January 2023

Challenger Wave

Monthly newsletter of the Challenger Society for Marine Science (CSMS)

NEWS

Three new co-chairs to lead IMECaN in 2023
IMBeR are very happy to welcome Laura Kaikkonen, Shenghui Li and Rebecca Shellock, who will be the co-chairs of IMBeR's Interdisciplinary Marine Early Career Network (IMECaN), from the 1st January 2023.



We look forward to working with Laura, Shenghui and Becca (left to right), and to the events and activities that will take place under their lead. Find out more about IMECaN and the other members of the Organising Committee, and sign up at imber.info/imecan-interdisciplinary-marine-early-career-network/.

We take this opportunity to thank Samiya Selim for her time, leadership and hard work during her term as IMECaN Chair. You did a superb job, Samiya. We wish Samiya all the best with her future adventures.

Challenger 150 Conference Feedback Survey
We are keen to hear your feedback about the Challenger 150 conference, which was held in London in September to mark the 150th anniversary of the Challenger Expedition. We would greatly appreciate it if you could spare five minutes to complete a short survey, forms.office.com/e/07YtatBPUx, which will provide guidance for the Challenger Society Council on how to improve future conferences. Please note we would like to hear from those who attended the conference as well as those who did not or could not attend (there are separate sections of the survey and all questions can be left blank if they do not apply). The survey will close on the 25th of January 2023. Thank you for your time and best wishes for 2023. ***- Chelsey Baker, Membership Portfolio Officer***

Website launch marks 150th anniversary of landmark scientific voyage
On the 150th anniversary of arguably the most important scientific voyage in the history of marine science, the vast knowledge it created has been consolidated for the first time on a new website launched on the 21st December. The Challenger Expedition (1872-1876), which sailed from Portsmouth, UK, on December 21, 1872, was the first scientific voyage to chart the global ocean. The six scientists on board the refitted warship *HMS Challenger* discovered Challenger Deep, the deepest known point of the ocean, and catalogued thousands of previously unknown species.

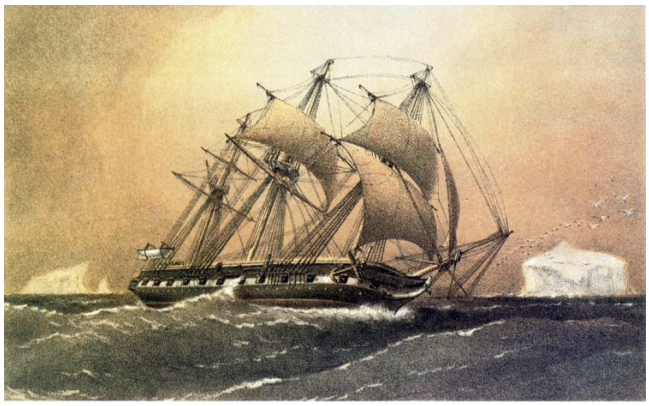
The findings amounted to an incredible 50 published volumes of The Challenger Reports and data from the two summary reports have now been extracted and digitised for the first time on a new website (https://challenger-expedition.sams.ac.uk/) with funding from the Carnegie Foundation. The website is hosted by the Scottish Association for Marine Science (SAMS), Oban, a marine science research institute founded in 1884 by Challenger Expedition scientist Sir John Murray, www.sams.ac.uk.

The website project was the brainchild of Prof. Gillen D'Arcy Wood, an environmental historian at the University of Illinois and Carnegie Fellow,

ISSN 0306-7335

who enlisted the help of the University's National Centre for Supercomputer Applications to scan and digitise the mass of data contained in the Challenger Reports. Together, with manually transcribed data from University of Plymouth's Prof. Kerry Howell, Prof. Wood has created the most comprehensive collection of publicly available Challenger data.

Prof. Wood said: "The Challenger Expedition is an absolutely unique and enormous landmark in the history of science. The data collected is the treasure trove of marine science, as it gives a baseline of the conditions in our ocean before the heavy carbon emissions and pollution caused by the industrial revolution. It was the deep-sea equivalent of the Apollo missions of the 20th century."



An illustration of HMS Challenger by William Frederick Mitchell.

