March 2024

Challenger Wave

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

NEWS

In Memory of Professor Andrew Brierley

It is with great sadness that I report the passing of a great friend and colleague of many of us, including me. Professor Andrew Brierley of the University of St Andrews, passed away at the end of last month at home with his partner and daughters by his side.

Andy was an active, distinguished scientist covering a wide range of research areas, including krill biology, bioacoustics and systems level ecology, as well as fisheries, food security and human health. Andy was also a great supporter of the Marine Alliance for Science and Technology Scotland (MASTS) and will be sorely missed. Let us all take a moment in our own ways and reflect on the gift that he left for the international research community; and of course our sympathies, thoughts and prayers go out to Andy's family and close colleagues.

Super yacht Science: How luxury boat owners are supporting global marine research

In their quest to improve our understanding of the changes taking place in the world's oceans, leading scientists from Plymouth Marine Laboratory (PML) and the University of Exeter have found new allies in the form of super yacht owners and philanthropists Jim and Marilyn Simons (co-founders of the Simons Foundation), who are using their 68-metre super yacht, the *Archimedes*, to support marine research in some of the most remote and least studied parts of the ocean.

Dr Shubha Sathyendranath of Plymouth Marine Laboratory and Dr Robert Brewin of the University of Exeter are world-leading experts in the use of satellites to observe the colour of the ocean. Satellites are a hugely powerful tool in marine research, enabling observations over vast areas of the ocean and revealing what is taking place under the waves. Satellite observations of ocean colour (light in the visible part of the spectrum) enable us to observe phytoplankton (the microscopic algae that make up the base of the marine food web), which, in turn, reveals crucial information about rates of carbon capture by the ocean (via photosynthesis by phytoplankton), the location of harmful algal blooms, the location of productive ecosystems and fisheries, and information about marine biodiversity. Such information is vital to understanding climate change and to managing the marine and coastal environment, particularly in industries such as fisheries, aquaculture and tourism, and in biodiversity conservation.

Monitoring the world's oceans is no easy task, however, even with satellites. One major challenge is that less than 10% of the light detected by satellite instruments originates from the ocean, the vast majority comes from the atmosphere and glint from the surface of the water. Scientists can correct for this interference but to develop the methods to do so, they need to simultaneously collect data via satellite and at the water surface at representative locations around the globe. This is where the *Archimedes* comes in.

With the Simons' support, a hyperspectral radiometer (an instrument measuring light at various wavelengths) has been mounted on the bow of the *Archimedes*, enabling the collection of in-situ data to compare with satellite data on ocean colour. Using the data from the *Archimedes*, Brewin and Sathyendranath can develop and fine-tune algorithms that they apply

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to raw satellite data to correct for atmospheric interference and surface glint, thereby revealing the true picture of ocean colour, and also refine algorithms that are designed to infer from the measured light the substances that were responsible for changing the light field.

Dr Shubha Sathyendranath, Merit Remote Sensing Scientist at Plymouth Marine Laboratory, said, “we’re extremely excited by this collaboration and the information it can help uncover about our changing ocean. The *Archimedes* travels to parts of the ocean that are rarely sampled, such as remote areas of the Atlantic, Pacific and Southern Oceans, so the information it gives us is incredibly valuable. We’re very grateful to the Simons for being part of the project. I feel this is a great model for how boat-owners and scientists can work together to enable a better understanding of the marine environment".

Dr Bob Brewin, Senior Lecturer in Physical Geography at the University of Exeter & UKRI Future Leader Fellow, said, “Having high-quality in-situ data is vital to the accuracy and credibility of the learnings we can gain from satellite ocean colour data. Given the limited resources available for research vessels and the vast areas we need to cover, it is a huge advantage to be able to use a vessel like the *Archimedes* to support our studies".

Jim Simons and Marilyn Simons co-founded the Simons Foundation in 1994 to advance the frontiers of mathematics and the basic sciences, and commented, “We are very happy to help with pioneering work in ocean colour monitoring by lending the *Archimedes*. The project will help answer key questions about the ocean, we hope. It will help to discover sustainable approaches to management of our marine ecosystems and resources".

The data will be made publicly available to the research community via SeaBASS, a database maintained by NASA’s Ocean Biology Processing Group, and CMap, the Simons Foundation’s open-source data portal for oceanographic datasets. The data collected by the crew of the *Archimedes*, headed by captain Christopher Walsh, are transmitted to Bob at his office in Exeter.

All sea-going vessels are a very valuable platform for scientific research and there are many studies we could do with further collaborations like this one. Various kinds of instruments can be mounted on vessels and operated largely autonomously (although participation of the captain and crew is also great). For example, they can be used to collect samples of marine life or pollutants such as microplastics. With the full participation of the crew, vessels can also be used to deploy and retrieve instruments such as Argo floats that provide vital data about the ocean state. Read the full paper Superyachts could support satellite ocean colour validation.

New alliance to support marine biodiversity research

Ocean Census, a global mission to discover marine life, is excited to announce a new partnership with Northeastern University’s Ocean Genome Legacy centre (OGL), a research laboratory and public-access marine DNA and tissue bank, as part of the growing Ocean Census Alliance. This collaboration unites the Ocean Census commitment to accelerate the discovery of ocean life with the Ocean Genome Legacy centre’s two decades of expertise in marine genomics, with the goal of catalysing our understanding and protection of marine biodiversity.

Initiated by The Nippon Foundation and Nekton in April 2023, Ocean Census has set an ambitious global target to discover 100,000 new species over the decade. Despite estimations that our ocean is home to 1-2 million species, only a fraction, an estimated 10-25 %, has been documented so far. Historically, the pace of species discovery has been steady, with approximately 1,500 new ocean species

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identified each year since the 1840s. Recent decades have seen a slight increase, but the introduction of cutting-edge technologies in imaging, DNA sequencing, and artificial intelligence is poised to dramatically accelerate this rate.

OGL is set to play a pivotal role in the global programme, contributing extensive experience in collecting, exploring, preserving and sharing the genomic diversity of the sea to enrich the process of species discovery and documentation. In addition, OGL's global network of research collaborators will be engaged in Ocean Census, including participating in expeditions, knowledge sharing, and public engagement, strengthening this collaborative initiative.

"In protecting our planet, lack of knowledge is the greatest bottleneck, we cannot protect what we do not know and understand. By exploring the incredible diversity of life in the sea and the rich information hidden in its genomes, we learn the best ways to safeguard our planet's delicate ecosystems. We are thrilled to join with Ocean Census in this extraordinary expedition of discovery and preservation." Said Prof. Dan Distel, Director of OGL.

