



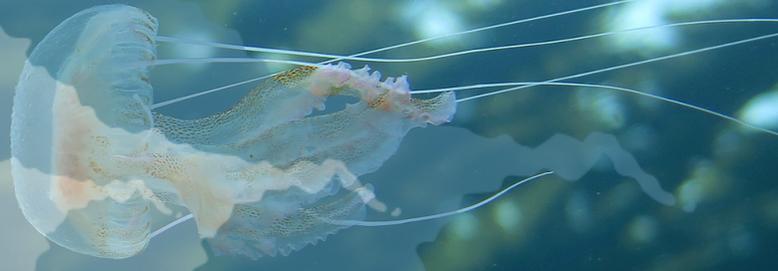
**MARE**  
Madeira

*Impact report*  
2023





**MARE**  
Madeira



## A letter from our Director

Dear MARE-Madeira team, partners and supporters,

As I reflect on our journey of the past 10 years, I feel an incredible sense of pride and gratitude for all that we have accomplished together. From the humble beginnings of the Canning-Clode Marine Lab to the establishment of MARE-Madeira as the largest non-profit aquatic research institute in our region, and a relevant regional research unit among the MARE network, our collective dedication and passion have truly made a difference.

Ten years ago, we embarked on this journey with nothing but a vision, passion, and a determination to make a positive impact on aquatic research in Madeira. I remember we didn't even have a Petri dish to start with! But through perseverance and hard work, we have built something truly remarkable.

At the heart of MARE-Madeira lies our greatest asset - our people. Each and every member of our team, from technicians to students, senior scientists to project managers, and youth ambassadors, plays a vital role in our success. It is your dedication, creativity, and commitment that have propelled us forward and made us pioneers in our field.

I want each of you to know that you are valued members of a team that is making a difference. Your contributions and hard work have not gone unnoticed, and I am immensely grateful for the effort you have put in over the years. It is really rewarding for me to witness how what we're doing here, somehow, has also sparked inspiration within many of you, resulting in a positive drive and determination that is catapulting you (and us) forward. Together we are shaping the future of aquatic research. Thank you for all you do for science, our community and our team.

To our partners and supporters: your belief in us is an inspiring reminder that we are not alone. From the earliest days, lending your equipment and expertise, you have placed our efforts in a much wider context. Donating your time and resources over the years, you help us see that success is not found in the number of papers one researcher or institution writes, but in our ability as a global community to move aquatic science forward. Thank you for choosing to work alongside us.

We have achieved a lot together the last ten years. As we celebrate these achievements, let us also look to the future with optimism and determination. There is still much work ahead, but I have no doubt that with our continued teamwork, collaboration and dedication, we will reach even greater heights. I see it!

Thank you for your commitment and passion. Together, we have made MARE-Madeira a beacon of excellence in aquatic research, and an example of how much can be achieved with so little. I am honored to be pushing science forward with such an extraordinary group of people.

*João Canning-Clode*

# A brief history

**MARE-Madeira is the largest non-profit aquatic research institute in Madeira.** Madeira is an archipelago in the north-east Atlantic and an autonomous region of Portugal. Our institute was founded in 2013 by Madeiran native João Canning-Clode and was originally known as the Canning-Clode Marine Lab. We re-branded to MARE-Madeira when we officially became a regional research unit of MARE in 2021.



## The largest network of marine research institutions in Portugal

The Marine and Environmental Science Centre (MARE) is a multi-regional marine research and development centre in Portugal. MARE has seven research units across the country and each is financially and legally managed by a host institution -- be it a university, foundation or government agency. At MARE-Madeira, we're hosted by the Regional Agency for the Development of Research, Technology and Innovation (ARDITI). We joined MARE in 2019 and became a regional research hub in 2021.

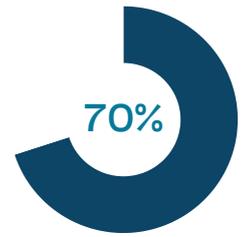


## Supporting research and technology institutions in Madeira

ARDITI is a government agency that supports science and technology development in Madeira. The agency hosts four research units, with projects that span marine, earth, health and information sciences -- including MARE-Madeira. We've been hosted by ARDITI since 2019.

When we joined ARDITI in 2019, we also merged with the Whale Team, which was founded in 2016 by Ana Dinis and Filipe Alves. Their expertise in marine megafauna augmented the expertise in non-indigenous species and coastal ecosystem ecology within the Canning-Clode Marine Lab. Our research realm expanded further when we joined forces with Wave Labs in early 2022 (founded by Marko Radeta in 2018 at the University of Madeira), which now spearheads our Marine Technology & AI efforts.

We have continued to grow our research areas, through bottom-up project growth and by welcoming experienced investigators onto our team. For example, Manfred Kaufmann (a long-standing collaborator) has recently joined the team, bringing his expertise in pelagic phytoplankton. This year we also welcomed Carlos Andrade (who founded aquaculture efforts in Madeira in the 1990s). Carlos and his aquaculture research unit now work alongside Ana Dinis within our Ecosystem Services & Blue Economy team.



of Earth



is water



# Get to know us

## Discover

Our mission is to expand our collective understanding of aquatic life and ecosystems. The ocean and all the water that flows in and out of it is critical to global ecosystem and geophysical functioning, global temperature regulation, food supplies and livelihoods. It covers 70% of Earth's surface and hosts immense biodiversity. Yet despite its importance and unique lifeforms that could offer answers to many of our health and engineering challenges, the ocean remains poorly explored, poorly researched and thus poorly understood. Our team of biologists, ecologists, engineers, scientific divers and ocean enthusiasts is working with our partners to reduce that knowledge gap.

## Inspire

We also recognize our responsibility to share our science and inspire others with the wonders of the underwater world. We believe that inspiration is as important to societal progress as knowledge. The more people we can inspire, the more people who may champion their own educational, conservation, research or artistic project and effect positive change.