The website contains data from all 364 monitoring stations sampled during the expedition and users can follow the voyage, as well as search for information such as water temperature and the species found in each location. As well as a 'one-stop-shop' for Challenger data, the website has an interactive map that allows users to chart the voyage. Prof Wood hopes the resource will help researchers, while raising awareness among the general public; "as an historian, the Challenger Expedition can be very overwhelming as it went on for so long and made so many discoveries, so it is hard to find that narrative that encapsulates what it achieved. Perhaps that is why it is not better known. This website is a gesture towards a more comprehensive telling of the Challenger story, but people can take what they want from it, whether they want to know what species were found in the Caribbean, or what the ocean temperature was around Australia."

SAMS Director Prof. Nicholas Owens, who has studied the life and work of Sir John Murray and his role in the Challenger Expedition, said he was delighted SAMS could host the new website. He added: "The Challenger Expedition was a milestone in scientific history and we have never seen another scientific voyage on that scale. The work done by Sir John Murray on his return to Scotland was the beginning of what we call oceanography, so as the research institute he founded all those years ago, I think SAMS is a great fit to host this incredible online resource, which we will continue to develop. Even today, the Challenger data are playing their part. Marine scientists are seeking to answer pressing questions on huge topics such as climate change, ocean warming and the effects of deep-sea mining on the ocean floor. Having that snapshot in time as a reference point is invaluable as we work to find out how our world is changing."

The Challenger Expedition was led by Scottish natural historian Sir Charles Wyville-Thomson of the University of Edinburgh. It travelled nearly 70,000 miles and identified around 4,700 new species. The science team also charted parts of the ocean floor and recorded temperatures and chemical properties from a vast range of ocean environments.

New study on climate change set to improve future weather models

Leading scientists from the National Oceanography Centre (NOC) have discovered that the Atlantic Meridional Overturning Circulation (AMOC) is not showing a detectable decline as previous studies from other scientists have suggested. A decline in the AMOC would contribute to extreme weather and climate decline in North America and Europe. The study, published in Geophysical Research Letters, agupubs.onlinelibrary.wiley.com/doi/10.1029/2022GL099133, found that ocean density in the Irminger Sea east of Greenland explains most of the variability of the strength of the AMOC, a system of ocean currents that includes the Gulf Stream. In fact, the new data suggests that there is no evidence that the AMOC is experiencing a detectable decline in the strength of ocean currents over the past 70 years.

NOC scientists studied the sub-polar North Atlantic (SPNA) Ocean between Greenland and Scotland, which is a region that is key to the

ISSN 0306-7335

health of the AMOC system. Here, warm currents carrying heat from the subtropics become cooler and denser, a process that has a strong imprint on the strength of this vital ocean current system. Previous studies concluded that the AMOC was weakening, possibly due to the increase in freshwater from melting polar ice. If the AMOC and the Gulf Stream decline, it could have disastrous impacts on weather and climate in the US and Europe.

The NOC's discovery highlights the significant impact that Atlantic Ocean currents are having on European weather. Professor Penny Holliday, Head of the Marine Physics and Ocean Climate group at the National Oceanography Centre, explains: "The Gulf Stream and the jet stream both influence weather, but in different ways. The Gulf Stream brings warmer water towards western Europe, making temperatures in Europe warmer than the same latitudes in Canada, and affecting the overall climate. The jet stream is more directly responsible for short-term variations in climate or weather. But changes in the ocean currents including the Gulf Stream can in turn force the jet stream to be either over the UK bringing wet and windy weather, or to the north of the UK giving us calm and settled weather."

This process is directly linked to the strength of the vital ocean current system known as the Atlantic Meridional Overturning Circulation. Water flowing northwards in the Atlantic is high in salt because of evaporation which increases the salt concentration in the ocean. The water gradually cools as it is transported to the north, and because lower temperatures and high salt content make water denser and heavier, it sinks down deeper into the ocean.

Sinking water causes more water to be pulled northwards and creates a stable flow. The amount of water that sinks determines the consistency and strength of the surface currents. If this process begins to slow down, the Gulf Steam will decline, subsequently impacting weather patterns and industrial trades such as fisheries.

Professor Holliday added: "Through this study we originally sought to understand the physics of the AMOC to improve confidence in climate projections, vital work which assesses which ocean models are working well, and which ones need improving. What was fascinating was that we discovered the AMOC system including the Gulf Stream is not yet becoming unstable or reaching a tipping point that could devastate climates across the world. The study shows that the area between Greenland and Scotland has clear importance for climate projections, and that processes happening in centre of the sub-polar Gyre are critical, rather than in the surrounding currents as previously thought. For the first time, we've shown the relationship between the temperature and salinity of water inside the gyre and the strength of large ocean currents."