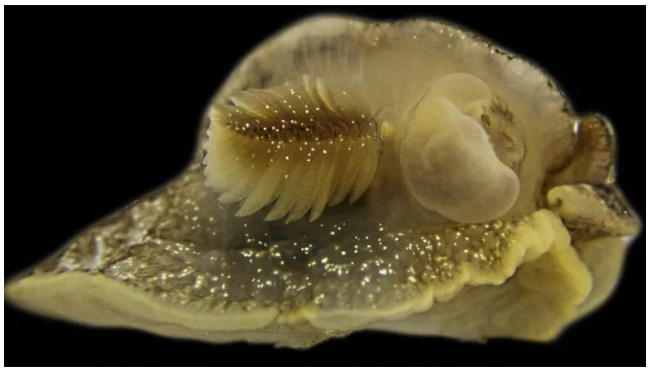
This alliance between Ocean Census and OGL not only signifies a fusion of expertise, but a commitment to provide open-access to biological samples and data to scientists, policymakers, and the general public, fostering a collective consciousness of our ocean's biodiversity. Each discovery promises to guide the sustainable management and protection of marine ecosystems. Ocean Census builds upon significant historical marine exploration initiatives, such as The Challenger Expeditions and The Census of Marine Life.

"Our endeavour is not the first of its kind, but it is undoubtedly the most expansive and timely. Collaborating with OGL enables us to magnify our impact, ensuring that our discoveries contribute profoundly to both our understanding and stewardship of the ocean." Said Prof. Dr. Alex Rogers, Science Director at Ocean Census.

The Nippon Foundation of Japan, a private, non-profit foundation for social innovation, and marine research charity Nekton, a UK-based marine science and conservation institute, are coordinating partner activities along with funding and managing the Ocean Census Science Network, species discovery, expeditions, and public and policy engagement activities. Every one of Ocean Census' partnerships brings the company closer to its goal and enriches its mission by adding diverse knowledge, resources, data and perspectives. If you share Ocean Census' passion for the discovery and protection of ocean life, you can join them, Find out more here.

A new species of sea slug has been discovered in UK waters.

Caught off the south-west of England from the research ship, *Endeavour,* the creature has been named *Pleurobranchaea britannica*. It belongs to a group found in warmer waters, which could be migrating north due to climate change. With ocean temperatures at record levels there is concern about the impact on marine life.



The sea slug has distinctive feathery gills on one side of its body; *credit Ross Bullimore*

Ross Bullimore of the Centre for the Environment, Fisheries and Aquaculture Science (CEFAS) made the serendipitous discovery. About 100 different sea slugs are found in the seas off Britain and Ireland, but he knew instantly this was something special. "We're seeing the presence of a species (belonging to a group) which has always previously been recorded in warmer

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waters," said Ross. "It could indicate that what you're observing is this group of species being able to expand its range further because conditions are becoming more favourable or more appropriate for it."

The published discovery shows we still have more to learn about life in our seas, which are among the best studied in the world. "To find a new species that's not microscopic is quite exciting. It shows that there's still work to be done," said Peter Barry of CEFAS.

Sea slugs are a type of shell-less marine mollusc renowned for their remarkable variety and beauty. Despite their size, growing only to around 5 cm in length, they are a top predator occupying a key position in the food chain. Often referred to as an "indicator species", they can help us understand the health of marine ecosystems due to their sensitivity to the impacts of climate change and human pressures. Members of the group to which the new species belongs, *Pleurobranchaea*, are usually found in northern Spain, Senegal and throughout the Mediterranean Sea.

MASTS MPG Forum Policy Brief on Marine Natural Capital

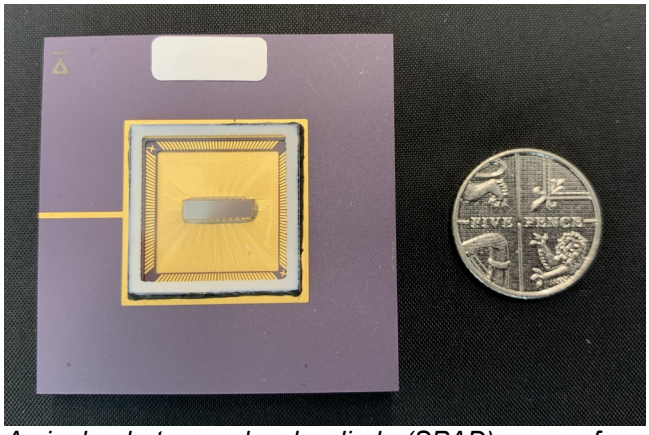
The Marine Alliance for Science and Technology Scotland's Marine Planning & Governance Forum have been busy finalising their Policy Brief on Marine Natural Capital. Natural capital thinking has emerged out of the need to halt the rapid deterioration of the natural environment, which has led to the current twin nature and climate crisis. The current state of natural ecosystems worldwide reflects the failure of traditional economics to fully incorporate the value of nature within decision-making on the use of the environment. Traditional, or neoclassical, economics does not recognise society's dependence on healthy and functioning ecosystems for sustained prosperity and does not readily incorporate the values and benefits of nature that cannot be monetised or quantified.

This policy brief is aimed at practitioners of both public, academic, and private institutions whose work may not specifically involve developing natural capital approaches but want to better understand how these concepts can be applied and the impacts natural capital thinking may have on their areas of work. The aim of this policy brief is to help build a common understanding of natural capital and how it can transform the way we make decisions. We hope you find this a useful document, and please feel free to share around your own networks. If you have any comments on the brief, please feel free to reply to this email in the first instance, masts@st-andrews.ac.uk.

Sonardyne led consortium developing revolutionary underwater single photon mapping and imaging system

Sonardyne is leading a consortium of universities and technology companies in a ground-breaking underwater single photon mapping and imaging system project. They have been awarded £ 2.7m in funding from the Innovate UK Commercialising Quantum Technologies Challenge. The revolutionary underwater single photon imaging system (USPIS) project will develop next generation technology and equipment capable of delivering wide area coverage and high-resolution 3D images in all underwater environments.

The consortium brings together decades of expertise and experience from six key industrial, research and academic institutions with world-class backgrounds to collaboratively develop a commercially viable subsea mapping system and consists of, Sonardyne International Ltd., Fraunhofer UK Research Ltd., RedWave Labs Ltd., Photon Force Ltd., Heriot-Watt University and University of Edinburgh.



A single photon avalanche diode (SPAD) sensor from the University of Edinburgh, with a five pence coin for scale.

The project will deliver a subsea mapping system using innovative single photon array detector technology, combined with a laser producing extremely short and high-power pulses of light. The system is intended for deployment on a

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subsea vehicle and will generate 3D maps at high altitude above the sea floor. Current sonar and laser imaging technology is limited by water clarity, range and amount of light. However, this project will apply single photon imaging detection technology to generate highly detailed images even in low light, murky water and from greater altitude above the sea floor.

This new approach differs from other techniques as it relies on state-of-the-art single photon avalanche diode (SPAD) detection technologies, which allow for three-dimensional imaging even with extremely low levels of light returning through distance or turbid water. The system will operate at altitudes and speeds well beyond those which current optically based systems are capable of. High resolution 3D maps are needed for an increasing number of important subsea applications. Uses include the installation and operation of offshore wind farms, oil and gas rig decommissioning, environmental monitoring and security operations. The demand for ever more detailed seabed information will only increase as the world continues to become more environmentally aware and uses cleaner energy sources. The project has been running for two years and testing of the prototype equipment will start in April 2024.