Watch *The Oceanic Oasis*



on YouTube

Read ['The story of MARE-Madeira'](#)



on our blog

Follow us



on social media

Listen to the [MARE-Madeira Aquatic Research Podcast](#)



on Spotify

## Democratize

Through our innovation and creativity, we are also committed to reducing the cost of aquatic research. Our global understanding of the ocean will be far greater if aquatic research tools are accessible to more institutions and researchers, no matter their financial resource.

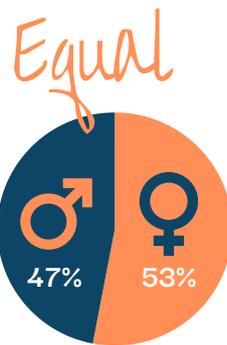


# Our People

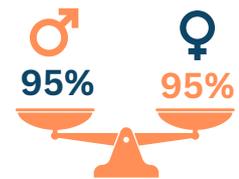


## Diversity

Our team of 36 researchers spans 11 nationalities. In 2023, we had 19 doctoral researchers and 13 PhD students, and our research efforts were strengthened by our MARE-Madeira research collaborators. Our collaborators are mostly MARE-Madeira alumni with whom we continue to collaborate on research projects and PhD supervision, as well as local collaborators in government and research-related organizations.



Research Team



5-yr Retention Ratio



Leadership Board

## & Inclusion

Our research team has maintained gender parity (with a leaning towards female researchers) since 2019. Our average rolling 5-year team retention rate (95%) is also equally balanced between female and male researchers. Our team leaders are skewed towards more male leadership (75%) and while we recognize this as a potential weakness, we are proud that our leadership board is more balanced with a 2:3 female:male ratio.

# Leadership Board

Our strategic decision-makers



Filipe Alves



João Canning-Clode  
Director



Ana Dinis



Sonia Gueroun



João Monteiro

# Our Research

## CLIMATE CHANGE & HUMAN PRESSURES

Led by João Canning-Clode & João Monteiro

Our climate change and human pressures research comprises investigations into marine bioinvasions and marine litter, habitat mapping, conservation and restoration trials and experimental ecology projects. From monitoring non-indigenous species arrival to investigating the drivers of macroalgal forest decline in Madeira, our work seeks to understand the climatic and anthropogenic threats to aquatic ecosystems and how to improve their resilience. Our efforts to detect and identify marine litter in a scalable way and to map the distribution of microplastics are also important waypoints in finding solutions to these challenges.

## MARINE MEGAFUNA & OPEN OCEAN

Led by Filipe Alves

Our megafauna research seeks to understand species distribution, behavior and health (including toxin levels and interactions with plastic pollution) of Madeira's unique and vulnerable marine megafauna species such as sperm whales, monk seals and sea turtles. Our open ocean research explores the dynamics and ecological niches of phytoplankton and zooplankton. Both areas of research aid our fundamental understanding of marine species biology and ecology; they also provide important baselines for understanding how ocean life - from the bottom of the food-web to the top - is being affected by climatic and anthropogenic pressures.

## MARINE TECHNOLOGY & AI

Led by Marko Radeta

Our marine technology team sits at the intersection of marine biology and conservation, hardware and software design, electrical engineering and bioinformatics. We seek to create low-cost solutions to aquatic research questions & conservation challenges, modifying existing tools or inventing new ones. We've built low-cost IoT sensors for acoustics and telemetry, radio communication tags and accelerometers. We're innovating with novel ways to balance and retrieve devices in the mesopelagic zone and deeper waters, and creating mobile apps that aid citizen science and education. We're also applying AI to automate scientific data analysis and predict marine animal behavior.

## ECOSYSTEM SERVICES & BLUE ECONOMY

Led by Ana Dinis & Carlos Andrade

Our ecosystem services and blue economy research team seeks to understand the complex interactions between human activities and marine ecosystems to aid sustainable practices and policies. For example, we are quantifying the ecosystem services provided by marine systems (including their economic value) and developing more sustainable practices and innovative technologies for fisheries, aquaculture and other blue economy activities. Taking an evidence-based approach, we're also designing strategies to aid coastal zone management and to maximize resilience of coastal ecosystems and island economies to climate change.



# Research Highlights



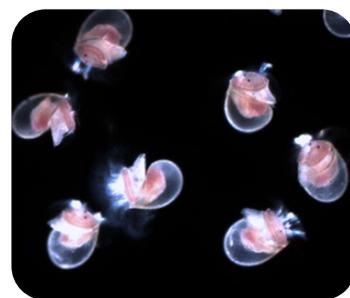
[Radeta et al., 2023](#)

## Where's (Underwater) Waldo?

Positioning is a major challenge below the waves, where common positioning systems (like GPS) don't work. Off-the-shelf dead-reckoning systems can cost upwards of €10,000, however, so our Marine Tech team developed a low-cost alternative using a 10€ IMU (inertial measurement unit) sensor. The system achieved 95% accuracy in underwater positioning. Not bad for a 99.9% discount!

## We Love Limpets!

In an effort to make aquaculture in Madeira more circular and sustainable, our Blue Economy team developed methodologies for the aquaculture and settlement of two species of limpet from Madeira. One key finding was the importance of crustose coralline algae in inducing limpet larvae settlement. Advancing our understanding of this rock-hugging gastropod (and traditional Madeiran dish!) is bringing us that much closer to informed conservation, restocking and sustainable aquaculture efforts.



