

ANNUAL REPORT



Marine
Biological
Association

2021-2022

Overview



MARINE BIOLOGICAL ASSOCIATION

47 Countries with Marine Biological Association Membership



90 Years of the Continuous Plankton Recorder Survey



198 Staff, Students, Volunteers and Trustees



167 Conferences and events attended and presented



86 Papers published



£1.9M Grant success



£5.7k Donations received



896 International media mentions



8.7M Press release audience reach



12% Social media growth



>42k views on YouTube and TikTok



Welcome



Welcome to the Marine Biological Association (MBA) Annual Report, which highlights our Membership and scientific achievements. I continue to be amazed at the tenacity, resilience and enthusiasm of staff and students in what are globally challenging socioeconomic times.

Despite this, our report is dominated by our many successes, good examples include our largest ever Young Marine Biologist Summit attended by MBA Honorary Fellow and author, Dr Sylvia Earle; the first marine biology institute in the UK to receive Laboratory Efficiency Assessment Framework (LEAF) green lab accreditations; our PhD students regularly winning talk and poster prizes at conferences (Eleanor Gilbert, Yasmin Meeda, Freya Womersley and Nora Salland); Dr Dan Smale for achieving recognition as a highly cited researcher for his work on Marine Heatwaves and Marine Ecosystems; and numerous appearances on different media outlets and news features, such as Professor David Sim's feature on catsharks with BBC's Winterwatch.

One area I have taken a particular interest in is Equality, Diversity and Inclusion (EDI).

As the representative organisation for marine biology, it is vital that we are active in promoting EDI values for the wider profession. Our goal is to see marine biology as a discipline with a culture of inclusion that better reflects the diversity we see in society. This is why, as MBA President, I committed to take on the role of Trustee with responsibility for EDI challenges. This is a clear statement to our Members and Staff that EDI is a priority for the MBA.

This year we said goodbye to Professor Patrick Holligan, who completed his three-year term as an MBA Trustee. Also, Professor Chris Frid, who is thanked for his long and distinguished contribution to the Association as trustee since 2004. Lastly, we welcomed Professor Mark Bailey, appointed by Membership to take on the role of chair of the Finance and Risk Committee.

Finally, my thanks go to everyone at the MBA for achieving so much throughout the year.

Dr Gill Rider CB, President

About Us

Contact
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With members spanning **47 countries** across **5 continents**, The Marine Biological Association is a Learned Society working as the voice for the marine biological community.



Our in-depth scientific research into the marine environment, carried out at our prestigious Citadel Hill Laboratory in Plymouth, UK, provides key evidence in the understanding of our ocean.

Granted a Royal Charter in 2013 in recognition of our status as the foremost Learned

Society of marine biologists in Europe, we have worked in the interests of the ocean and global scientific community since 1884. Click [here](#) to learn more about our history.

Our aims are simple; to be **visionary**, to **inspire**, and to do so with **integrity**.

With world-class expertise and facilities, we pride ourselves on giving everyone access to marine biology that is honest and true, both now and in the future.

To discover the MBA's achievements over the past year, and see our values in action, read on.

The Marine Biological Association;
an ocean of knowledge since 1884

Membership Contact

membership@mba.ac.uk

As a Member of the Marine Biological Association, you join our **growing community of marine biologists** across the globe, from Students to Professionals, Associates to Fellows.

This year, Fellow **Dr Shubha Sathyendranath**, Plymouth Marine Laboratory, was awarded the AG Huntsman Medal for her achievements in the development of optics and satellite use in marine science.



Joining the distinguished company of senior practitioners who have contributed to marine biology at the highest level, **7 new fellows were elected this year by the MBA Council.**

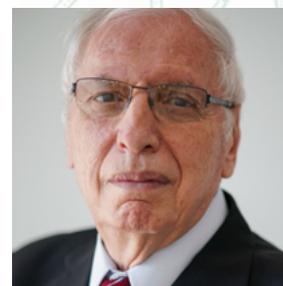
Dr Martin A Collins OBE, leader of the British Antarctic Survey input into the Commission for the Conservation of Antarctic Marine Living Resources.