Scientists will be using this discovery to develop climate and weather models. Previous findings had acted to reduce confidence in climate projections, as key processes that determine the strength of ocean currents happen between Greenland and Scotland, whereas in many climate models, this strength is determined between Greenland and Canada. Holliday continued: "There is no reason to assume that we are close to an overall shut down of the AMOC. While there is suggestive evidence for a slow-down of this system in the SPNA in recent decades, there is no indication of its relevance over longer timescales. We are confident that this discovery will provide a more accurate timeline of climate projections, as well as improve seasonal weather forecasts."

Dissolution of the Marine Science Coordination Committee

As you are aware we have undertaken a review of the MSCC. We thank you for the patience you have shown as this process has unfolded, and are conscious that there has been a long silence, for which we apologise. We thank you for your time and input throughout the review.

Having now concluded the Review we are writing to inform you that we will be dissolving the MSCC with immediate effect. We have concluded that the MSCC's approach of combining multiple coordination and advisory functions was not effective and that these roles would be more effectively realised by new structures. The review also recognised that some of the MSCC sub-groups were conducting

ISSN 0306-7335

valuable work, but doing so largely autonomously.

In response to these conclusions we are taking four actions:

1. We have set up a group, internal to government, to identify, coordinate and commission the science needed for ocean and marine policy and operations. This group involves Chief Scientific Advisors and leads from relevant science teams from a number of Westminster Departments and from Devolved Administrations.
2. We will set up an external science advisory group to provide advice and input to Defra on marine and fisheries issues. Similar groups operate effectively in many other areas of Defra's portfolio where science advice is needed. The group will have diverse expertise, and its views will help inform policy in Defra and, via the group above, more widely in government.
3. We are writing to the Chairs of MSCC sub-groups asking those groups which are active to continue in the autonomous way they have been operating in. Steph Ockenden, Dave Carlin and Vicki Castro-Spokes will liaise with those chairs to ensure there is a relevant interface to government activity.
4. We encourage professional marine and ocean groups outside government to draw together the interests of UK ocean science and ocean scientists. We are happy to work with leads of such groups to foster coordination of groups, and we invite them to consider the optimal way to bring a collective voice to government on the range of marine science issues that impact on government policy.

We want to thank you for all that you have done for the MSCC and for the commitment which you and previous members of the Committee have demonstrated over its lifetime. We remain committed to coordination of marine science and to a strong interface with the marine science community. We look forward to working with you on developing the new arrangements we have outlined.

We understand you may have comments or feedback. There are over 400 people on our distribution list, so to ensure we can respond to everyone, please fill in this poll (forms.office.com/r/bE4ifpX0rz) send your views and we will endeavour to address them by email.
- Mike Palmer, Marine Scotland, and Sarah Adcock, Defra

Consider signing a statement for the COP15 Convention on Biological Diversity negotiators not to abandon the 2030 deadline
The UN Biodiversity Conference (COP15) took place last month in Montreal, Canada. Delegates from 196 countries are negotiating a post-2020 Global Biodiversity Framework, www.cbd.int/conferences/post2020, an agreement that would commit all the world's governments to take actions to conserve and sustainably use biodiversity.

Researchers, conservationists, and the public around the world are calling for this agreement to include ambitious goals to "Halt and reverse the loss of biodiversity and put nature on a path to recovery by 2030". However, some proposed that the target to halt and begin to reverse biodiversity loss should not be time-bound, because some components of biodiversity, such as trees or elephants, take decades to grow to maturity.

A global coalition of biodiversity scientists from 67 countries have said that such a proposal would significantly weaken the ambition of the Global Biodiversity Framework, and reduce the pressure on governments to decrease key drivers of biodiversity loss. They have signed a statement urging that the 2030 deadline is not abandoned in the COP15 negotiations. Read their statement at earthcommission.org/news/earth-commission-news/earth-commissioners-join-statement-to-cop15-negotiators-on-reversing-biodiversity-loss/. If you would like to add your signature to this statement, you can sign the statement here, docs.google.com/forms/d/e/1FAIpQLSepSX_EqECsnuWnArYxh4pnHeif4pnZ7GNhVZ63IUS9OyDxqQ/viewform.