[Castejón et al., 2023](#)  
& [Castejón et al., 2023](#)



[Chebaane et al., 2023](#)

## Hunting for non-indigenous species

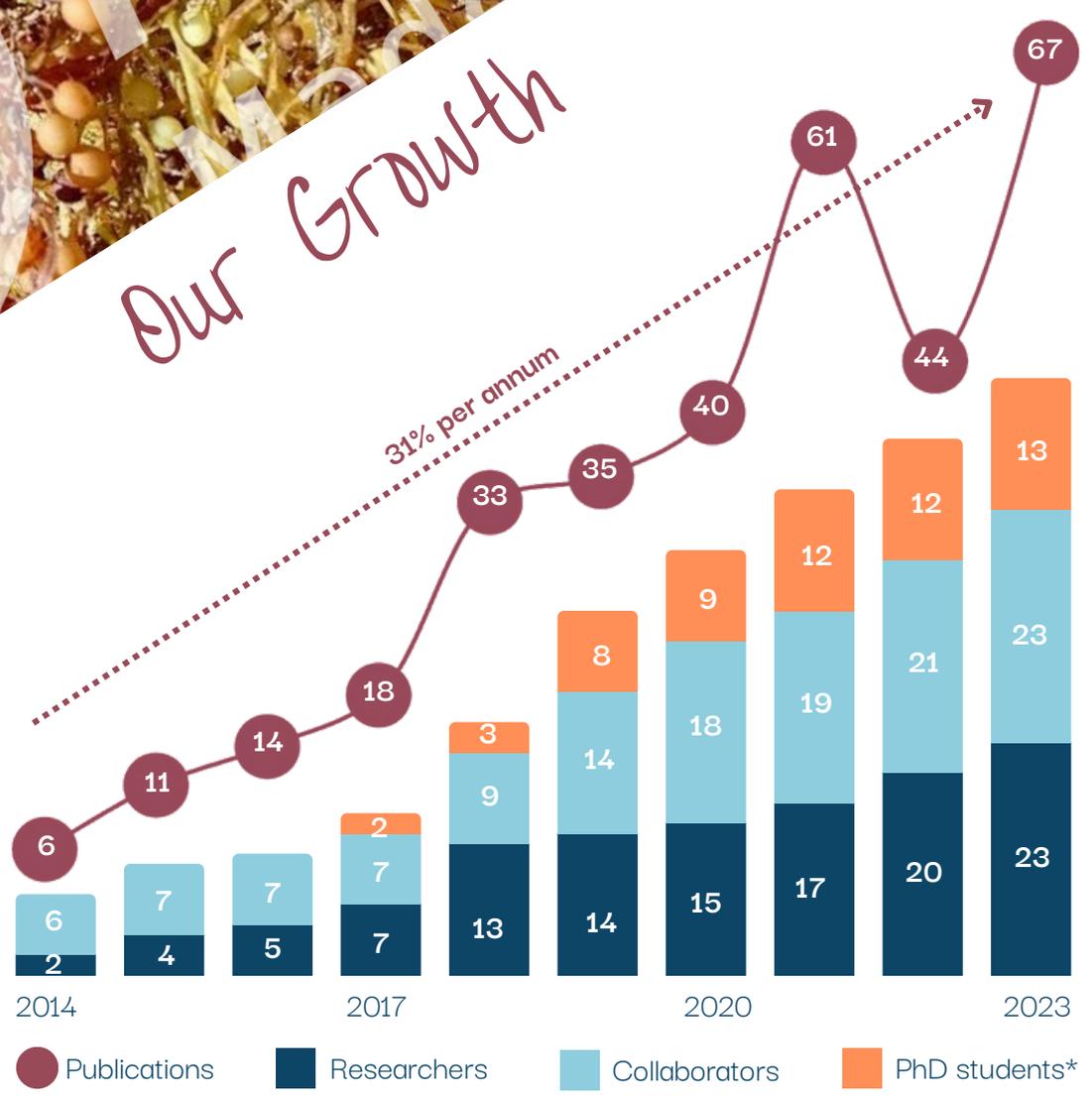
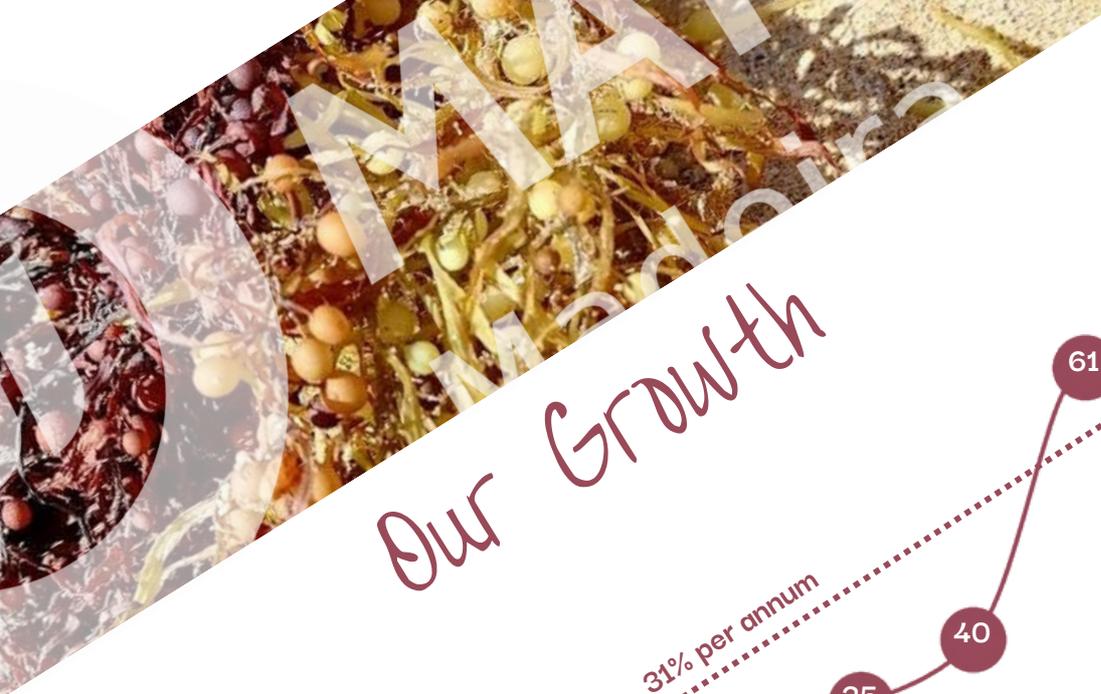
Our PhD student, Sahar Chebaane, investigated dynamics between non-indigenous species (NIS) and predators in various Portuguese harbors. She found that predation can decrease or increase abundance of NIS, depending on the location. This variation could be because local predators favor local species in some places, enabling more NIS to grow. Sahar's result highlights the need to design conservation strategies on a per-location basis to manage the spread of NIS, respecting the unique ecosystem dynamics of each place.