University of Malaysia's **Professor Po Teen Lim's**, extensive research contributes to some 150 papers, as well as discoveries of harmful algal species previously unknown to science.

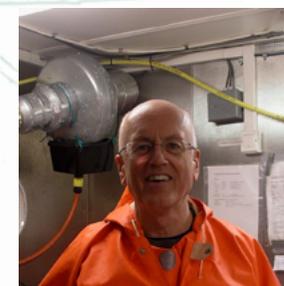


Professor (Emeritus) Peter Burkill, University of Plymouth, is a long-standing MBA Member. His research includes some 200 papers, primarily on microbial biogeochemistry. His contributions to marine science include being Director of the Sir Alister Hardy Foundation for Ocean Science, President of the Scientific Committee on Oceanic Research and representation on numerous high-level committees.



National representative at the Scientific Committee on Oceanic Research, **Dr Daniel Weihs** is the author of ground-breaking research on fish, marine mammals and invertebrate swimming dynamics.

Dr Nicholas Hardman-Mountford, Head of Oceans and Natural Resources at the Commonwealth Secretariat. Nick is a diplomat and marine scientist working in ocean, climate and resource governance, and multilateral development, with a strong focus on sustainable blue economies.



Lecturer and biologist **Professor Paul J.B. Hart**, University of Leicester. Paul previously worked on the Continuous Plankton Recorder and is a Member of the MBA Council.



Dr Matthew Frost, Deputy Director and Head of Policy and Engagement here at the MBA Headquarters in Plymouth. He chairs the Marine Climate Change Impacts Partnership (MCCIP) and is President of the European Network of Marine Stations.

"This is undoubtedly an exciting time to be a Member of the MBA, as we deliver on our ongoing commitment and determination to grow, facilitate and support our community of marine biologists, enthusiasts and students to become the voice of marine biology."

Joanna Langston
Head of Membership



"I love that the MBA keeps me in touch with the wider scientific and practitioner community, and embraces all aspects of marine work."

Dr Jennifer Ashworth
Fellow and Trustee



"I have been given so many brilliant opportunities. I have always known I want to pursue a career in marine science, and being a Young Marine Biologist has made that dream accessible."

Olivia Bird
Young Marine Biologist

"The MBA has a wealth of expertise on tap, a beautiful building, history and achievements to inspire my students. I do my utmost to encourage them to join."

Jason Birt
Professional



This year, we began laying the foundations to provide young professionals with ongoing support. One way we aim to inspire those embarking on their professional careers is with our Travel Bursary, awarded to help cover the cost of training opportunities.

Two of this year's Travel Bursary recipients were Matt and Charlotte:

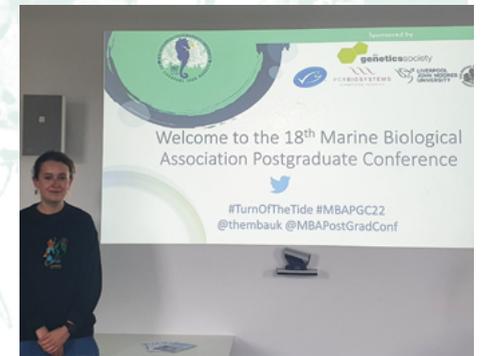
"The travel bursary allowed me to partake in my Polar and Advanced Polar Training for the upcoming #LastPole expedition in 2023, with explorer Jim McNeill. The knowledge and experience gained during this part of my training programme has been instrumental in my training to become a scientific polar explorer."

Matt Elliott Bell
Student



"The chance to present my work at the Postgraduate Conference was invaluable, and provided lots of opportunity for discussion with other delegates. I look forward to attending the MBA Postgraduate Conference next year!"

Charlotte Clubley
Student



Learn With Us

Contact

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Whether you are at the start of your career or simply an ocean enthusiast, join us as we share our wealth of ocean knowledge.

The ongoing complications of Covid-19 have not deterred our educational output; we held a variety of events, both in-person and online, throughout the year.