State-of-the-art underwater robots to play crucial role in weather forecasting

The National Oceanography Centre (NOC) and the Met Office are collaborating to gather data which will improve the accuracy of weather forecasting and generate a better analyses of the state of the North Sea. Cutting-edge underwater gliders, operated by engineers from NOC, navigate through the North Sea taking measurements, such as salinity and temperature, which are delivered to the Met Office in near real-time.

Gliders ready for deployment

The project, which will operate for the next three years, aims to dramatically improve the collection and distribution of data from the North Sea. This data will be used in both weather and ocean forecasts, which are vital for vessels operating in the North Sea. The new temperature and salinity data will be fed daily into Met Office forecast models and is part of a wider programme to increase the amount of observational data for ingestion into models run on the new supercomputer and will support the continuous work by the Met Office to improve forecast accuracy.

NOC's specialist team of engineers have extensive experience in remotely operating gliders in challenging conditions and are able to provide the infrastructure for the Met Office to gather more accurate real-time ocean data. Speaking on the partnership Stephen Woodward, Engineering Manager, said: "The National Oceanography Centre excels in supplying innovative technology, which include our state-of-the-art gliders, to institutions like the Met Office. The gliders we are providing are capable of operating independently for long periods of time whilst their cutting-edge sensors excel at gathering crucial information about the state of our oceans.

Securing a better understanding of ocean circulation and the data gathering potential of gliders is a key driving factor behind the project. It will be vital to inform future ocean modelling conditions and weather patterns, and, in time, this will support decision making in vital UK services, such as search and rescue, counter-pollution, and ocean biodiversity."

OBS Network Manager at the Met Office, Jim Trice, said: "Understanding the relationship between the atmosphere and the ocean is key to improve understanding of weather and climate. This data has given us greater insight into vital aspects that form the weather systems that affect us every day." The NOC has partnered with the Met Office since the 1990's, developing ocean models that underpin these developments in

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weather forecasting capability. The success over the last year has led the Met Office to recently extended the contract with NOC to provide these measurements for a further three years.

Dr Charlotte Williams, Physical Oceanographer at NOC, concluded: "Over the next 3 years the NOC gliders will collect an unprecedented amount of data from the North Sea that will feed into Met Office forecasting simulations. This data will consist of what will be thousands of measurements of the temperature and salt content of the North Sea, important drivers in ocean-atmosphere interactions.

Increased rainfall threatens UK sea urchins

The 'freshening' of seawater around the UK through heavier rainfall caused by climate change could spell disaster for sea urchins, a new study has found. The study, published by scientists from SAMS, British Antarctic Survey and the University of Cambridge, showed how sea urchins exposed to diluted seawater for long periods show signs of physical deterioration. Their research also found that even slight changes in salinity trigger changes to urchin behaviour as they try to cope with their new conditions.

Urchins are slow moving bottom feeders, making them especially vulnerable to rapid changes to their habitat. In the UK, climate change is predicted to 'freshen' many coastal areas, so the research underscores the potential impact of climate induced rainfall changes on these marine animals and their broader ecosystems. As our climate warms, Britain's weather is becoming more extreme; in Scotland precipitation has increased by 20% since the 1960s. Salinity is one of the critical environmental factors that affect the biology of marine organisms, with increased rainfall and glacial melting reducing the salinity of coastal waters.

In the research aquarium at SAMS, scientists exposed European sea urchins to conditions mimicking those that could occur under future climate scenarios. Over an initial 24-hour period, and later for 25 days, the team measured how much oxygen the creatures consumed, how quickly they fed and their ability to flip themselves over if they toppled. In the mid-salinity water, the scientists observed changes in behaviour, but the sea urchins showed clear signs of adjustments and tolerance, indicating they could survive long-term at this level if conditions change in the environment. But immersed in less salty water the urchins' physical condition deteriorated: they became sluggish, eating less and breathing more rapidly. They lost spines and body mass, and their tube-feet discoloured, indicating severe stress.

Nicholas Barrett, PhD student at British Antarctic Survey and the Department of Earth Sciences at the University of Cambridge says: "Coastal waters are predicted to freshen as climate changes because of increased rainfall and glacial melting, and salinity is one of the main factors impacting the physiology and ecology of marine life. Though it was heartening to see the sea urchins successfully adjust to some reduction in salinity, further reductions had a dramatic impact on the animals health, suggesting their long-term survival could be severely compromised. This urchin species plays a crucial role in controlling the growth of various large kelp seaweeds. Its disappearance could therefore upset the delicate balance of coastal ecosystems."

Controlled salinity experiments like these differ from the natural acclimatisation process that urchins may exhibit in the wild, but this research offers a clear prediction of how this species may fair under future heavy rainfall induced by climate change.

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SAMS marine biologist Dr Helena Reinardy said:

"We are very interested in understanding how marine organisms cope and adapt to changing conditions and how vulnerable they may be when conditions go beyond their capability to adapt. We use our aquarium facilities to mimic changing conditions such as reduced salinity, and our expertise in sea urchin biology and experimental research is perfect for collaborations with other researchers with complementary expertise. Sea urchins are found in all the world's oceans and we use them as models for understanding mechanisms of stress response and adaptation from the genetic and molecular levels up to whole animal welfare and survival."

Call for Abstracts Challenger 2024, Oban

We are pleased to announce that abstract submission is now open for the Challenger 2024 conference which will be held in Oban from 2nd - 6th September 2024. The abstract submission deadline is the 30th April. Please find all the information about abstract submission and details of the conference on the Challenger 2024 website: https://challenger2024.co.uk.

Oban is a beautiful coastal location, but as a tourist destination accommodation gets booked up very quickly. If you are interested in attending, it is advised that you book accommodation as soon as you can. Accommodation options can be found on the conference website and there may also be an option for free camping at SAMS for those who would like to reduce costs, details to follow shortly***:- Challenger 2024 organising committee***

The 13th Annual General Meeting of the NOC Association

The Annual General Meeting of the NOC Association of Marine Science National Capability Beneficiaries (NOCA) will take place during the mornings of Monday 3rd and Tuesday 4th June 2024. This free event will be conducted virtually on Zoom and is open to anyone with an interest in the marine environment. Planned agenda (to follow) items include updates from the Future of Marine Research Infrastructure (FMRI) initiative with discussion around potential gaps in the technology landscape. We look forward to welcoming Professor Gideon Henderson FRS, Defra Chief Scientific Advisor, who will talk briefly about COAST (Coastal Ocean Applied Systems Thinking), a cross government CSA committee, and discuss the challenges of delivering strong scientific evidence for policy decision making. A session is also planned around new stakeholder groups proposed for the British Oceanographic Data Centre and the NERC Environmental Data Service. For further information and the link to register, and if you have any questions, please contact: Jackie Pearson, Secretary to the NOCA

Newsletter of the International History of Oceanography Club is soliciting articles

Issue 21 of the newsletter of the international History of Oceanography Club, *ad HOC,* is due in May. In order to allow preparation of this new issue you are invited to send your contribution(s). As you will know from past issues, we welcome a range of articles, messages, invitations to (or reports of) conferences/meetings or exhibitions, information about new books and publications, interesting links, book reviews, etc. Perhaps a short contribution on a research ship, a particular research cruise (photos?), an oceanographic tool/instrument, or a biography?