## Plastic, plastic, everywhere

Our PhD student Annalisa Sambolino is investigating phthalates (chemicals found in many plastics) as plastic tracers in pelagic food-webs. As part of her work, she analyzed the presence of phthalates in the blubber of marine megafauna. Annalisa was surprised to find that every(!) blubber sample she analyzed contained phthalates, revealing the ubiquitous nature of this health threat - even for species in the open ocean.



Sambolino, et al., Phthalates and fatty acid markers in free-ranging cetaceans from an insular oceanic region: ecological niches as drivers of contamination. Submitted.



\*Note: in other calculations of researchers in this report, we include our PhD students as part of our research team. We separate in this graph only to illustrate our commitment to training young researchers.

**The last 10 years** have been a time of immense growth at MARE-Madeira. From a team of two in 2013 with no budget beyond individual salaries, we've grown to an institute of 36 researchers with €1.7m in annual financing producing 51 publications in a year (67 with our collaborators). We have also grown in the number of PhD students on our team, who have injected further energy into our research and made large contributions to our scientific and outreach impacts.

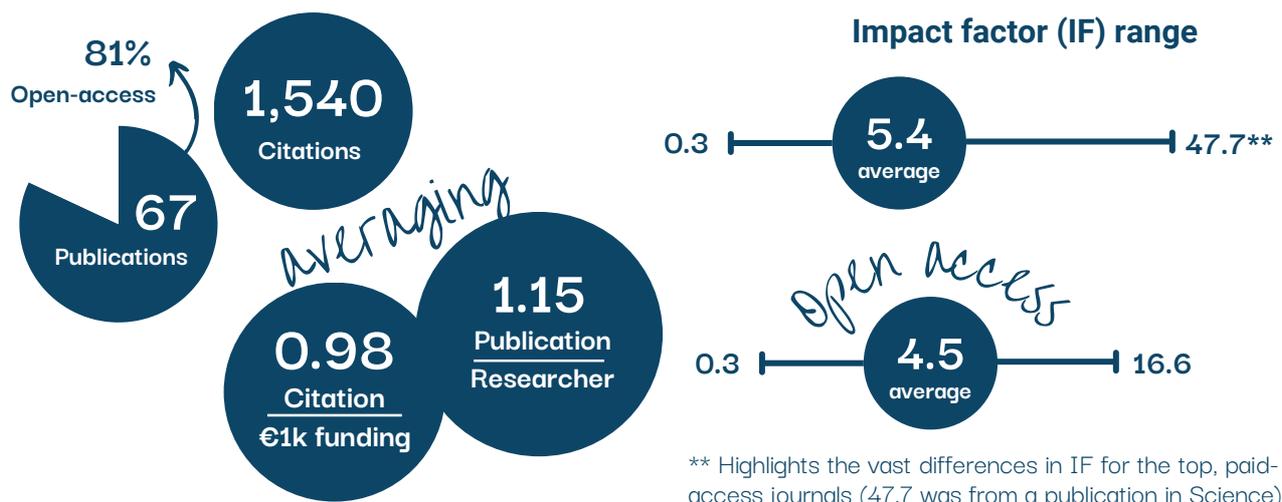


# Our Impact on science

Measuring impact on science in a standardized way is complicated for a few reasons. **First**, quality of outputs are subjective. The best metrics we have for quality of science are based on popularity (i.e. citations). However, the best science isn't always the most popular science - just ask Galileo. **Second** is the issue of comparing the impact of open-access publications (which cost the researcher) versus paywalled publications (which cost the reader). The difference in cost creates discrepancies in impact based on institutional resource: well-financed institutes are better able to afford the open-access fees of higher impact journals. And **third** is the real kicker: what counts as a single unit of science or knowledge?

Perhaps because of these challenges, there's currently no standardized measure across scientific impact reports to compare outputs versus costs. We think such metrics are important, however, to help funders (and society) judge the efficiency with which their investments are converted into scientific progress. In this way, we hope that our transparency and the following impact measurements, despite their flaws, can be a step towards increasing efficiency in marine science.

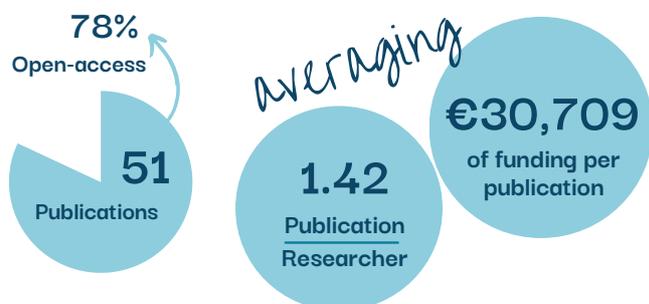
## MARE-Madeira publications\* in 2023



## Keywords from all publications



## Publications from MARE-Madeira researchers:



**Publication highlight:** Check out the Frontiers in Marine Science Research Topic on marine apex predators, edited by Filipe Alves and published in 2023 that has already reached 30,000+ views!