In April, 80 people attended the 17th MBA Postgraduate Conference²; an event featuring a range of talks, student presentations and keynote lectures.

We want learning opportunities with the MBA to **inspire** and **expand the skills** of those engaging with our ocean, and with our range of bespoke courses, events and tours we've done just that.

Throughout the year, we hosted a number of Meet the Marine Park tours at Citadel Hill in collaboration with the UK Plymouth Marine Park. The groups, which included young people and staff from the National Marine Aquarium UK, were given

tours of the National Marine Biological Library, Seawater Hall and the Continuous Plankton Recorder Survey.

Elsewhere, it was a big year for our Young Marine Biologists (YMB). November saw the return of our **YMB Summit**³. Held virtually, highlights included the Sea Life Showdown, Careers Panel and a closing session with MBA Honorary Fellow and author, Dr Sylvia Earle.

It was at the Summit that we launched the **YMB Writing Challenge**⁴, which was won by Blair Riley Wheman (US), Ruby Hobbs (UK) and Alosha Samaraarachchi (Sri Lanka).

The Microbiome SciArt Competition, launched at our Marine Biology Live online event, was won by Skanda R¹ from India. Skanda's prize included



378  Attendees at the Young Marine Biologist Summit.

858  People watching Marine Biology Live Events.

28  Virtual Work Experience Placements.

798  People attended our online courses and workshops.



2



3



4

two Digiscopes, one of which was for his school in Chennai.

2021 saw the introduction of our Virtual Work Experience Scheme with participants from the UK, Ireland and Germany.

We welcomed Cathy Harshaw (right) as our new Training and Events Manager.

To join our growing community of marine biologists and explore our upcoming events, simply [click here](#)



Publications

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In 2021, *The Marine Biologist* magazine entered its 9th year, and continues to be an important voice in

science communication. Many of our Members stated that access to *The Marine Biologist* influenced them to join, with numerous Young Marine Biologists and Members requesting a print version of the magazine as an add-on subscription benefit.

“Excellent examples of popular science writing.”
 University of the Western Cape, South Africa

This year has also been a time of change. In January, *The Journal of the Marine Biological Association* stopped print editions and went online as part of our move towards a paperless future. This coincided with the release of the first virtual release of *The Marine Biologist*, guest edited by MBA Trustee, Professor Heather Koldewey.

We ended the year on a high, with the launch of *The Marine Biologist Podcast*. Featuring the latest in marine careers and science, our first episode saw *The Marine Biologist* Editor Guy Baker and Cathy Harshaw speak to broadcaster Paul Rose⁵ about his career as “one of the world’s most experienced field science and polar experts”.



It's been a year of growth for the publications of the MBA

108
 Contributors
 To The Marine
 Biologist

22k
 The Marine
 Biologist
 Readership

Policy

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“From our work with the MCCIP on UK Overseas Territories, to leading the United Nations (UN) endorsed meeting on the World Congress of Marine Stations and engaging with the UN Ocean Decade, this year has had a strong international focus.”

Dr Matt Frost, Deputy Director and Head of Policy and Engagement.

60 Conferences, committees and congresses attended, including the World Congress of Marine Stations, Nature’s Role in Tackling Climate Change Conference, and the UN General Assembly for the UN Ocean Decade.

11 Policy papers and reports published, including Marine journals, maritime territorial disputes and science-diplomacy and key climate change challenges facing the UK Overseas Territories.

10 Seminars and presentations given, including ‘Diversity and Inclusion: Making Meaningful Change’ and ‘European Collaborative Networks: Unleashing the Full Potential of Ocean Knowledge’.

36 Steering and working group meetings, including the UK G7 delegation for the Future of the Seas and Oceans, Marine Research Plymouth, and the Highly Protected Marine Areas roundtable.

3 Policy internships.

Our MCCIP partnership work on Overseas Territories, chaired by Dr Matt Frost, was nominated for a prestigious civil-service award in the Productive Partnerships category, coming in the top **3** from over 1500 nominations.

1 Newly established committee for Equity, Diversity and Inclusion (EDI). Launched in the summer, the Committee have been meeting to discuss the promotion of EDI in marine science and at our Citadel Hill Laboratories.