The Challenger Society for Marine Science Council currently has 3 vacancies to be taken up in early 2023
If you are interested in applying for a council role please email kathen@bas.ac.uk with a short statement of interest (1 page of A4 maximum) by **January 15th 2023**. We are looking to fill the Education and Outreach Portfolio, the Honorary Treasurer role and the Publications and Website

ISSN 0306-7335

Portfolio. The roles and responsibilities of each portfolio are detailed below. The Challenger Society is working towards being a fully equitable and inclusive organisation (see www.challenger-society.org.uk/EDI_Statement). The Society encourages applications from individuals from under represented and/or diverse backgrounds. Those in the early stages of their career are encouraged to apply for the roles. The Challenger Society definition of ECR can be found at www.challenger-society.org.uk/ecr_definition, but please note that those in non-research focused roles are also encouraged to apply.

Education and Outreach Portfolio
The Objectives of the Challenger Society include:
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- To advance the study of Marine Science through research and education. ·
- To disseminate knowledge of Marine Science with a view to encouraging a broader interest in the study of the seas and an awareness of the need for their proper management. ·
- To contribute to the public debate on the development of Marine Science.

The Education and Outreach portfolio aims to further these objectives in various ways. We have defined "Education" as broadly referring to efforts involving the formal education system in marine science and "Outreach" as encouraging wider public interest in the subject, although these are not necessarily exclusive and the incumbent will have the freedom to choose which directions to follow. In the past, some effort has been put into preparing materials for schools e.g. Ocean Literacy and Teen Tech. Public engagement may include promoting marine science at scientific conferences e.g. as a Challenger Ambassador or contributing to the wider public debate on the oceans and climate.

We have set up some merchandising for 2022, using the opportunity of celebrating the 150th anniversary of the ground-breaking Challenger Expedition (1872-1876). We have commissioned a Challenger 150 logo, used Vista Print for souvenir mugs and set up a Teemill shop for clothing. The new E&O Officer will need to look after these activities and can choose to develop this further if they wish. The duties of the E&O Officer are as follows:

- Attend the quarterly Challenger Council meetings (in person or remotely)
- Draw up a list of activities, in conjunction with other members of the Council, e.g. the Early Careers Research Officer for training opportunities for young scientists and PhD student
- Manage the E&O budget
- Manage the merchandise activities

The role will require less than 1 hour on an average week and there is a lot of flexibility in how the new incumbent interprets the role. If you have any questions about the role please contact Judith Wolf (jaw@noc.ac.uk).

Honorary Treasurer
The Challenger Society is looking for its next Honorary treasurer, to take up the post in early 2023. The treasurer normally serves a 4-year term on the council. If you have any questions about the role please contact Ed Mawji (ezm@noc.ac.uk). The Treasurer's tasks include (but are not necessarily limited to):

- Organising the annual audit of the CSMS accounts which are then submitted to Companies House and the charity commission.
- Invoice the CSMS sponsors
- Liaise with SCOR to organise the payment of the UK annual SCOR fees.
- Act as one of the Officers of the society and ensure the society's records with the Charity Commission and Companies House are up to date
- Arrange payment of all awards (Travel awards/Stepping stones etc)
- Report financial updates to the Challengers committee at the meeting. Present the accounts at AGMs.
- Arrange the CSMS yearly insurance and make payments associated with Ocean Challenger.
- Handle the UK Polar Network account, including reimbursements and invoices

Publications and Website Portfolio
The Challenger Society for Marine Science Council is searching for a new Publications and Website Portfolio Officer. This is an exciting opportunity to join the Challenger Society council, which is a great way to expand your network and raise your profile within the

ISSN 0306-7335

Challenger marine science community. The responsibilities within the role are as follows:

- Update webpages and liaise with co-opted Website Development Lead
- Upload and circulate Challenger Wave
- Upload and circulate Ocean Challenge
- Upload and circulate news items
- Upload travel and stepping stones reports
- Circulate communications to members via our mailing lists

The role will require approximately 1 hour during an average week. Full training will be provided and no specialist knowledge is required for the website or mailing list. If you have any questions regarding the role, please email chelsey.baker@noc.ac.uk.

