

# Challenger Wave



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

## NEWS

### Call for Papers Special Issue on: Physiology of marine photoautotrophs: a tribute to Professor John A. Raven

Emeritus Professor John Raven made many significant contributions to our understanding of the biology of plants, algae and cyanobacteria. We therefore invite the submission of manuscripts covering any aspect of the physiology (including ecophysiology) of marine photosynthetic organisms, taken to include seaweeds, micro-algae, cyanobacteria and macrophytes. We are especially interested in manuscripts that focus on John's particular areas of interest:



- Resource acquisition (e.g. nitrogen, light, dissolved inorganic carbon)
- The influence of environmental factors on photosynthetic processes

This issue provides an opportunity to contribute to a collection that both celebrates and advances the scientific legacy of one of the most influential figures in plant and algal physiology; [Submission deadline](#) 30th June 2026. Manuscripts will be published as soon as possible after acceptance and then collated into the Special Issue in the second half of 2026.

### Global tracking of marine megafauna space use reveals how to achieve conservation targets

The recent Kunming-Montreal Global Biodiversity Framework (GBF) sets ambitious goals to protect, conserve, and manage at least 30% of the world's oceans in an effort to halt the loss of important marine biodiversity. In particular, close

to a third of large marine vertebrates are now threatened with extinction, with many iconic species such as the hawksbill turtle (*Eretmochelys imbricata*), the shortfin mako shark (*Isurus oxyrinchus*), or the North Atlantic right whale (*Eubalaena glacialis*) showing precipitous declines in abundance. Reversing these declines requires an understanding of how the spatial distributions of animals overlap with human activities.

Biomathematics and Statistics Scotland (BioSS) researcher [Ana Couto](#) worked with a team of international scientists who tracked over 100 marine species of large vertebrates to identify the most critical locations for conservation in the global ocean. The team assembled a dataset unparalleled in size and scope (11 million geo-positions from 15,845 tracked individuals across 121 species) to provide a global assessment of space use of highly mobile marine megafauna.



The research found that the targets of the United Nations High Seas Treaty, which seeks to expand current marine protection areas from 8% of the world's oceans to 30%, is a step in the right direction and will be key to assist conservation but is insufficient to cover all critical areas used by threatened marine megafauna, suggesting that additional threat mitigation strategies (e.g., fishing regulation, wildlife-traffic separation) are also needed. The study forms part of the [MegaMove](#) project endorsed by the United Nations Decade of Ocean Science and has been published in [Science](#).

### FMRI Publishes Science Requirements Framework

The Future Marine Research Infrastructure (FMRI) programme is delighted to share its latest

report: 'A UK Science Requirements Framework for Future Marine Research Infrastructure'. This framework sets out the key scientific questions that will shape the future of UK marine research and has been developed in close collaboration with experts from across the marine science community. Download the [full report](#), [Download the Summary Report here](#).

Understanding the key drivers behind future scientific observation is a crucial step in the FMRI programme. This framework lays the groundwork for the next phase: designing a future marine research infrastructure for the UK that can support the science needed to address urgent environmental challenges. The framework was designed to ensure that future marine research infrastructure is:

- Forward looking
- Inclusive of important scientific topics, applications and subject areas
- Focused on scientific impact

Centred on five Marine Science Grand Challenges, this framework defines the future outcomes and infrastructure needed to enable world-class marine science. As a living document, it will evolve alongside the FMRI programme; informing its scoping, design, and implementation at every stage. The Marine Science Grand Challenges are seen as:

- The role of the ocean in a changing climate
- Protecting biodiversity and ocean health
- Marine pollution: its sources, distribution and solutions
- Strengthening resilience to natural hazards and extreme events
- Sustainable blue economy and ecosystem services



The FMRI programme team warmly invites members of the UK marine research community to an online presentation of this report with Lead Author, Professor Alex Rogers, and an opportunity to ask questions on Monday 22nd September at 10.00 am

(UK time). Register for the Webinar [here](#).

## Marine Institute Research and Innovation Call 2025

Ireland's new Research and Innovation Call in marine science and policy is informed by priorities identified through engagement with the Marine Research Funders' Forum (MRFF) and the national marine research and innovation community, including discussions at the Ocean Knowledge 2030 Conference in November 2024.