Data and Information

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"Data and Information continues to support policy and management decision making on national, European and global scales. The provision of quality assured data and expert-interpreted information contribute to a wide range of activities in support of the UN Sustainable Development Goals, and the programmes and actions of the UN Decade of Ocean Science for Sustainable Development."

Dan Lear, Head of Data and Information Technology

>620k Marine Life Network (MarLIN) [website](#) page views.

178k MarLIN visitors.

8519 Datasets uploaded.

55 Conferences and events attended, including the International Marine Data and Information Conference, and the Marine Biodiversity Observation Network.

>23k [DASSH](#); The archive for marine species and habitats data downloads, our archive of marine species and habitat data.

National Marine Biological Library

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The National Marine Biological Library is one of the largest marine reference libraries in the world. Shelves full of collections are waiting for our Members in a peaceful environment with modern facilities.

In early 2022, we were pleased to welcome back external visitors to Citadel Hill, to browse the shelves after a long break due to Covid-19.

As part of our work to make information available and accessible for all, this year saw us develop strategies that help deliver both remote and online services.

Part of this strategy includes expanding our expertise in open access publishing.

To see what the library has to offer, [click here](#).



Facilities

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From installing new technology to updating our Citadel Hill laboratory, we take our commitment to world-leading science seriously, and cutting-edge science means cutting-edge facilities.

“We are committed to furthering our sustainability efforts, whilst maintaining the world-leading scientific standard our reputation here has set.”

Oscar Speed, Laboratory Efficiency Intern

As part of the review and reorganisation of stock in the National Marine Biological Library, brand new rolling shelving was installed on the lower ground floor⁶.

As part of our commitment to sustainability, we began implementing a range of measures to aid in reducing our travel footprint. These include the introduction of our new electric van, and enhancing our virtual conference facilities by installing acoustic panelling in conference rooms⁷.

We became the first marine biology institute in the UK to receive two Laboratory Efficiency Assessment Framework (LEAF) green laboratory accreditations⁸.

Both the Marine Microbiome Centre and Continuous Plankton Recorder Survey laboratories received Bronze, with the latter also achieving Silver. The news was covered by Business Live.

A new Smart Experimental Aquarium (SEA) Facility was assembled in our Research Aquarium⁹. The twelve, 1000 litre smart tanks are computer controlled, support life-systems and enable controllers to monitor, record and maintain environmental conditions. The tanks are already in use, and were filmed for the G7 Summit 2021.



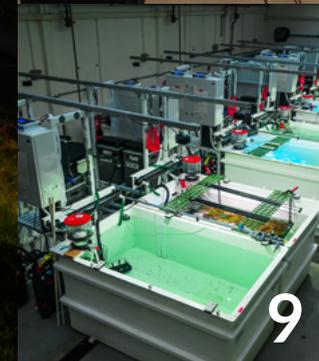
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Research Highlights

Contact

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"For well over a century, MBA research has always been ahead of its time. The secret is simple; we create an inspiring ecosystem with equality at its core that allows science to excel." Professor Willie Wilson, Director

OUR HIGHLIGHTS

"From TV interviews to ground-breaking papers. New facilities to numerous awards. Our research is reaching new heights".

Associate Research Fellow Professor Linda Medlin¹⁰, was awarded the Yasumoto Lifetime Achievement Award for outstanding contributions to the study of marine phytoplankton.

Dr Helen Jenkins' paper on the [diversification dynamics of cheilostome bryozoans](#), highlighted the importance of integrating fossils with molecular phylogenies to study diversification in more detail.

Dr Nathan Christmas and Dr Michael Cunliffe's [study](#) on *Lichina pygmaea* found that their capacity to host marine and freshwater cyanobacteria contributes to its ability to survive in the intertidal zone.

