservation solutions in their own communities in Mozambique.

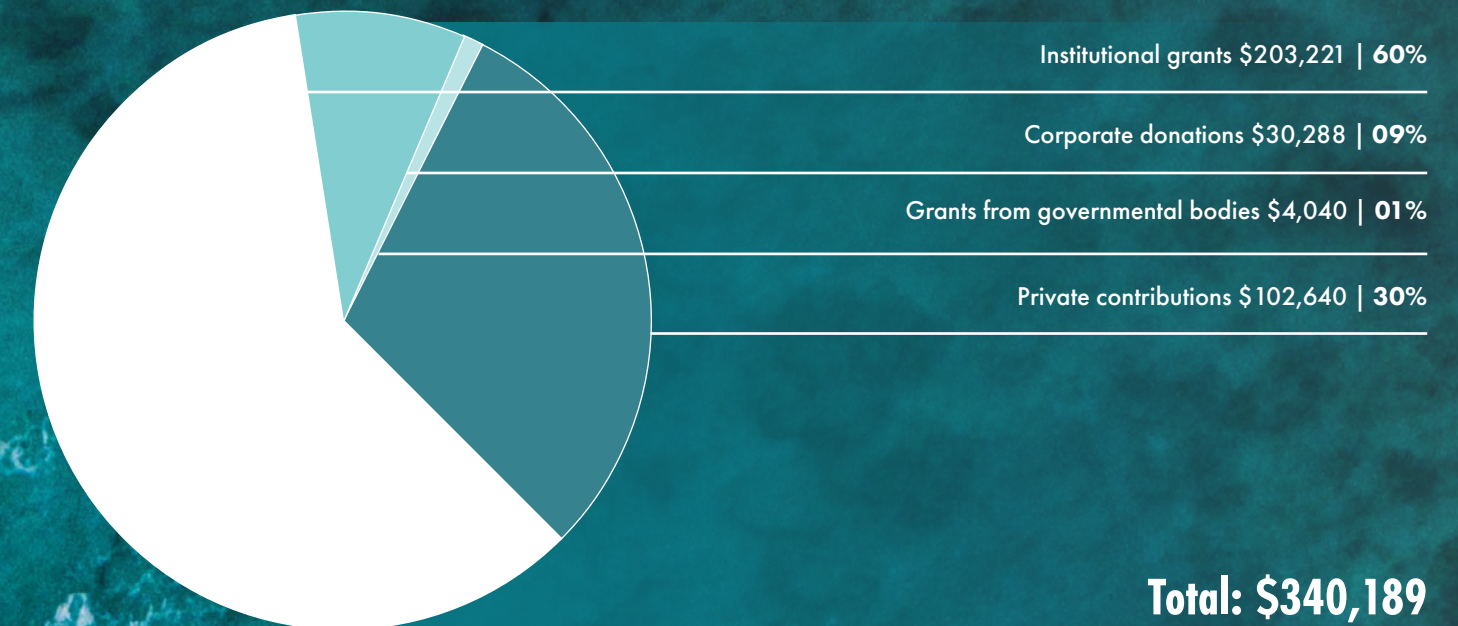




# FINANCIAL SUMMARY 2020

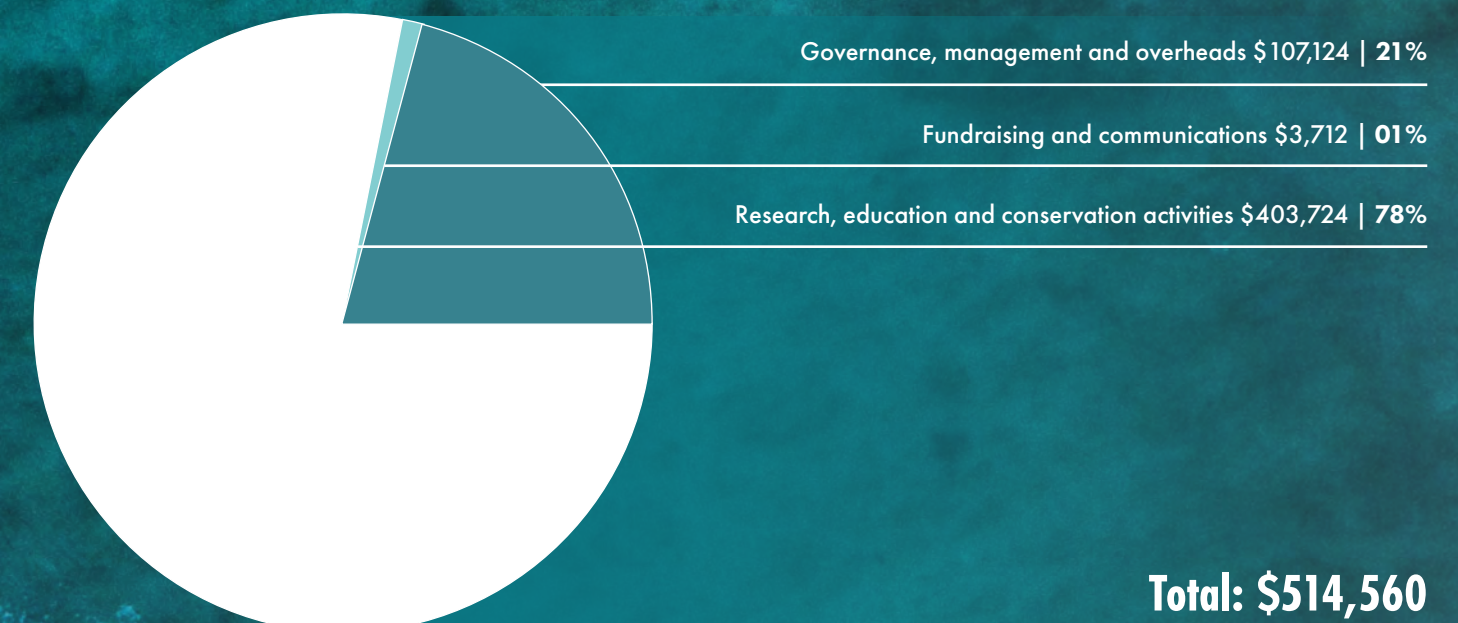
## REVENUE

How you helped us



## EXPENDITURE

For every dollar raised





# SPECIAL THANKS

## DONORS & FUNDERS

Andrea Scheuerer -  
Help for Mozambique  
Angela Janhke  
Annie Rooney &  
Jim Artendale  
Aqua-Firma  
Bjoern & Anja Jost  
Blue Action Fund  
Bournemouth University  
Christina Clemme  
Conservation, Food &  
Health Foundation  
CSIRO Australia  
Daniil Bunimovich  
David & Carol Myers  
Foundation  
Detour Sunglasses  
Disney Conservation Fund  
Elasmocean  
Elnora Cameron  
Elstad Family  
Charitable Fund  
European Outdoor  
Conservation Associatoon  
Fondation Prince Albert  
II de Monaco  
Fortuna Foundation  
Fondation Ensemble  
Gail Knight

Georgia Aquarium  
Global Youth Climate  
Network  
Guido & Erica de Rooij  
Idea Wild  
Innovators for the Future  
Izele Small Grant Scheme  
Jasmin Rehmann  
Jenny Meyer  
Julian & Katherine Potenza  
Kansas City Zoo  
Magdakine Swimwear  
Mantahari Oceancare  
(Tim Noack)  
Margo Marshall  
Marion Charity Fund  
Mark & Caroline Hackney  
Meraki Bracelets  
Milkywire  
Mohammed Bin Zayad  
Species Conservation Fund  
National Marine Aquarium  
Ocean Park  
Conservation Foundation  
Ocean Wildlife Project e.V.  
Optik Tannek  
Our Children's Earth  
Foundation (Tiffany & Ivy)

PADI Foundation  
Planeterra  
Ray of Hope Expeditions  
Robson & Robertson  
Foundation  
San Francisco Foundation  
Scuba Pro France  
Scuba Pro South Africa  
Sea Morgens  
Seaquelle Swimwear  
Shark Conservation Fund  
Shark Foundation  
SharkProject International  
Stanley Foundation  