The Ocean Knowledge 2030 Conference served as a pivotal forum for shaping Ireland's marine research priorities, bringing together diverse stakeholders to identify key opportunities, challenges, and collaborative pathways for advancing marine science and innovation. This coordinated approach reflects a shared ambition to strengthen Ireland's position as a leader in marine research, knowledge, and technology.

This call will support the alignment of marine research and innovation activities with national and EU-level strategies and policy frameworks. It aims to optimise research impact, enable sustainable and equitable use of ocean space, and contribute to the development of a sustainable, climate-neutral blue economy. The Marine Institute is delighted to issue this call for proposals for Desk-Studies or Medium-Scale Project Awards for research on nine topics as follows:

1. Ecosystem Approach to Fisheries Management in the Celtic Sea
2. Marine and Maritime Resilience and Digital Readiness
3. The High Seas Biodiversity Treaty – Implications and Obligations for Ireland
4. Coastal Passenger Boat Experiences – Transition to Sustainability
5. Baseline Study: A Plan-led Approach to Aquaculture
6. Protein Production Capacity and Food Security from Fisheries and Aquaculture
7. Decarbonising Shipping and Green Ports
8. Reducing Environmental Impacts of Offshore Renewable Energy
9. Advanced Ocean Data Analytics and Modelling Infrastructure

Proposals are invited from eligible legal entities (national, EU or international) with the appropriate scientific and technical qualifications and research expertise and can be for a duration of 9 to 18 months (Desk-Studies) or 24 to 36

months (Medium-Scale Projects). Further details on each topic are available in the [Terms of Reference](#) (opens in a new window). Further details including the application procedure are available in the [Guidelines for Applicants](#) (opens in a new window) for this call. All applications must be submitted through the Marine Institute's Research Information Management System (RIMS). Details on registration and links to the system are also available in the Guidelines for Applicants. This call will close on Tuesday, 7th October 2025 at 16:00. Please email the Research Funding Office ([funding@marine.ie](mailto:funding@marine.ie)) if you have any queries.

### The wake of HMS Challenger

The next talk of the Challenger Society Special Interest Group on the History of Oceanography will be at 5 pm UK time on Wednesday 17th September. It will be given by Prof. Gillen D'Arcy Wood of the University of Illinois Urbana-Champaign and will be called 'The Wake of HMS Challenger'.

You can join the talk by using the link below. Feel free to give this message to colleagues:

[https://noc-ac-uk.zoom.us/j/82663436534?](https://noc-ac-uk.zoom.us/j/82663436534?pwd=i899dB5tLa6s5ZjuiabQvFi0baalMX.1)

[pwd=i899dB5tLa6s5ZjuiabQvFi0baalMX.1.](https://noc-ac-uk.zoom.us/j/82663436534?pwd=i899dB5tLa6s5ZjuiabQvFi0baalMX.1)

Gillen has recently written a book on this subject. If you would like to give a talk yourself in this series, please let us know at [plw@noc.ac.uk](mailto:plw@noc.ac.uk).

### 100 Years of RRS Discovery

The ship in the dock at Discovery Point Dundee was rebuilt to be the UK's very first Royal Research Ship. In 1925, it launched on a two-year voyage, with Scottish Commanding Officer Lt. Cdr. Russell Stenhouse, which set in motion a series of scientific expeditions gathering information about the whales, ecosystems and environment of the Southern Ocean. The current RRS *Discovery*, owned by the Natural Environment Research Council (UKRI/NERC) and operated by the National Oceanography Centre (NOC) on behalf of the UK's marine science community, was berthed in Dundee between the 12th-16th September. To celebrate 100 years of RRS *Discovery*, entry to Discovery Point was available for free. Many people explored how ocean science, engineering and technology continues to evolve, learnt about how the ocean benefits us all, and discovered a little bit what life on board a Royal Research Ship is really like.



Photo: Philip Devlin

At a special dedication ceremony at the Port of Dundee the new *Tay Discovery* pilot boat was given a traditional marine blessing for its service on the River Tay. With the Dundee Heritage Trust (DHT) and National Oceanography Centre (NOC) present, the pilot boat has been named *Tay Discovery* which highlights the important role the port plays in the City of Discovery. The naming also coincided with the centenary of the original *Discovery* ship receiving its Royal Research designation. For the first time this brought three generations of *Discovery*-named vessels together.