If it relates to the History of Oceanography we're interested, and although multi-page articles will be appreciated, input of 1/2-1-page is also OK. Your contribution, as MS-Word file and written in the English language, is welcomed before 20 April 2024. In case of questions, please don't hesitate to contact Kees Kramer for more details at: info@mermayde.nl.

VIEWS

New global research initiative investigates carbon sequestration potential of kelp

Could kelp be a secret weapon in the fight against climate change? A new research project aims to answer that question by better understanding how kelp contributes to carbon sequestration in our oceans. The international collaboration, led by New Zealand's Cawthron Institute with partners Sequench (NZ), Kelp Forest Foundation (Netherlands), and NatureMetrics (UK), aims to revolutionize our comprehension of kelp forests' contributions to the global carbon cycle and their potential as a tool for climate mitigation.

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Nathan Geraldi, Lead Developer for Ocean Solutions at NatureMetrics, said seaweeds, particularly kelp, could be a significant source of the carbon sequestered in the ocean. “Up until now, kelp’s contribution to the carbon cycle has remained unknown because we have not had the tools to measure it.”

Cawthron Institute’s Dr Xavier Pochon, who will lead the project, said a core focus of the project will involve building a kelp genomic library. “We’ll be using leading edge molecular diagnostic tools to estimate the amount of kelp-derived organic matter that is stored in marine sediments and surrounding environments.”

Samantha Deane, Managing Director of the Kelp Forest Foundation, said traditional methods such as stable isotope, pigments, and lipid analysis have been limited in their ability to accurately detect and identify kelp-derived carbon in marine sediments. “This project’s approach leverages the power of environmental DNA, which involves the extraction of genetic material directly from environmental samples without any obvious signs of biological source material.”

Anastasija Zaiko of Sequench said the central hypothesis of this research is that eDNA is a reliable and traceable marker for tracking giant kelp-derived carbon, allowing for a more accurate assessment of carbon sequestration potential in kelp forests. “By successfully identifying and quantifying giant kelp DNA in sediment samples, this project aims to establish a direct link between source and sink habitats.”

Elif Demir-Hilton, advisor at Oceankind, said they are happy to support this strategic partnership to design and test molecular tools for species-specific carbon tracing. “The capacity to track the fate of kelp carbon can inform restoration and conservation efforts and fill an important gap in the toolkit for carbon sequestration.”

European summer weather may be predictable months to years in advance

Scientists from the National Oceanography Centre (NOC) have discovered a chain of events that lead to hotter and drier European summers. The paper, published in Weather and Climate Dynamics, suggests European summer weather is predictable months to years in advance. It also proposes a mechanism whereby meltwater in the North Atlantic initiates the identified chain of events, triggering hotter and drier weather over Europe in summer.

Lead author, Dr Marilena Oltmanns, research scientist at the National Oceanography Centre, commented: “The location and strength of meltwater occurrences in the North Atlantic in winter provide valuable clues about the location, strength and character of European weather anomalies in the subsequent summers.”

Melting sea ice and glacial ice are a growing source of freshwater to the North Atlantic. With increases in ice melt, the study suggests that European heatwaves and droughts will become more frequent and intense in future. The warming over Europe after strong freshwater releases in the North Atlantic will add to the warming already happening because of climate change, by causing weather patterns to shift.

The published research findings demonstrate the importance of ocean observations, to ensure climate models capture all physical processes required to make accurate weather predictions. This study is a step forward for improving models, which will enable industries and stakeholders to plan ahead for specific weather conditions, such as adapting agricultural methods to be more resilient, predicting fuel usage, and bracing for flooding events.

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SALTS

Cruise opportunity for UK based early career scientists with an interest in marine life and carbon

A limited number of berths are being made available to participate in an exciting multi-disciplinary research cruise on the RRS *James Cook*, scheduled for autumn this year. The cruise is due to take place in the open ocean (water depths >1000 m) south of Iceland as part of the BIO-Carbon NERC strategic programme. Its purpose is to investigate how marine life helps the ocean store carbon and how this may change in the future. It will be led by the IDAPro project with involvement of two other BIO-Carbon projects, CHALKY and PARTITRICS, and the Canadian Transforming Climate Action programme.

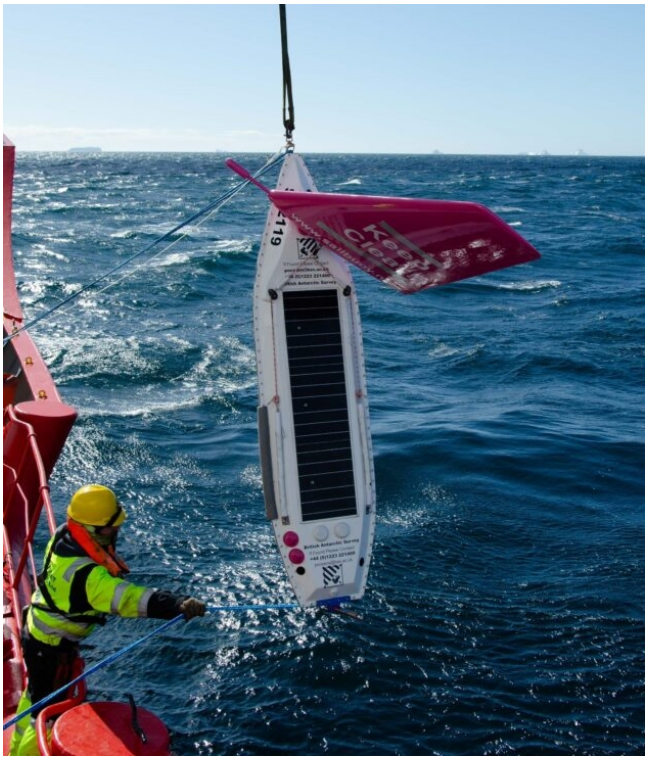
If you are interested in participating to carry out individual research that you feel would be complementary to the work being planned, please complete this short form to describe your suggested work and motivation, by the 14th April. No additional funding is available so you need to be able to cover all your own costs for participating. The cruise will depart from Reykjavik in Iceland and return to the UK.

As basic information on the cruise, it will be undertaking daily sampling with both stainless steel and titanium framed CTDs and will be running a trace metal clean system for underway sampling. Although the precise location will be affected by the positions of a series of ARGO floats due to be deployed on a cruise this spring (DY180), the broad area studied will be waters of >1000 m depth, most likely south and west of 60 °N and 24.5 °W.

If you would like more information on the BIO-Carbon programme, or If you have any questions please contact Adrian Martin.

Sailbuoy Ahoy! Uncrewed surface vessel launched in South Georgia

Scientists studying krill in the sub-Antarctic have successfully completed a three-day mission using a Sailbuoy uncrewed surface vessel (USV). This mission marks the first Maritime and Coastguard Agency (MCA) approved deployment of a USV for science around South Georgia. Sponsored by NERC's Future Marine Research Infrastructure (FMRI) programme, a team from British Antarctic Survey (BAS) and the National Oceanography Centre (NOC) have been working with the MCA to overcome the challenges to securing the MGN 664 certification required for an autonomous platform to operate within territorial waters. As a result of this work, BAS received MCA approval to deploy the Sailbuoy and demonstrate a more sustainable and affordable approach to marine monitoring.