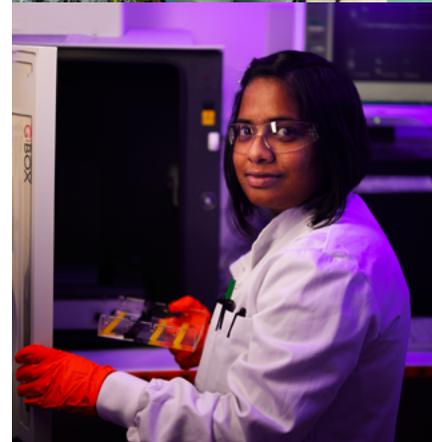
Professor Colin Brownlee, Dr Katherine Helliwell and Dr Glen Wheeler's research, alongside PhD students Yasmin Meeda and Ellie Murphy, outlined [the complexity of marine diatoms when acquiring key nutrients](#).

In the Coastal Ecology department, Dr Dan Smale and Dr Katie Smith co-authored a paper on [socioeconomic impacts of marine heatwaves](#) which highlighted the need to develop global mitigation for these events.

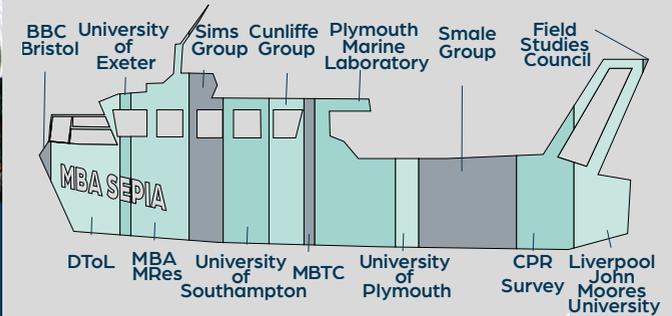
Marine Biodiversity and Climate Change project principle investigator Dr Nova Mieszkowska, alongside Professor Stephen J. Hawkins, published research allowing [extreme weather event contextualisation and its impact on biodiversity](#).



10



Research vessel *Sepia* charters by groups



11

Research Groups.

9

Awards.

75

Research papers published.

1343

Citations and shares.

50

Conferences and events attended and presented at.

Sequencing the genomes of all eukaryotic life on earth is no easy feat. The Darwin Tree of Life team published 'Sequence locally, think globally', demonstrating the ambition of this ground-breaking project.

Professor David Sims and Dr Emily Southall were featured

authors on '[Global COVID-19 lockdown highlights humans as both threats and custodians of the environment](#)', observing the complex impacts on nature during the pandemic.

For a greater glimpse at our scientific research, read on for a breakdown of each department.

Marine Microbiome

Our work on the microbial life that dominates the marine environment explores the inner workings of various groups including viruses, bacteria, phytoplankton and fungi.

OUR HIGHLIGHTS

It's been a busy year for staff and students alike in the Marine Microbiome Department.

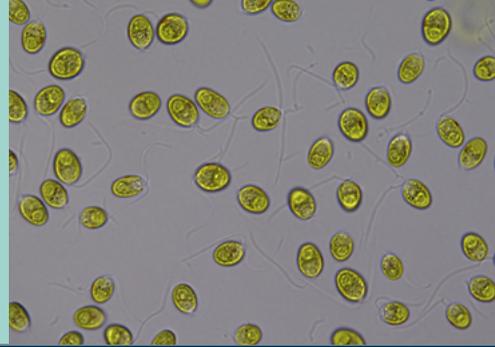
Dr Kim Bird and Dr Birthe Zäncker¹¹ travelled to the Arctic aboard icebreaker *Oden* to study microorganisms beneath the sea ice¹².

Dr Nathan Christmas and Dr Michael Cunliffe's [study](#) on photobiont diversity in *Lichina pygmaea*¹³ became the department's most widely read and cited paper.

Michael also co-authored the perspective piece '[A Call for a Better Understanding of Aquatic Chytrid Biology](#)', proposing that a better understanding of their biology could help us to understand the evolution of fungi and indeed, wider eukaryotic life.

PhD students Yasmin Meeda¹⁴ and Cordelia Roberts presented at the Wonder Women Talks, as part of the National Marine Aquarium Late Talks series. Cordelia also appeared on BBC Radio Leicester's Curious Kids segment, and Yasmin spoke to ITV West Country, discussing natural solutions to climate change.