\* 'MARE-Madeira publications' include those from collaborators who register MARE-Madeira in their affiliations upon publishing. 'MARE-Madeira researchers' refers to publications from the 2023 team. **More details in Appendix I.**

# Our impact on science **continued**

## Over 5 years



**Publication highlight:** Our single most-cited publication since we started is also from one of our lowest-cost experiments, totalling around €60! ([Brennecke et al, 2016](#))

## Metrics used

- **Impact factor (IF):** a measure of how often articles in a journal are cited each year, which is used to indicate the value of the journal's publications. One flaw of this metric is that the highest IF journals tend to be paid journals rather than open access.
- **Publications per researcher:** a measure of productivity within the institute and its associated researchers. One flaw of this metric is that it's solely focused on quantity, with no consideration for quality or impact. Weighing this factor too greatly also risks incentivising multiple publications for the same research outputs.
- **Funding per publication:** a measure of efficiency relating the funding available to the institute and the number of publications by research team members per year. Again, this metric is solely focused on quantity, not quality.
- **Citations per unit of funding:** an impact measure relating the number of citations accumulated per year across all institutional publications to the funding available to the institute. This metric is skewed by the number of total publications from an institute since inception (and thus also its age). It's also flawed by being a measure of popularity, not quality.

## For the Goals



Our science also positively impacts the United Nations Sustainable Development Goals (SDGs). Most significantly, our work aids SDG 14 (Life Below Water), **the least supported of the development goals**. SDG 14 receives just 0.06% of total philanthropic funding ([Economist](#)). Exacerbating this, Target 14.8 (Increase Scientific Knowledge, Research and Technology for Ocean Health) is poorly supported by public funding: countries spend an average of 1.7% of national R&D budgets worldwide on ocean science ([UNESCO](#)). Our focus on low-cost research methodologies and technologies works to stretch such limited resource to maximize our impact on this often-overlooked SDG.

See Appendix II for a breakdown of the other SDG targets we positively impact.



# Our Impact on ocean literacy & education

**70**  
Outreach activities

Our team offered 70 outreach activities across Madeira and Portugal in 2023, including a kids SCUBA diving course (with our partners at [Kids Dive](#)), fieldwork experience days (for school kids & families) and school visits sharing insights into endangered species in Madeira, marine litter and the uses of artificial intelligence.

**49**  
Students mentored

Every year, we welcome students to use our research facilities and offer guidance as they complete Honor's, Master's or PhD theses. This year, 18 were part of our team, 25 were interns and six were mentored remotely. Most interns were funded by Erasmus+ grants, with one supported by a regional government grant and another supported by a donation from Baillie Gifford. Finding funding to support interns from Madeira and Portugal, who don't qualify for Erasmus+, is an ongoing challenge for us.

**5**  
Youth Ambassadors

This year we started the [MARE-Madeira Youth Ambassadors](#) program, bringing five local high school students onto our team. Our ambassadors organized outreach activities (including a beach clean and an audio tour of our Project MIMA exhibit on marine litter at the Funchal Natural History Museum) and participated in fieldwork and lab activities to gain research experience. Our youth ambassadors are helping us create more and inspiring interactions with our community in Madeira.



**2**  
Events organized

We organized the **1st MARE Scientific Diving Meeting**, a four-day workshop for all interested scientists and divers. The meeting included presentations, SCUBA diving activities and demonstrations (and a litter clean-up!). We also organized the [Madeira Deep-Sea Symposium \(MAD-Deep\)](#), which explored the past, present and future of deep-sea research in Madeira with deep-sea experts and the general public.

**6,890**  
Social media followers\*

In 2023, we expanded our social media presence with profiles on YouTube, LinkedIn and TikTok! We also expanded our audiences on existing platforms, including on Instagram where our followers grew 72% to more than 1,200 individuals.

\*across all platforms



# Our future

## Near-term

The near future holds exciting new research projects for us. One of these is **Project MIMA** (MIMicry of MAcroplastics with the preys of deep-diving predators), which started in 2023 and is dedicated to understanding why deep-diving cetaceans ingest so much more plastic than their shallower-diving peers. We also received funding this year for the **Atlantic Whale Deal**, a €3.5M Interreg Atlantic area project we're leading alongside 15 partners from four countries. This important conservation-focused project aims to develop technologies to mitigate ship-whale collisions. We're also a partner in **Free-LitterAT** and **AquafishO.O**, two additional Interreg Atlantic area projects that are working to monitor and reduce marine litter on Atlantic coastlines and to foster innovation within circular aquaculture production, respectively.



We continue to work to develop a **deep-sea research program** in Madeira. At the time of writing in February 2024, our researchers are onboard the GEOMAR ship RV Maria S. Merian, participating in a deep-sea research expedition around Madeira for four weeks. Keep an eye on social media as we share ship tours, interviews and results from this expedition over the coming weeks!

We continue to strengthen other valued partnerships as well. As a long-standing observatory within the **Smithsonian Institution's MarineGEO network**, we're now the network's designated European Hub and plan to use this position of leadership to expand MarineGEO's presence in Europe over the coming years. We also remain committed to the **GEOMAR Helmholtz Ocean Research Centre Kiel's GAME program** and will continue to host students from this global training scheme in 2024, as we have done since 2014.



## Long-term

Longer-term, we have three big ambitions that we believe will have an outstanding impact on the research community and our local community. They are:

1. **Creating a global hub for deep-sea research**
2. **Expanding Europe's role in the MarineGEO Network**
3. **Developing a blue skills training academy for young people in Madeira**

We are already working to make these ambitions a reality. Learn how on the coming pages.