The Sailbuoy being launched from the MV Pharos SG Photo: Carrie Gunn

The Sailbuoy was launched from the Government of South Georgia and the South Sandwich Islands (GSGSSI) fishery patrol vessel MV *Pharos* SG in January, with the support of BAS ecosystems scientists both on-board and piloting from Cambridge. Over three days the Sailbuoy collected data on Antarctic krill abundance, alongside measurements of temperature, oxygen, salinity, and phytoplankton off the coast of South Georgia.

Krill are small shrimp-like crustaceans that occur in massive aggregations, and are important in the diet of many higher predators and the target of a commercial fishery. Typically, they are monitored using echo sounders on research or fishing vessels. This mission trialled the use of autonomous systems to both collect the data we need and help achieve our net zero goals.

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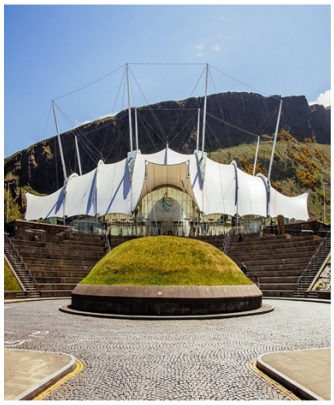
The cruise track of the Sailbuoy near South Georgia.

The MV *Pharos* SG undertook acoustic transects in the vicinity of the deployment, also collecting data on Antarctic krill abundance and distribution. By deploying the Sailbuoy alongside a ship fitted with echo sounders, the team has gathered vital information and inter-calibration data to assess the capabilities of small autonomous vehicles to independently monitor Antarctic krill populations. The Sailbuoy is part of the World Class Lab fleet and is a small (2 m long) ocean-going surface vehicle. Using wind-powered propulsion and solar powered sensors, the Sailbuoy navigates between waypoint locations using satellite positioning and can be updated during its deployment via a web portal by shore-based scientists. Many thanks to the team at NOC for working with BAS to obtain relevant permissions for deployment, and the deployment team at King Edward Point, the GSGSSI and the crew of the MV *Pharos* SG.

CALENDAR

26th March 2024: ASSW 2024 Science Day
Edinburgh, Scotland
The Arctic Science Summit Week (ASSW) 2024 Science Day will be held at the Dynamic Earth, www.dynamicearth.co.uk/. The day's theme of "Arctic Coasts" encompasses all International Arctic Science Committee (IASC) Working Group areas, iasc.info/our-work/working-groups.

There will be a mixture of invited talks on the day's theme from each working group, panel discussions on net zero arctic research aspirations and on effects of arctic environmental change on coastal communities, and a public facing Keynote presentation.



"Our Dynamic Earth" is a public facing science centre focussed on the natural history of planet Earth. Alongside the IASC working group talks and panel discussions, there will be public displays related to scientific community research activities in the Arctic. We invite ASSW participants to get in touch with the local organising committee about bringing their displays to this space, assw.info/program/science-day-2024.

10th-12th April 2024: UN Ocean Decade Conference
Barcelona, Spain
Three years after the start of the UN Decade of Ocean Science for Sustainable Development (2021-2030), oceandecade.org/, this global conference will bring together the Ocean Decade community and partners to celebrate achievements and set joint priorities for the future of the Decade. Hosted by Spain and co-organized with UNESCO's Intergovernmental Oceanographic Commission (IOC/UNESCO), it will be a 3 day, in-person event co-led with a range of partners: Government of Catalonia and the Barcelona City Council through the Barcelona Capital Náutica Foundation, and the Spanish National Ocean Decade Committee, which is led by the Ministry of Science and Innovation through the Spanish Research Council (CSIC).

This three-day, in-person event will be a key moment for a wide range of stakeholders to take stock of the achievements of the first three years of the Ocean Decade and formulate a shared vision for the years ahead. We express our heartfelt gratitude to all the amazing individuals who have shown tremendous enthusiasm and interest in participating. Whether you are from governments, maritime sectors, philanthropy, universities, private sector, NGOs and more,

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your support and commitment have left us truly inspired.

We are now delighted to invite you to take the next step and submit your request for registration, oceandecade-conference.com/registration.php. By participating in this pivotal event of the Ocean Decade journey, you will play a crucial role in shaping the future of our ocean and making tangible strides towards a sustainable planet. Please note that, due to the high expected demand and the limited number of places in the Conference venue, you should wait for confirmation that your registration has been approved before advancing with any travel plans.

The conference will be a key moment for governments, leaders, maritime sectors, philanthropy, universities, private sector, NGOs and more, to take stock of the achievements of the first three years of the Ocean Decade and define a collective vision for the coming years. Participants will benefit from concrete examples and best practices in ocean science to deliver "the science we need for the ocean we want". A key outcome of the 2024 UN Ocean Decade Conference will be the publication of a set of white papers related to the 10 Decade Challenges, oceandecade.org/challenges/, that will identify future priorities for the Ocean Decade to generate the knowledge needed for science-based solutions related to global challenges, such as climate change, food security, biodiversity conservation, sustainable ocean economy, pollution and natural hazards.

A number of related high-level national and international events will take place before and after the main conference and there will also be scope for partners to propose and lead side events, exhibitions and networking events relevant to the conference themes on the days before the conference and in the sidelines of the conference itself. For more information, please contact, the Ocean Decade Team at oceandecade@unesco.org.

Discover the first confirmed Satellite Events happening during the Ocean Decade Week in Barcelona on 8th-12th April: From interactive panels and workshops to hackathons, these partner-led events will be action-oriented and contribute in a tangible way to one or more of the conference outcomes.

14th-19th April 2024: EGU General Assembly 2024

Vienna, Austria

To keep you up to date, we will be sending you important EGU24, egu24.eu, information 'EGU24 Updates' at least once per month, at the beginning of the month. You will still receive direct emails when tasks have a specific deadline, so make sure you check your spam folders and settings so that you don't miss anything. The Programme is online, meetingorganizer.copernicus.org/EGU24/provisionalprogramme.

SMMR-funded project Co-Opt is organising a session dedicated to exploring the challenges faced in implementing Nature-based Solutions at the coast. See here for more information.

For conveners

- Registration for EGU24 is now open! View all the registration fees and options on the EGU24 website. Early-bird registration is available until **18 March 2024, 13:00 CET**.
- Take the opportunity to connect on a specific topic by applying for a Splinter Meeting!
- Prepare your calendar with all the EGU24 important dates by checking our Deadlines and Milestones page.

For authors

- Registration for EGU24 is now open! View all the registration fees and options on the EGU24 website. Early-bird registration is available until **18 March 2024, 13:00 CET**.
- Take the opportunity to connect on a specific topic by applying for a Splinter Meeting!
- Prepare your calendar with all the EGU24 important dates by checking our Deadlines and Milestones page.

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For attendees

- Registration for EGU24 is now open! View all the registration fees and options on the EGU24 website. Early-bird registration is available until **18 March 2024, 13:00 CET**.
- Take the opportunity to connect on a specific topic by applying for a Splinter Meeting!