Marine Facilities Advisory Board (MFAB) Membership Vacancies

The role of the Marine Facilities Advisory Board (MFAB) is to acquire views from the UK's marine science community, to provide advice to the Chief Executive of the National Oceanography Centre (NOC), on current capability and future development of the Natural Environment Research Council's (NERC) National Marine Equipment Pool (NMEP).

The NMEP is co-ordinated through and lead by the NOC, on behalf of NERC. MFAB sits within a governance framework which reviews the performance of NOC and is a subcommittee of the NOC Association of Marine Science National Capability Beneficiaries (NOCA). The Chair of MFAB sits on NERC's Cruise Programme Executive Board (CPEB), to provide assurance to the CPEB Chair, NERC's Director of Research and Skills, that the strategic investments made by the NOC are prioritised, to benefit the UK's marine science community.

We are looking to recruit five new members from the UK marine scientific user community who are keen to provide vital insight into the potential future needs of the National Marine Equipment Pool (NMEP). For more information please see the terms of reference, noc.ac.uk/files/documents/about/ispo/Marine Facilities Advisory Board October 2022.pdf, and / or contact MFAB Secretary, Jackie Pearson, jpea@noc.ac.uk.

VIEWS

European Geophysical Union meeting EGU 23, session ITS3.6/BG8.5, Nature Based Carbon Management Solutions (NBCMS)

Submit an abstract to the NBCMS session at EGU23, meetingorganizer.copernicus.org/EGU23/session/46870, by the 10th January 2023, 13:00 CET (12:00 GMT), egu23.eu/programme/how_to_submit.html. Empowering the natural primary production capacity of the Earth System Carbon Cycle, without the risks of engineering the composition of the environment itself, to remove excess atmospheric CO_2, is the subject of this Session. Activities and mechanisms that decrease CO_2, without increasing acidification, and which, importantly, allow the economies of the world to continue to grow and prosper are encouraged; particularly global Nature Based Carbon Management Solutions (NBCMS) effecting an efficiency gain in the natural capture and storage of carbon, enabling the control and regulation of CO_2 levels in the atmosphere via natural mechanisms. NBCMS should provide no mechanism for a preferential pressure on naturally determined biodiversity.

The Earth has a carbon cycle, where carbohydrate and hydrocarbon structures produce carbon dioxide (CO_2), through respiration and combustion just below or at the Earth's surface. The CO_2 released into the atmosphere is then taken up by biological primary production, through photosynthesis, and converted back into carbohydrates and hydrocarbons. There is a growing consensus that this carbon cycle has a natural balance in carbon mass of around 210 billion tonnes annually; considerably less than 0.5% of the combined terrestrial and marine carbon reservoirs. We have unbalanced this cycle through our harvesting of locked up fossil carbon at a rate much greater than that at which it is being laid down. This was at the heart of the industrial revolution; which as a result of, and possibly partly a cause of, both a once exponentially growing global population and an unprecedented rate of innovation, meant the burning of fossil fuels has, until recently, been increasing at an exponentially growing rate.

We have become so accustomed to being instructed that there is no 'silver bullet' to the anthropogenic climate crisis that most of us have

ISSN 0306-7335

begun to accept it as an irrefutable fact. However, there are no published papers demonstrating this, if indeed it is something that could be demonstrated. In a more simple thought process having worked out how to supercharge the combustion side of the Earth's carbon cycle it doesn't seem too far fetched to imagine that there are NBCMSs for supercharging the photosynthetic side of this natural cycle and rebalancing the system. ***– your Wave Editor is one of the convenors of this session***

SALTS

No news from sea this month I'm afraid

I know that this is a favourite section for many readers, where we get the inside information about life at sea, its thrills and spills. So please the next time you are at sea or carrying out any fieldwork, please remember that a simple paragraph or two will get you published here. ***– Ed***

CALENDAR

18th-20th April 2023: Ocean Business 2023

Ocean Business returns to the National Oceanography Centre, Southampton UK. Register for your free ticket, www.oceanbusiness.com/, to see, in person, the scientific and technological developments from the industry. Connect with thousands of the industry's brightest minds, and share ideas to help define the future of ocean technology.

Meet over 360 world-leading manufacturers and service providers to demo the latest tools and see products live in action. From cutting-edge surveying innovation to the latest marine autonomous systems, you'll find hundreds of solutions to transform your business in 2023 and beyond. See the full demo programme here. It's free to attend so register for your ticket, we can't wait to see you in April.