# Our Future

## 1. Creating a global hub for deep-sea research

Madeira offers many advantages for deep-sea researchers that could increase the efficiency and pace of deep-sea research. We envision a global deep-sea research hub in Madeira where researchers from anywhere in the world can come to do research and benefit from our year-round access to the deep.

### Some of Madeira's natural assets and advantages for deep-sea research include:

- Steep volcanic slopes that drop into the deep-sea within a few kilometers from shore
- A mild climate and calm seas that enable year-round research
- Europe's largest full-protection MPA around the Selvagen Islands in the Madeiran archipelago
- Keystone deep-sea habitats and communities, including a deep-sea kelp forest and a densely populated deep-sea coral garden (Braga-Henriques et al., 2022)
- An abundance of endangered and poorly-understood deep-diving cetacean species, including sperm whales and beaked whales
- Novel deep-sea bacteria producing bioactive compounds with therapeutic potential (Albuquerque et al., 2021)
- Deep-sea environments that are some of the least explored in Macaronesia



We are currently building our deep-sea research capabilities and partnerships as a first step towards developing a global, collaborative deep-sea research hub. With support from **Baillie Gifford** in 2022 and 2023, we were able to hire a Research Technician on our Marine Technology and AI team, who is aiding development of our low-cost deep-sea drop cam and drift cam. Multi-year support from the **Associação Oceano Atlântico** (2022-2024) has also enabled us to hire a science manager to source further financing.



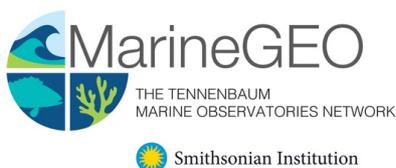
As of writing this report in February 2024, we learned that our deep-sea capacity building proposal to the EU's Horizon Europe Twinning Call was **approved for funding!** This is a huge victory as it gives us the chance to learn from our Twinning partners and deep-sea experts at the **GEOMAR Helmholtz Centre for Ocean Research Kiel** and the **Norwegian University of Science and Technology** (NTNU) over the next three years.

We continue to seek partners who share our vision for a collaborative deep-sea research hub and can help us expand our human resourcing and low-cost technology offerings to make this hub a reality. If you, too, would like to help accelerate global deep-sea research, reach out at [mare-madeira@mare-centre.pt](mailto:mare-madeira@mare-centre.pt).

# Our Future

## 2. Expanding Europe's role in MarineGEO

Started in 2015, the Smithsonian Institution's Marine Global Earth Observatory (MarineGEO) is a unique network of global partners conducting standardized coastal monitoring and experimentation around the world. MarineGEO research increases our global understanding of coastal habitats, detects changes in biodiversity and health and assesses habitat restoration initiatives.



The MarineGEO network is critical for creating **scientifically-backed conservation and restoration policies** related to coastal habitats. It is also essential for understanding the potential for (and impacts of) marine habitat creation and dedicated **carbon storage in coastal ecosystems**. In this way, MarineGEO enables global communities to foster more resilient coastlines and broaden their climate-mitigation strategies.



We have been partners in MarineGEO since 2017 and to date remain the only European Observatory in the network. Over the coming years, we will be working with MarineGEO research collaborators in Europe to build more institutional partnerships and source alternative funding streams to develop MarineGEO's European network. This will expand Europe's role in the global MarineGEO network and **improve the relevance of MarineGEO's research to policy and sustainable development in European Seas.**



We also use our MarineGEO projects as a way to involve our MARE-Madeira Youth Ambassadors in biodiversity research!

Do you see the value of a stronger MarineGEO network within Europe? Help us showcase Europe's research expertise and role in climate change mitigation in this global network and reach out to [mare-madeira@mare-centre.pt](mailto:mare-madeira@mare-centre.pt).

# Our Future

## 3. Developing a blue skills academy

We are working alongside our partners at the **Sustainable Ocean Alliance (SOA)** to develop a blue skills academy in Madeira. This academy is designed to help young people, and especially those in disadvantaged circumstances, gain career skills related to blue economy opportunities within research, conservation, entrepreneurship and communication.

Combining our research team and infrastructure at MARE-Madeira and leveraging our relationships within academia, government, conservation organizations, aquaculture and start-ups in Madeira, the academy will provide a novel opportunity for young people to gain vocational training, network across sectors and exercise creativity after secondary school.



### The objectives of the Blue Skills Academy are to:

- Share information about the ocean and ocean-related activities in an engaging way
- Improve vocational skills with relevance to ocean research, conservation, technologies, entrepreneurship, communication and policy
- Help young people develop and trial their own solutions to problems facing the ocean
- Elevate the optimism and enthusiasm of young people in disadvantaged circumstances in Madeira with regard to their future and the future of the ocean

The Blue Skills Academy is an important step in providing Madeira's youth with the training needed to engage in planet-positive work and create a more resilient, future-ready workforce. The academy will also aid ocean literacy, which is important for society to engage in pressing issues such as fishing rights, maritime planning and deep-sea mining and create sustainable ocean solutions for the benefit of all.



Thanks to support from Baillie Gifford over the next 3 years, we can begin our journey to making this academy a reality. To reach its full potential, we are in need of more partners who share our vision of a more empowered youth. If you would like to help us provide future generations with the skills necessary to ensure our ocean-based activities are sustainable, reach out to [mare-madeira@mare-centre.pt](mailto:mare-madeira@mare-centre.pt).



# Thank you

The work that we do wouldn't be possible without our incredible partners and supporters. We are indebted to the numerous whale watching companies around Madeira who let us know when they spot a unique cetacean species, to the SCUBA diving companies who are helping us improve citizen science and monitor Madeira's amazing biodiversity, to the fishermen who bring us the remains of giant squid specimens and to the marinas who let us do experiments and non-indigenous species monitoring on their pontoons, to the University of Madeira and the Natural History Museum of Funchal who let us use their beautiful spaces for seminars and exhibitions. Thank you for supporting aquatic research in Madeira.