Eleanor Gilbert helped to organise the PlyMSEF 2022 Conference as part of the student committee. It was at the conference that Eleanor and Yasmin won prizes for best poster and best talk respectively.



5 Research Groups; Microbiology and Molecular Ecology, Algal Signalling and Physiology, Phytoplankton Ecophysiology, Algal Cell Biology, and Evolution of Early Branching Metazoans.

9 Papers published. **76** Citations and shares.

5 Awards won, including PlyMSEF best talk and best poster.

10 Conferences and events attended and presented at, including the annual Microbiology Society Conference and the Molecular Microbial Ecology Group.



11

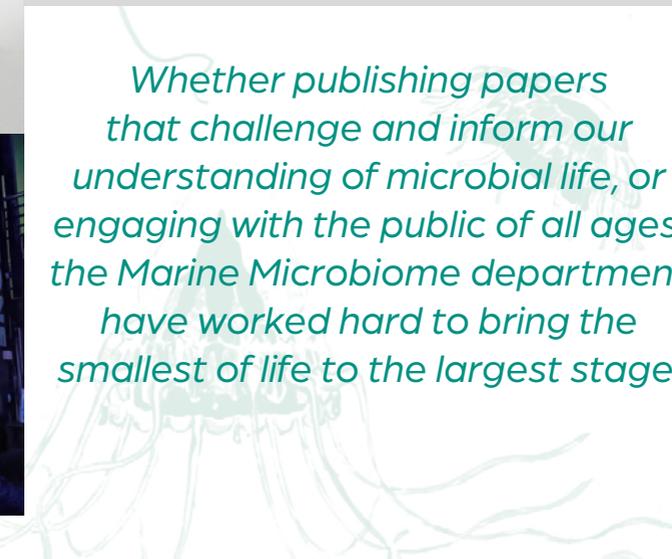


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Whether publishing papers that challenge and inform our understanding of microbial life, or engaging with the public of all ages, the Marine Microbiome department have worked hard to bring the smallest of life to the largest stage.

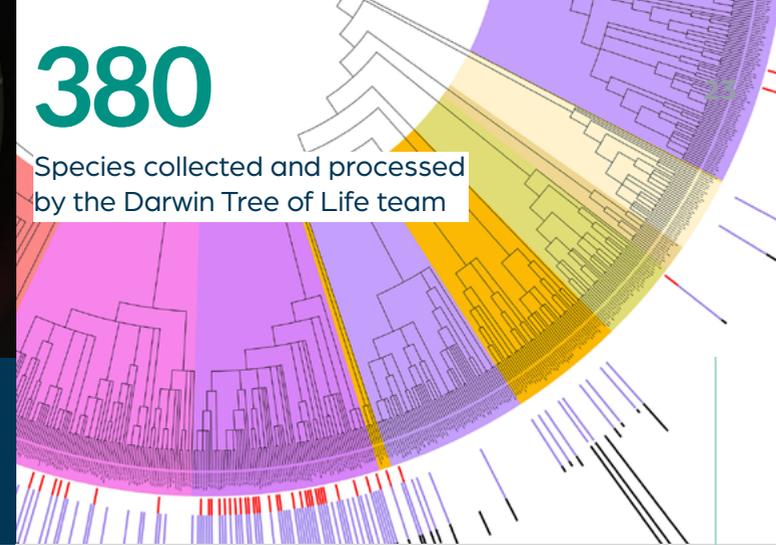


Coastal Ecology



380

Species collected and processed by the Darwin Tree of Life team



To better understand our vital coastal ecosystems and facilitate their conservation, the Coastal Ecology department have been busy in the field, at conferences and speaking to the press.

OUR HIGHLIGHTS

The Darwin Tree of Life (DToL) Team hosted numerous groups including from the UK's Natural History Museum, which presented the chance to share taxonomic expertise and enhance the museum's collection of specimens.

The Smale Research Group visited Lundy Island in the Bristol Channel (the first marine reserve established in England almost 40 years ago). The group collected data for the long-term, historical kelp survey¹⁵.