23rd-28th April 2023: EGU General Assembly 2023

Vienna, Austria

The EGU General Assembly 2023 will bring back many of the features the EGU community enjoyed before the pandemic, including: orals, posters, and, PICO sessions, in a new hybrid format, as well as a wide variety of networking opportunities. At the same time, we are very keen to improve the experience for our virtual attendees, and are working hard to connect the virtual and on-site experiences as much as possible.

EGU23 invites you to take an active part in organizing the scientific programme of the conference. From 1st November 2022 until 20th January 2023 you can apply for Townhall Meetings. Townhall Meetings offer an active discussion platform that is open to all interested participants to inform them of new opportunities and initiatives. Rooms for a splinter meeting can be booked for smaller, targeted discussion groups, meetingorganizer.copernicus.org/EGU23/provisionalprogramme.

When suggesting a Townhall Meeting, as a general guideline, we strongly encourage considering and promoting under-represented demographics, in particular including: (i) multiple countries and institutes, (ii) different career stages, with particular attention to the participation of Early Career Scientists, (iii) different genders and all other forms of diversity, and (iv) diverse scientific approaches. Please check with all conveners that they agree to take part in the proposed meeting. Please see the convener guidelines and rules for further information, egu23.eu/guidelines/conveners.html.

If you have questions about the appropriateness of a specific meeting topic, please contact the programme group chair and/or the officers of the specific programme group, www.egu23.eu/about/programme_committee_composition.html.

For conveners

a) The call for abstracts, meetingorganizer.copernicus.org/EGU23/programme, is open, so advertise your session. The abstract submission deadline is 10 January 2023, 13:00 CET.
b) Have a question about being a convener? Find all convener guidelines & rules on our website egu23.eu/guidelines/

ISSN 0306-7335

conveners.html.

For authors

a) Submit your abstract to the session format of your choice by 10 January 2023, 13:00 CET, meetingorganizer.copernicus.org/EGU23/programme.
b) Looking for tips on how to submit your abstract? Find instructions on how to submit on the EGU23 website, egu23.eu/programme/how_to_submit.html.
c) If you are unsure which session or format to submit to, find out more about the planned format for EGU23 on our website.

For attendees

Learn more about the planned format for EGU23 on our website, egu23.eu/about/meeting_format.html.

4th – 6th November 2023: Arctic Circle Japan Forum
Tokyo, Japan

The Arctic Circle is collaborating with the Sasakawa Peace Foundation in organizing the Forum. Governments, universities, companies, research institutions, organizations, associations and other partners were invited to submit proposals for Sessions. For more information visit www.arcticcircle.org/forums/arctic-circle-japan-forum.

The CSMS email address is challenger.society@gmail.com. Contributions for next month's edition of Challenger Wave should be sent to: john@vectisenvironmental.com by the 31st January.

JOBS and OPPORTUNITIES

SENSE, New PHD opportunities

Check out and apply for new PHD opportunities being offered as part of SENSE Centre for Satellite Data in Environmental Science (SENSE CDT), which combine Earth Observation with ocean and climate science. Our project topics include:

- Biogeochemical response to sea ice loss
- Atlantic Ocean circulation and its impact on European weather and climate Freshwater pathways in the Labrador Sea
- Impact of ocean eddies on marine productivity in the Bay of Bengal

Deadline: 15th January, eo-cdt.org/apply-now/.

ISSN 0306-7335

New PhD Studentship Opportunities at PML

We are delighted to share four new PhD studentship opportunities at Plymouth Marine Laboratory:

- Climate-linked microbial interactions in green tide causing seaweed
- Testing the potential of seaweeds and sea grasses to improve water quality
- Current and future ecosystem services provided by sand eels in the Celtic Sea
- How do natural and ship emissions influence marine atmospheric sulphur, aerosol composition and acidity ?

For more information and to apply, visit pml.ac.uk/News/PhD-Studentship-Project-Opportunities-with-Plymout.

EGS International Ltd hiring Head of Geosciences

EGS are looking for a dynamic motivated individual to manage the day to day running of the Geosciences Department. You will head up a dedicated team working on complex projects across a broad spectrum of market sectors.

Visit www.oceanbusiness.com/job-posts/job-advert-egs-international-ltd-hiring-head-of-geosciences/ to find out how to submit your application.