Thank you as well to our local, national and international research partners - the numerous universities and research centers that partner with us in grant applications and projects. We know you're also stretched for resources and trying your hardest to support your teams and do research and write proposals and meet community expectations. Thank you for finding the time and enthusiasm to work with us. Your passion for the ocean and your hard-won expertise is inspiring.

Words of encouragement and advice are the unsung heroes in many ventures. We'd like to mention them now. In addition to encouragement from family and friends, we want to give a special mention to the wisdom offered this year by our mentors and peers in the [Edinburgh Ocean Leaders](#) program, as well as the regular, tireless mentoring from Gabrielle Riera and David Holberton.

We also want to give a very big thank you to our financial supporters in 2023: the National Science Foundation of Portugal (FCT), the Aquatic Research Network (ARNET), the governments of Portugal and Madeira, the European Commission, the Associação Oceano Atlântico (AOA) and Baillie Gifford. We'd also like to recognize donors from previous years who didn't get a mention at the time, as this is our first annual report. Belated thanks to Ms. Maria Piera Mattioli and Mr. Thomas Preuss Astrid Preuss (Lutz-Peter Schäfer). We cannot do what we do without your generous financial support. Thank you for seeing the value of non-profit aquatic research and believing in us to do it well. We look forward to continuing to partner with you for the benefit of our communities, wider society and the pursuit of knowledge.

And finally, thank *you* for caring enough about our ocean and team to read this report.

*We keep pushing,*

The  **MARE** team  
Madeira

 **MARE**  **arditi**

# Our Team

None of our research or communications efforts would be possible without the hard work of our research technicians, PhD students, post-doctoral fellows, junior researchers, associate researchers, science managers and principal investigators, as well as the help we receive in administration from our ARDITI teammates. We are also made stronger by our committed and international team of collaborators, who help us expand our global understanding of aquatic ecosystems, and by our numerous hardworking interns. What you read about in this report is entirely due to these people.



Pedro Abreu



Sílvia Almeida



Soledad Álvarez



Filipe Alves



Carlos Andrade



Alejandro Bernal-Ibáñez



Sara Bettencourt



Andreia Braga-Henriques



Camilla Campanati



Nuno Castro



João Canning-Clode



Sahar Chebanne



Sonia Costa



Ana Dinis



Alejandro Escáñez



Diane Esson



Marc Fernandez



Rita Ferreira



Rúben Freitas



Sonia Gueroun



Eva Iñiguez



Manfred Kaufmann



Ashlie McIvor



João Monteiro



Inês Órfão



Paula Parretti



João Pestana



Raül Triay-Portella



Marko Radeta



Patrício Ramalhosa



Laura Redaelli



Annalisa Sambolino



Susanne Schäfer



Francisco Silva

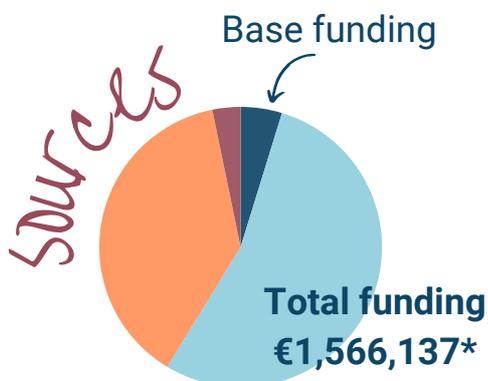


Rodrigo Silva



Mieke Weyn

# Our Funding 2023



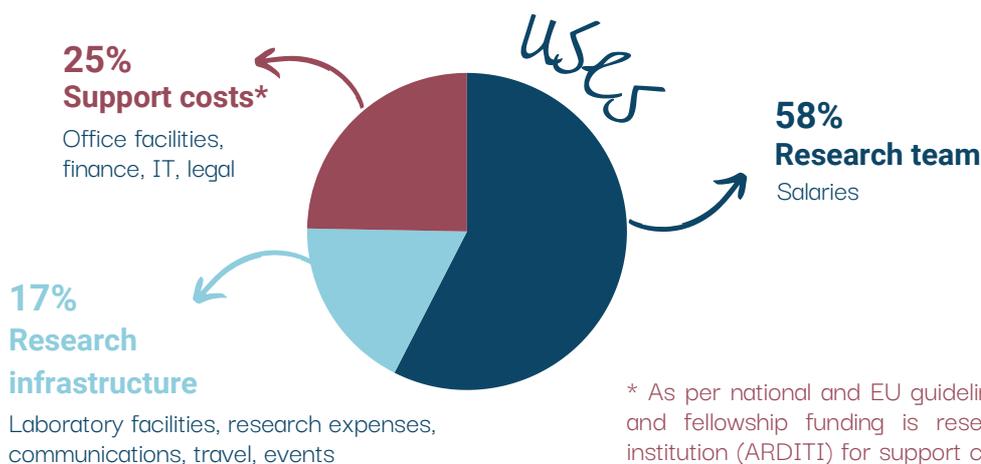
|   |          |     |
|---|----------|-----|
| Base funding (FCT)                            | €74,023  | 5%  |
| Short-term project or fellowship funding (PT) | €845,193 | 54% |
| Short-term project or fellowship funding (EU) | €596,554 | 38% |
| Donations                                     | €50,367  | 3%  |

\* Using an accrual method such that lump-sum, multi-year project and fellowship funding and donations are smoothed over the course of the contracted project or researcher tenure

In 2023, **5% of our annual funding was base-level funding** covered by the Portuguese National Science Foundation (FCT). The FCT's base-level funding was awarded for a four-year period (2020-2023) to MARE for being an institute of 'Excellence' and was distributed between MARE's seven regional units. This is the highest designation (and thus highest funding level) possible for a research and development (R&D) institute.