7th-8th May 2024: Arctic Circle Berlin Forum
Berlin, Germany
Registration is now open, join the dialogue, receptions and networking; draft programme published soon. The Arctic Circle Secretariat introduces the 2024 Arctic Circle Berlin Forum, hosted by the Federal Ministry of Education and Research and co-organized with the German Arctic Office at the Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research. Please direct any further inquiries about the Berlin Forum to berlin@arcticcircle.org.

14th–16th May 2024: Third Annual Conference for the Sustainable Management of UK Marine Resources (SMMR)
Bristol, UK
We look forward to welcoming you to the Third Annual SMMR Conference; focusing on the delivery of tools and interventions to inform policy, regulation and management, this conference will be held as a hybrid event. For those able to attend in person, we invite you to join us at the M-Shed in Bristol, and for those wishing to participate remotely, we will welcome you to the conference via our online Platform. This transdisciplinary conference brings together members of the UK marine science community, funders, policy makers and practitioners: for more information, visit https://www.smmr.org.uk/conference/.

The first day and the afternoon of the third day will be devoted to workshops. The second day and the morning of the third day will bring together expert plenary speakers and contributed talks and posters outlining the latest research and management practices that address key topics related to the sustainable management of UK marine resources. You will also be able to enjoy networking with your peers and making new contacts across the UK marine science research and practitioner community. Each presentation session will be composed of a small number of presentations, followed by a live Q&A session with the speakers as panel members.

15th-18th May 2024: 6th Euro-Mediterranean Conference for Environmental Integration (EMCEI)
Marrakesh, Morocco
In partnership with the editorial office of the Euro-Mediterranean Journal for Environmental Integration (co-published by Springer and University of Sfax, Tunisia) and in collaboration with the Cadi Ayyad University (Morocco), Mohammed VI Polytechnic University (UM6P), and other Euro-Mediterranean universities, Performer organizes the 6th EMCEI.

The 6th EMCEI will focus on a wide range of research topics. Visit our website, www.emcei.net, to learn more about the event.

- EMCEI is one of the largest international gatherings of environmental science in the Mediterranean (400-500 participants).
- EMCEI aims to provide a forum where scientists, especially early career researchers, will present their findings and discuss their ideas with experts in all fields of environmental sciences.

22nd–23rd May 2024: Structures in the Marine Environment (SIME) conference 2024
Edinburgh, Scotland
The INSITE Programme and MASTS are pleased to announce that the SIME 2024 conference will be held at the National Museums of Scotland, Edinburgh. Please register to secure your place for in-person and online tickets available. The full SIME programme release on Friday 29th March.

Join us on Day 1 (9.00am-5.00pm) to hear the latest highlights from our research teams and a review of all the outputs across 4 years of the INSITE programme featuring Prof. Paul Fernandes, Prof. Joanne Porter, Ast. Prof. Antony Knights, Prof. Richard Thompson OBE, Dr Debbie Russell, Dr Tom Wilding, Prof. Dan Jones, Dr Sarah Gall, Dr Steven Watson, Dr

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Joshua Lawrence and more. We will be showcasing the research from INSITE's second phase, which is coming to an end later this year. Sign up to learn the latest about:

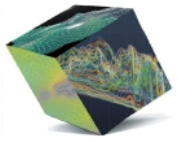
- Foraging patterns of marine predators.
- Applications of the UK autonomous fleet.
- Microbial biodiversity and biological connectivity, fish aggregation and blue carbon benefits of Marine Artificial Structures (MAS).
- The efficacy of decommissioning strategies.
- Artificial Intelligence and eDNA analysis approaches.
- And, the effects and implications of subsea plastics incorporated into Marine Artificial Structures.

On Day 2 (9.00am-1.00pm) we will be looking at the practical application of INSITE science. Learn about the policy landscape, drivers and challenges in offshore energy decommissioning and the energy transition to Net Zero. Learn about the effects, benefits and implications of Marine Artificial Structures, and discuss how cutting-edge, applied science can assist decision-makers and support delivery of future policies for sustainable management of our ocean.

10th-14th June 2024: The 9th EGO meeting International Underwater Glider Conference
Gothenburg, Sweden
The International Underwater Glider Conference aims to bring together leading researchers, innovators, and experts from around the globe to exchange knowledge, share discoveries, and foster collaborations in the exciting realm of underwater gliders.

The conference promises to be an engaging platform for sharing insights, addressing challenges, and shaping the future of this field. We plan for presentations, workshops, poster sessions, and networking opportunities. The planning team will return to you with event registration, hotel suggestions, and more information about financial support during the coming months. In the meantime, I encourage you to mark the dates in your calendar.

8th-12th July 2024: AMEMR Conference 2024
Plymouth, UK
Welcome to the 7th AMEMR conference; full details at www.amemr.com/. The AMEMR (Advances in Marine Ecosystem Modelling Research) Symposium series provides an opportunity to present, discuss and learn about a wide variety of marine modelling challenges, methods, applications and outcomes.



AMEMR 2024

Over the years AMEMR has grown into the forum to present and absorb the latest developments in marine (eco)system modelling and discuss new challenges and opportunities. It is a great place to develop networks and we encourage Early Career Researcher involvement. Check out the Themes and sessions for AMEMR 2024 at www.amemr.com/themes-and-sessions.html.
You can also follow us on Twitter @amemr_updates.

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9th July 2024: IMarEST Annual Conference 2024
Southampton, UK
Register for our Annual Conference, returning for 2024, where once again we'll bring together engineers, scientists, technologists and other professionals from across our membership for a day of debate, exploration and discovery. If you would like to present your work at the conference, provide the Events Team with some details and a copy of your presentation, events@imarest.org.

We've designed the day with three streams, making it easy for you join the discussions most important to you:

Technology - Demystifying fuel options and scrutinising the diverse fuel landscape, analysing available technologies, infrastructure capabilities, and long-term viability.

Human Contributions - Achieving emission targets and deconstructing the intricate web of regulations and political landscapes impacting them and the crucial role of state-led support.

Environment - Looking at the ripple effects of new fuel productions and evolving emission targets on the maritime industry's wider sustainability footprint.

2nd-6th September 2024: Challenger Society for Marine Science conference 2004
Oban, Scotland
We are pleased to announce that abstract submission is now open for the Challenger 2024 conference. The abstract submission deadline is the 30th April. Please find all the information about abstract submission and details of the conference on the Challenger 2024 website: https://challenger2024.co.uk.

Oban is a beautiful coastal location, but as a tourist destination accommodation gets booked up very quickly. If you are interested in attending, it is advised that you book accommodation as soon as you can. Accommodation options can be found on the conference website and there may also be an option for free camping at SAMS for those who would like to reduce costs, details to follow shortly.

10th-12th September 2024: ICOS Science Conference 2024, from GHG observations through science to services.
Versailles, France
ICOS (Integrated Carbon Observation System) is pleased to open the Call for Abstracts with the overarching theme “From GHG observations through science to services”, the sessions cover ICOS’s three domains, Atmosphere, Ecosystem and Ocean.