Marine Biology PhD studentship at Plymouth University

I am advertising a fully-funded PhD to develop expertise in molecular and geochemical techniques for measuring habitat quality for juvenile fish, as part of the Natural Environment Research Council (NERC) ARIES DTP, www.aries-dtp.ac.uk/about-us/. This expertise enables the role of coastal areas in sustaining fish populations to be understood and can therefore inform marine management and policy actions to support fish biodiversity and fisheries production EFH. The student would develop and advance methods and then work with management authorities (IFCA, Cyfoeth Naturiol Cymru / Natural Resources Wales) and environmental consultants to understand the importance of habitats in the Severn Estuary for juvenile sole. Flatfish are fascinating creatures, and the Severn is an extreme and poorly understood coastal system. I am excited to work with a student on this important topic, which is right at the centre of my research interests / expertise. I am also looking forward to working with some excellent collaborators Anna Sturrock (University of Essex), Dr Emma Sheehan (University of Plymouth), Dr James Stewart (Devon Severnifca) and Ross Griffin (Ocean Ecology Ltd). International applicants welcome. Please share and consider applying if of interest to you: https://lnkd.in/eTGq6h9P

ISSN 0306-7335

PhD studentships in oceanography at UEA

We welcome applications for funded PhD studentships in ocean science to start in October 2023 at the University of East Anglia, available through the NERC-funded ARIES doctoral training programme, www.aries-dtp.ac.uk/.

- The sea ice carbon pump in Antarctic waters, www.uea.ac.uk/course/phd-doctorate/the-sea-ice-carbon-pump-in-antarctic-waters-bakker-uenv23aries
- Ocean-atmosphere-ice interactions on the Antarctic continental shelf, www.uea.ac.uk/course/phd-doctorate/ocean-atmosphere-ice-interactions-on-the-antarctic-continental-shelf-heywood-uenv23aries
- Leaky ocean eddies, www.uea.ac.uk/course/phd-doctorate/leaky-ocean-eddies-zhai-uenv23aries
- The Antarctic Circumpolar Current and the role of bathymetry, eddies and sea ice, www.uea.ac.uk/course/phd-doctorate/the-antarctic-circumpolar-current-and-the-role-of-bathymetry-eddies-and-sea-ice-stevens-umth23aries

Please apply online, www.uea.ac.uk/apply/postgraduate/research, (emailed applications cannot be considered, sorry). The deadline is 11th January 2023. If you have any questions, please feel free to email Karen at k.heywood@uea.ac.uk. Professor Karen J. Heywood OBE FRS, Centre for Ocean and Atmospheric Sciences, School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, United Kingdom

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ISSN 0306-7335

There are jobs on the IMBER web site

http://www.imber.info

IMBeR Integrated Marine Biosphere Research

Jobs and opportunities

New

- Resident Lecturer in Marine Conservation Governance, The School for Field Studies, South Caicos, Turks, and Caicos Islands
- Assistant Professor (tenure track): Chemical Oceanography, Louisiana State University, USA. Apply **now**
- Fisheries scientist: Patagonian toothfish, Falkand Islands Government. Apply by **15 January 2023**
- Postdoc: Fisheries and Energy Social Science, University of Rhode Island, Narragansett, USA. Apply by **15 January 2023**
- Postdoc: Agent-Based Modelling, University of Oxford, UK. Apply by **16 January 2023**
- 3 Postdocs: Climate science, impacts and adaptation, CSAG, University of Cape Town, South Africa. Apply by **27 January 2023**
- Postdoc: ANU Research School of Earth Sciences, Australia. Apply by **1 February 2023**
- Postdoc: Governance of the deep-sea mining in relation to ecosystem conservation, IUEM, Brest, France. Start date **1 March 2023**
- Postdoc: Benthic stress indicators, University of Cape Town, South Africa. Apply by **31 May 2023**

In case you missed it...

- Executive in Residence: DESIGN Climate Program, Duke University, Durham, NC, USA Apply by **14 January 2023**
- Two postdocs: Marine ecosystem modelling: Pacific Community (SPC), Noumea, New Caledonia. Apply by **15 January 2023**
- Second round of funded PhD studentships (starting 1 October) now open, CDT SuMMeR . Apply by **17 January 2023**
- Faculty position: Marine geophysics, KAUST, Thuwal, Saudi Arabia. Apply by **31 January 2023**

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ISSN 0306-7335