**The vast majority of our funding** (82%) was short-term project or fellowship funding, secured through applications to competitive national or EU grants.

We also received **generous support from two private donors**, Associação Oceano Atlântico (a Portuguese foundation dedicated to supporting ocean research, literacy & sustainability) and Baillie Gifford (an investment management firm based in Scotland, UK and a long-standing supporter of local and international communities). We're incredibly grateful to the support we receive from these organizations.



\* As per national and EU guidelines, 25% of project and fellowship funding is reserved for the host institution (ARDITI) for support costs. For donations, these support costs are reduced to 15%.

**Our funding is primarily used** to cover human resourcing expenses, which accounted for 58% of our available funding in 2023. The remainder was used for research infrastructure (17%) and ARDITI support costs, which go toward governance and administrative expenses.

# Appendix I Our impact on science stats

Table 1. MARE-Madeira publications and impacts in 2023

|  | Journal articles | Book chapters | Total publications | Average IF (all)** | Open access | % Open access | Average IF (open)** |
|--|------------------|---------------|--------------------|--------------------|-------------|---------------|---------------------|
| <b>MARE-Madeira publications*</b>        | 61               | 6             | 67                 | 5.4                | 54          | 81%           | 4.5                 |
| Publications by MARE-Madeira researchers | 45               | 6             | 51                 | 5.7                | 40          | 78%           | 4.5                 |

\*MARE-Madeira cited in paper

\*\*Impact factor (IF) of journal articles (books aren't measured by IF)

Table 2. Standardized impacts of MARE-Madeira integrated researchers & institutional funding in 2023

| MARE-Madeira researchers | Publications | Publications per researcher | Funding    | Funding per publication |
|--------------------------|--------------|-----------------------------|------------|-------------------------|
| 36                       | 51           | 1.42                        | €1,566,137 | €30,709                 |

Table 3. Standardized impacts of MARE-Madeira publications over the last 5 years

|                                 | 2019 | 2020 | 2021  | 2022   | 2023   | 5-year total          |
|---------------------------------|------|------|-------|--------|--------|-----------------------|
| MARE-Madeira publications*      | 35   | 40   | 61    | 44     | 67     | <b>247</b>            |
| Researchers + collaborators     | 36   | 42   | 48    | 53     | 59     | <b>48 (average)</b>   |
| <b>Publication/researcher</b>   | 0.97 | 0.95 | 1.27  | 0.83   | 1.15   | <b>1.04 (average)</b> |
| MARE-Madeira Citations*         | 352  | 572  | 1,018 | 1,200  | 1,540  | <b>4,682</b>          |
| Funding (in 1,000s)**           | €916 | €472 | €732  | €1,012 | €1,566 | <b>€4,699</b>         |
| <b>Citation per €1k funding</b> | 0.38 | 1.21 | 1.39  | 1.19   | 0.98   | <b>1.00</b>           |

\*MARE-Madeira cited in paper; source: Google Scholar

\*\*Lump-sum project funding is smoothed over the course of the contracted project period

# Appendix II Our impact on the SDGs

Our research and outreach projects directly support the following United Nation's Sustainable Development Goals (SDGs) and targets:



## Target 14.8: Increase scientific knowledge, research and technology for ocean health

- Supported by all [research projects](#)



## Target 13.1: Strengthen resilience to climate change

- E.g. [Climarest](#) project, [MarineGEO](#) network projects, non-indigenous species monitoring

## Target 13.3: Raise awareness on climate change

- E.g. João Canning-Clode's [TedXFunchal](#) talk, [MARE-Madeira Aquatic Research Podcast](#)



## Target 11.4: Safeguard cultural and natural heritage

- E.g. [Eel conservation](#) research, whale conservation research, deep-sea research

## Target 11.6: Reduce environmental impacts of cities

- E.g. [marine litter monitoring](#), clean-ups and expert panels



## Target 9.5: Enhance scientific research in all countries

- Innovation within low-cost aquatic research methods and technologies (e.g. low-cost [hydrophone recorder](#), [underwater positioning system](#), and marine megafauna tags)



## Target 4.4: Increase skills for employment

- Student mentoring and training ([Appendix III](#))

## Target 4.7: Increase skills for sustainable development

- E.g. [MARE-Madeira Youth Ambassadors](#)



## Target 17.6: Enhance international cooperation on and access to science, technology and innovation and enhance knowledge sharing

- All [international projects](#), panels, [committees](#), conferences, [events](#), [partnerships](#)
- [Edinburgh Ocean Leaders](#) program

# Appendix III Our impact on ocean literacy stats

Table 4. MARE-Madeira science communications in 2023

|                             | Events attended | Presentations given | Posters presented | Stalls hosted |
|-----------------------------|-----------------|---------------------|-------------------|---------------|
| Conferences & seminars      | 20              | 33                  | 9                 | 3             |
| Expert meetings & workshops | 7               | 8                   | 1                 | 0             |

Table 5. Students or recent graduates mentored in 2023 by education level

| High school | Bachelor's | Master's | PhD | Total |
|-------------|------------|----------|-----|-------|
| 2           | 5          | 24       | 18  | 49    |

Table 6. Students or recent graduates mentored in 2023 by degree of integration

| MARE-Madeira researcher | Internship | Mentored remotely |
|-------------------------|------------|-------------------|
| 18                      | 25         | 6                 |

Table 7. Social media presence 2023

|               |  |  |  |  |  |  |
|---------------|---|---|---|--|---|---|
| Profile since | 2013  | 2021  | 2015  | 2023   | 2023  | 2023  |
| Followers     | 4,101   | 1,216   | 918   | 631  | 13  | 11  |
| Growth        | 9%  | 72%   | 23%   |  |  |  |
| Total views   | N/A   | N/A   | N/A   | N/A  | 850   | 2,370   |