Dr Dan Smale himself was included in the Clarivate for Academia and Government 2021 list of highly cited researchers, for his work on Marine Heatwaves and Marine Ecosystems.

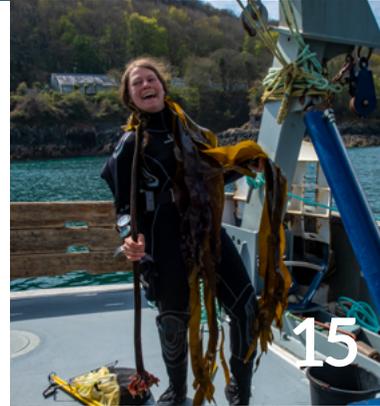
Documentary *Ocean Greens*, exploring the environmental benefits of seaweed as a food source was released, and featured

interviews with PhD student Sophie Corrigan and Senior Research Assistant Cat Wilding¹⁶.

PhD student Nora Salland presented a poster at the 7th Congress of the International Society for Applied Phycology, for which she won an award.

As well as collecting samples for DToL, Dr Nova Mieszkowska carried out fieldwork for the MarClim project, of which she is principle investigator, and published the paper '[Diversity and distribution of a data deficient habitat in a poorly mapped region](#)', which recommended that research be carried out in data deficient habitats, species and regions to aid management and conservation.

Finally, [DToL's first genome note](#) for marine species was published.



4 Research Groups; Benthic Ecosystems and Environmental Change, Marine Biodiversity and Climate Change, and Biology and Invasions of sessile animals.

26 Papers published. 809 Citations and shares.

11 Conferences and events attended and presented at, including the International Society for Applied Phycology Congress and the Seagrass Conference.

By observing the changes of a continually shifting environment, our coastal ecologists are helping to understand the processes that impact our coasts, from invasive species to climate change.



Ocean Biology

The ocean plays a central role in mitigating climate change. Our research on marine life and environmental dynamics, and human impacts will help us to understand and manage the ocean.

OUR HIGHLIGHTS

The Sims Research Group gave three presentations at the Bio-Logging Symposium 7 Conference, where PhD student Freya Womersley¹⁷ won the Audience Favourite Presentation out of 300 talks. Professor David Sims also gave a lecture to the Linnean Society on the group's research; 'Caught in the middle: oceanic sharks, climate change and fishing'.

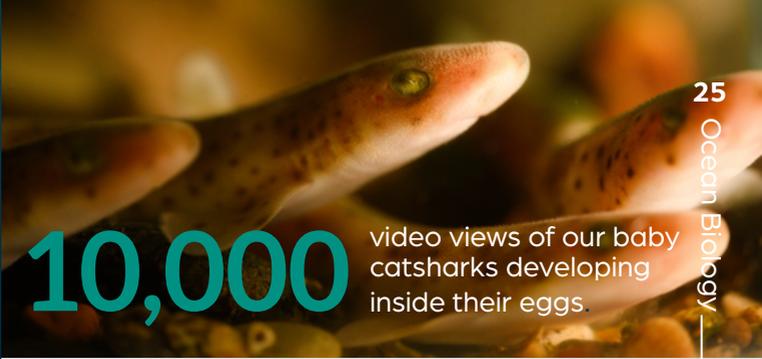
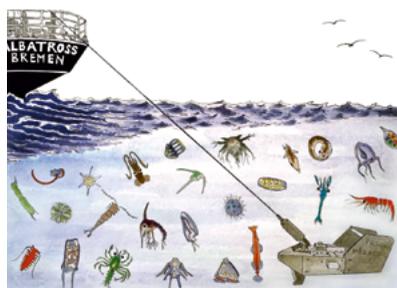
In collaboration with Sophie Rainbird, Sea-going Technician, Professor Sims also co-authored 'Meta-Fish-Lib: A generalised, dynamic DNA reference library pipeline for metabarcoding of fishes', which would create opportunities for wider metabarcoding to determine species composition.

BBC's Winterwatch featured the successful release of the 10 baby catsharks that were hatched in

our research aquarium. Professor Sims also spoke about the impact of warming seas on catsharks; in recent years warming seas have increased egg production, but too high and it may drop.