The Call for Abstracts is open until Monday, 8th April, 13:00 CET. More information can be found here:https://www.icos-cp.eu/news-and-events/science-conference/icos2024sc/call-for-abstracts. Please consider submitting an abstract and spread the message in your networks. The ICOS Science Conference logo can be downloaded for this purpose here. Keep up-to-date with the latest ICOS Science Conference news on our channels:

- ICOS Science Conference website: https://www.icos-cp.eu/news-and-events/science-conference/icos2024sc
- ICOS Science Conference newsletter: https://www.icos-cp.eu/news-and-events/newsletters
- X (formerly Twitter): https://twitter.com/ICOS_RI
- LinkedIn: https://linkedin.com/company/integrated-carbon-observation-system
- Instagram: https://www.instagram.com/icosri/

23th-26th September 2024: IMBIZO7, Transitioning towards Sustainable Ocean Governance by 2030, Commitments and Challenges
Rabat, Morocco
IMBeR will hold its seventh IMBIZO (the Zulu word for 'a gathering') at the Institut Agronomique et Vétérinaire Hassan II (IAV) in Rabat, Morocco. IMBeR aims to promote and enable transdisciplinary marine research towards ocean sustainability and its governance. Topics addressed during IMBIZO7 will showcase current and emerging research, and explore potential solutions towards sustainable ocean governance by 2030, the target of multiple global sustainability initiatives.

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We will follow the usual IMBIZO format of three distinct but interacting workshops. To optimise discussions, the number of IMBIZO7 participants will be limited to about 120 people (around 40 per workshop). The workshop topics are:

1. Science based adaptive management and policy responses to the causes and consequences of eutrophication.
2. A framework for development of social-ecological models of transformative change for sustainable ocean management.
3. Governance transformations for resilient fisheries and aquaculture: Progressions, challenges and opportunities, imber.info/imbizo7-workshop-3/.

Plenary keynote presentations and poster sessions will enable you to learn about the work of participants in other two workshops.

14th-18th October 2024: 43rd CIESM Congress: Marine and Cultural Heritage in the Heart of the Mediterranean
Palermo, Italy

Join us after a 2-year hiatus imposed by the global pandemic and subsequent issues, we are excited to resume our traditional marine research showcase. This event will foster scientific excellence and promotes peaceful dialogue across the Mediterranean and Black Sea basins. Sicily, the chosen location for our next congress, offers a stunning backdrop, combining marine science with rich coastal heritage in a region steeped in cultural and historical significance.

You can now register & submit your Congress paper online. Please, do not hesitate to contact us if you need any additional information, but be sure to check first our Congress webpages.

Our 2024 CIESM (The Mediterranean Science Commission, headquartered in Monaco) Congress will explore a wide range of marine disciplines, featuring multidisciplinary scientific sessions and contextual side events that will immerse you in the unique Sicilian atmosphere. Save the date and stay tuned for regular updates on the rich scientific and cultural programme throughout 2024.

17th-19th October 2024: Arctic Circle 2024 Assembly
Reykjavik, Iceland
The call for session proposals is now open, the deadline is the 1st May. Diversity among speaker backgrounds, affiliations and nationality is strongly encouraged. To submit, please visit www.arcticcircle.org/assemblies/2024-arctic-circle-assembly-call-for-proposals, following the guidelines provided. For more information, http://www.articcircle.org. Registration will open in early June.

ASSEMBLY • ICELAND
ARCTIC CIRCLE 2024
OCTOBER 17-19

25th-28th November 2024: The 4th Mediterranean Geosciences Union Annual Meeting.
Barcelona, Spain
The 4th MedGU Annual Meeting will be held this year in-person and online. Visit our website (www.medgu.org) to learn more about the event. On this occasion, we are pleased to invite you to

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take part in the conference and share/discuss your latest research findings. Your participation in-person or virtually will support MedGU's mission of ensuring a sustainable future for humanity in the region and for the planet. The abstract submission deadline is the 30th June, download the call for papers.

The CSMS email address is challenger.society@gmail.com. Contributions for next month's edition of Challenger Wave should be sent to: john@myocean.co.uk by the 29th March.

JOBS and OPPORTUNITIES

Opportunities at the Arctic Circle Secretariat

Arctic Circle is seeking two motivated individuals to join the team as a project coordinator and a young professional with a background in Indigenous Peoples affairs.

Project Coordinator

Location
Reykjavík, Iceland

Duration
Temporary one-year contract with the possibility of renewal.

Dates
May 2nd, 2024 - May 2nd, 2025.

Tasks and responsibilities

- Collaborate with the CEO on implementing a robust fundraising strategy and serve as the primary point of contact with Arctic Circle Partners.
- Assist with the execution of certain events and projects during the Arctic Circle Assembly, including providing logistical support, communicating with local vendors, and facilitating the participation of high-level participants' involvement in Arctic Circle events.
- Organize and execute projects and day-to-day tasks as needed, particularly those related to fostering relationships, as well as outreach-related tasks.

Criteria for selection

- Master's degree in a relevant field (e.g., international relations, business administration, public policy, social sciences, etc.)
- Proven experience in end-to-end customer relations and project management, preferably in a non-profit or a similar setting.

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- Exceptional fluency in both written and spoken English. Ability to draft high-quality documents in English.
- Strong communication skills, including the ability to articulate complex issues to diverse audiences.
- Experience in fundraising, event management, governmental relations, community organizing, or related fields is preferred.
- Ability to work collaboratively in a team environment and independently with minimal supervision on diverse tasks.

Employment terms
The successful candidate will need to be prepared to live in Iceland for the next 2-3 years. They will receive a monthly salary as an employee in accordance with Icelandic labor and tax regulations.

Application process
Applications have to be submitted via the online application form. Please submit a CV, a cover letter (max one page), and a graduation certificate.

Shortlisted candidates are contacted by email and may be requested to complete a task before being invited to participate in an online interview. Once a successful candidate has been chosen and accepted the position, all applicants will be informed of the decision via email.

Deadline
April 1st, 2024, 23:59 GMT.

Contact
For further information on Arctic Circle, www.arcticcircle.org. For further information on the position, contact asgerdur@arcticcircle.org. For technical issues, please contact secretariat@arcticcircle.org.

Apply for Project Coordinator

Young Professional - Indigenous Peoples Affairs

Arctic Circle is seeking a young educated individual with a background in Indigenous affairs, knowledge, and science from the Arctic region or other parts of the world.

Location
Reykjavík, Iceland

Duration
8-month contract with the possibility of an extension.

Dates
May 15th, 2024 - January 31st, 2025.

Tasks and responsibilities

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- Collaborate with Indigenous Peoples and Indigenous Peoples' organizations for their involvement and participation in Arctic Circle events.
- Continue the development of and support the Arctic Circle Mission Council on the Global-Arctic Indigenous Dialogue. This includes assisting with the Mission Council's participation at the Arctic Circle Assembly and possibly other Arctic Circle events.
- Organize and execute day-to-day tasks undertaken by the Secretariat of Arctic Circle in relation to the annual Arctic Circle Assembly and other Arctic Circle Platforms.