Sustainable Ocean Alliance  
Tamara Minton  
Töpfer GmbH  
Turing Foundation  
US Ambassador's Special  
Self-Help Fund (SSH)  
Waterbear  
Waterlust  
Wencke Rudlph  
Zeithen  
Windrush Trust  
Zack Mineo  
Zoomarine

“

Your help and support through a challenging year has meant we could keep researching threatened ocean giants, training the next generation of conservationists, and protecting marine ecosystems. Our work would not be possible without you. Thank you, so much.

## SUPPORTERS

Albatroz  
Bahia Mar  
Baia Sonambula  
Big Blue Vilanculos  
Big Fish Diving  
Blue Corner Dive  
Casa de Comer  
Casa na Praia  
Coralia Liveaboard

Dathonga  
Diversity Diving  
Hotel Tofo Mar  
Liquid Dive Adventures  
Mozambeat Motel  
Papua Explorers  
Peri Peri Divers  
Pestana Bazaruto  
Scuba Junkie

Tofo Scuba  
Uber Scuba  
Vilanculos Beach Lodge  
Whale Shark Lodge,  
Mafia Island  
World Diving  
Zavora Lodge

## VOLUNTEERS

Aprilia Trisaka  
David Eider  
David Williams  
Dimas Probowo  
Dion Gee  
Hayley O'Connell  
Helen Mitchell

Herni Frilia  
Muhammad Ichsan  
Putu Wilandari  
Rai Ayu Saraswati  
Rich Horner  
Rikki Hughes  
Rushan Bin Abdul Rahman

Sascha Giles  
Satu Ahola  
Sofia Albrecht  
Tommy Chardon  
Yurifa





## Healthy ecosystems are more resilient to climate change.

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We promote marine megafauna species as conservation flagships to preserve and rebuild healthy marine ecosystems. These can then help to support sustainable fisheries, and protect us from climate change.





**MARINE  
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# **ANNUAL REPORT 2020**

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