CPR90, an event celebrating 90 years of the Continuous Plankton Recorder (CPR) Survey, was a great success and featured a programme developed by the CPR Survey Team of researchers and analysts. Among the birthday wishes were the British Antarctic Survey physicist Helen Czerski and broadcaster Iolo Williams.

Lance Gregory and David Wilson visited Iceland and Birgir Bachmann, supporter of the Survey for over 20 years. They also visited MV *Lagarfoss*, where they presented the Captain with an award in recognition of his service to the CPR Survey.



10,000 video views of our baby catsharks developing inside their eggs.

2 Research Groups; Movement Ecology and Conservation of Ocean Predators and the Continuous Plankton Recorder Survey.

40 Papers published. **458** Citations and shares.

29 Conferences and events attended and presented at, including the Changing Arctic Oceans conference.

90 Years of CPR Survey. **>4.5k** CPR samples analysed. **104k** Nautical miles towed by CPR's.

A prototype HoloCam took the first ever pictures of plankton on board a CPR.

To end the year, a new Survey route between Brazil and South Africa with 8 tows began, the

CPR Survey workshop officially moved to Wallsend, and Operations Manager Lance Gregory celebrated 25 years of service.

Big steps and even bigger milestones, our Ocean Biology Department is world-leading in the vast expanse of oceanic research.

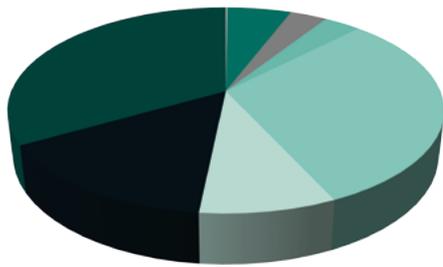
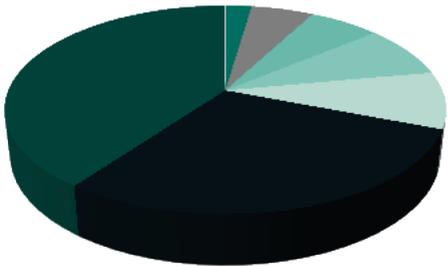
Finances

Operating as a non-profit organisation, the MBA's income for the financial year April 2021 – March 2022 was £5,084,963.

The MBA would like to acknowledge all our funders, donors and those who have supported us.

The 2021/2022 expenditure totalled £5,133,355. Primarily invested into our research, this helped us to expand our world-class knowledge and expertise within the marine biological community.

The following finances show our management accounts, which does not include depreciation and gains/ losses on investments.



- CPR Survey
- Research
- Training and Facilities
- Consultancy
- Data
- Other
- Learned Society
- Donations

Looking Ahead



As I write, our iconic Citadel Hill HQ is a building site as the £4million phase 1 of our £20million infrastructure masterplan comes to fruition. It is organised chaos (a lot of noisy jackhammering) as our new world-class research laboratories slowly take shape. By the end of 2022 we will be deep in a recruitment drive to help fill these laboratories with new, aspiring marine biologists to set up and/or continue their research careers. We continue to update our look through our branding and of course, our new website that I hope you enjoy.

It is just a starting point, and we hope to update it with new features on a monthly basis, particularly our membership section which has a state of the art customer relationship management system driving it in the background, alongside a team of dedicated staff! Look out for our new training and events opportunities as we expand this area of the membership.

I hope you enjoy the highlights from our Annual Report, it's clear we have a great deal to be optimistic about.

Professor Willie Wilson, Director

Donations

Make a donation, make a difference

There are many ways of contributing to the work of the MBA. Perhaps you would consider a donation to enable a small bursary or award in your name?

For further information on making a contribution, including details on the range of areas that would benefit most, please contact membership@mba.ac.uk

**MBA Members get exclusive access
to resources, events and networking
opportunities with our new MyMBA portal.**

Want to become a Member?

**[Join here](#) or contact
membership@mba.ac.uk**



**Marine
Biological
Association**