Criteria for selection

- University degree in social sciences, international relations, law, economics, or other relevant and equivalent experience.
- Deep understanding of the historical and contemporary challenges facing Indigenous Peoples in the Arctic.
- Fluency in both written and spoken English. Ability to draft good quality documents in English.
- Strong communication skills, including the ability to articulate complex issues to diverse audiences.
- Experience in event management, community organizing, or related fields preferred.
- Ability to work collaboratively in a team environment and independently with minimal supervision.

Employment terms
The successful candidate will need to be located in Iceland. They will receive a monthly salary as an employee in accordance with Icelandic labor and tax regulations.

Application process
Applications have to be submitted via the online application form. Please submit a CV, a cover letter (max one page), and a graduation certificate.

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Apply for Young Professional

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There are jobs in the MASTS newsletter

New vacancies:

- Research Scientist (Rock Physics) – National Oceanography Centre – 11/04/24
- Research Scientist (Megafaunal Ecology) – National Oceanography Centre – 02/04/24
- Research Scientist (Coastal Ocean Modeller) – National Ocean Centre – 21/03/24
- International Post-Doctoral Fellowships In Marine Sciences – ISblue – 30/04/24
- Marine Ornithologist – NatureScot – 19/03/24

Still open vacancies:

- Principal Marine Mammal Consultant – APEM - asap
- Expeditions Logistics Coordinator – Ocean Census - asap
- Catchment Biogeochemists – UKCEH – 22/3/24
- Bicentennial Leaders Grades 8-10, Lyell Centre – Heriot Watt University – 22/3/24
- Research Scientist, Benthic Ecosystem Modeller – NOC – 21/3/24
- Research Scientist, Coastal Ocean Modeller – NOC – 21/03/24
- Proposals Manager – SAMS – 22/03/24
- Thematic Research Lead On Climate And Environment – House Of Commons – 03/04/24

PhD Opportunities:

- Masters By Research (MSD) – University Of Essex – 22/03/24
- Measuring Social Impacts In Aquaculture Supply Chains (MPhil) – Herriot Watt University – 25/3/24
- Biological And Chemical Drivers Of Calcium Carbonate Dissolution In The Ocean – Hariot Watt University 22/03/24
- The Leverhulme Programme For Doctoral Training In Ecological Data Science – University Of Glasgow – 22/03/24
- Global Doctoral Scholarship (Geography And Earth Science) – University Of St. Andrews – 31/03/24
  - Seawalls As Habitats – Engaging Communities In Ocean Citizen Science: A Vehicle For Enhancing Ocean Literacy
  - Using Animal Psychology To Promote Pro-Environmental Attitudes And Enhance Wider Ocean Literacy
  - Microplastics And Ocean Literacy – Empowering Rural Communities To Manage Plastic Pollution
  - Cultural Geographies Of Ocean Literate Citizens
- **UK Associates of BIOS Internships:** The Bermuda Institute of Ocean Sciences (ASU BIOS), a unit of the Julie Ann Wrigley Global Futures Laboratory at Arizona State University, is accepting applications for 2024 U.K. Associates of BIOS Internships. Undergraduate and graduate students

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enrolled in U.K. universities and colleges are eligible to apply. Recent graduates may also be considered provided they intend to continue their career in marine science in the U.K. Thanks to the generosity of their sponsors, the U.K. Associates of BIOS are offering full scholarships for U.K. students to participate in a 12-week research internship at ASU BIOS. These scholarships cover the cost of campus accommodation and meals and include a small student stipend plus a contribution towards research expenses associated with their intern project. Travel related expenses and medical/travel insurance are not covered. **Applications close March 22nd, 2024.** For more information visit the BIOS website or contact them.

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There are jobs on the IMBER web site

https://imber.info/category/news/

New

- Postdoc: Climate and Bue Food, Stanford Center for Ocean Solutions, Stanford, CA, USA. Apply **now**
- Postdoc: Ocean biophysical interactions, LOCEAN-IPSL, Paris, France. Apply **now**
- Chief of Party for USAID project Marine Conservation, Sustainable Development and Governance project in Madagascar. Applications accepted on rolling basis
- Assoc.Prof: Marine geoscience, University of Bergen, Bergen, Norway. Open until filled
- Research Assistant: Biological Oceanography, Science Systems and Applications, Inc. Greenbelt, MD, USA. Open till filled
- Senior Scientist / Scientist: Ecosystem Conservation. WorldFish, Penang, Malaysia. Apply by **19 March**
- Executive Officer: EuroMarine, Paris, France. Apply by **20 March**
- Benthic ecosystem modeller, National Oceanography Centre, Southampton, UK; Apply by **21 March**
- Policy Officer: Maritime policy, DG-MARE. Brussels, Belguim. Apply by **21 March**
- Specialist: Climate and oceanography data analysis, visualization, and tool building University of California, Santa Cruz, USA. Apply by **23 March**
- Marine Protected Area Officer: Ascension Island. Apply by **24 March**
- PhD:Fish ecophysiology and ecology, DTU Aqua, Kgs. Lyngby, Denmark. Apply by **24 March**
- 3 Postdocs: Effects of global change on ecological communities and ecosystem functions, University of Helsinki, Finland. Apply by **25 March**
- Postdoc: Seagrass Blue Carbon dynamics in the eastern Med Sea, HCMR, Heraklion, Crete, Greece. Apply by **29 March**
- Postdoc: Statistical Ecology, NTNU, Trondheim, Norway. Apply by **31 March**
- Research Scientist: Marine and fisheries ecosystems, Memorial University, Newfoundland, Canada. Apply by **1 April**
- Two 2024 Shipboard Training Fellowships: 27 June -9 July 2024 on RV Belgica to Porcupine Seabright. Apply by **12 April**
- Storyteller in Residence: Multi-skilled photo-journalist/writer, Oceanographic magazine. Apply by **14 April**
- Prof: Fish Nutritional Physiology and Bioenergetics, DTU Aqua, Kgs. Lyngby, Denmark. Apply by **16 April**
- Fulbright Foreign Student Program 2025-2026 for South African university graduates Apply by **17 April**

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- 4 Postdocs: Marine sciences, ISblue, Brest, France. Apply by **30 April**
- Project Manager: Oceans without Borders, Africa Foundation, Mnemba Island, Zanzibar, Tanzania.. Apply by **30 April**
- 3 Postdocs: Marine Ecosystem Modelling IRD, IFREMER, MARBEC, Montpellier, France. Apply by **1 May**
- Simons Foundation Postdoc Fellowships: Marine microbial ecology. Apply by **7 May**
- Africa-UBC Oceans and Fisheries Visiting Fellows Program: Early career researchers from sub-Saharan. Apply by **15 May**

In case you missed it...

- Call for applications: OCEAN grants programme for projects on marine protection and poverty reduction. Apply by **18 March (community) or 2 April (partnership)**
- Tenure Track position: Chemical Oceanography, Dalhousie University, Halifax, Canada. Apply by **1 April**
- Junior Prof: Marine policy and management, Oldenburg University, Germany. Apply by **7 April**
- 2024 Call for SCOR Working Group Proposals. Submit by **17 May**
- Glider School 2024: Hands-on ocean-glider technology training, Las Palmas, Gran Canarias, Spain, 21-25 October, Apply by **30 June**

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