## VIEWS

### Work experience opportunity wanted.

Katie Carlile, is an undergraduate at the University of Portsmouth studying marine biology. Katie has a particular interest in adaptation in response to environmental pressures and is looking to develop further laboratory and field-based skills, as well as data analytics. Katie is available to undertake a work experience opportunity between 25th Oct - 2nd November or over Easter 2026. UK-based and unpaid. She is also seeking a paid placement year from September 2026. If you have a potential opportunity, please reach out to Katie by [email \(katiecarlile185@gmail.com\)](mailto:katiecarlile185@gmail.com).

### Rethinking the London Convention and Protocol Governance of mCDR in Light of New International Rulings and Landmark International Climate Agreements

[Ocean Visions](#), a science-based non-profit organisation working to accelerate ocean-based climate solutions, is proud to have provided the

financial support for the development of a new white paper by the Sabin Center for Climate Change Law at Columbia University. The paper, [International Legal Guidelines for Marine Carbon Dioxide Removal Governance under the London Convention and London Protocol](#), offers timely and fresh thinking on how parties currently apply, and how they could more effectively apply, relevant international legal principles and guidelines, precaution, prevention, due diligence, and environmental impact assessments, to the emerging arena of marine carbon dioxide removal (mCDR).

Climate change is an existential threat to civilization and the greatest threat to ocean health. Driven in large part by excess carbon dioxide, the advancing crisis has fuelled a growing international urgency to explore all potential carbon dioxide removal pathways, side by side with deep emissions reductions. The ocean is particularly vulnerable to acidification and warming driven by excess carbon. And as the planet's largest carbon sink, the ocean also holds significant potential to help clean up carbon pollution. To fully determine what that potential is requires accelerated mCDR research and development, guided by robust legal frameworks and environmental safeguards.

The London Convention and Protocol (LC/LP) was created to prevent pollution of the sea by regulating dumping of wastes and other matter. MCDR came onto the LC/LP agenda in response to early experiments with a singular mCDR pathway, ocean iron fertilization, which was addressed as pollution rather than a potential climate mitigation technique. For nearly two decades, LC/LP parties have worked to develop rules addressing further development of this mCDR approach. And in the past few years, the parties have expanded their purview to include other mCDR pathways, such as ocean alkalinity enhancement and the sinking of biomass at sea, as well as marine cloud brightening, which is not an mCDR pathway, but rather a technique to potentially increase reflectivity of clouds to reduce global heating.

The Sabin Center paper draws on [recent jurisprudence from the International Court of Justice \(ICJ\)](#) and [International Tribunal for the Law of the Sea \(ITLOS\)](#) to recommend that the LC/LP adopt a more integrated, climate-conscious approach that is aligned with the goals

of the United Nations Framework Convention on Climate Change (UNFCCC), Paris Agreement, and the United Nations Convention on the Law of the Sea (UNCLOS).

We hope that the white paper will serve as a valuable resource to inform both immediate and longer-term actions under the LC/LP, offering a strong foundation of international law and principle that if incorporated into LC/LP frameworks could lead to:

- Advancing mCDR research and development at scale in the face of scientific uncertainty
- Weighing the potential climate benefits of mCDR alongside environmental risks in a balanced and transparent manner
- Ensuring governance of mCDR research, development, and demonstration is science-based and aligned with all relevant international agreements to limit climate change
- Designing impact assessments that consider both local ecosystems and global climate objectives

“Ocean-based climate solutions have to be on the table in the race to reverse the escalating threats of climate change and its impacts on the ocean,” says Brad Ack, CEO of Ocean Visions. “This succinct paper provides compelling legal foundations for rethinking how potential climate mitigation efforts in the ocean are assessed, based on internationally accepted definitions of precaution, due diligence, and appropriate consideration of both ecosystem risks and the accelerating urgency of climate change.”

As the climate crisis deepens and risks to society continue to grow, courts at all levels are increasingly affirming governments obligations to *act* on climate change. This paper offers timely insights for States navigating their responsibilities under multiple international agreements, including conventions that were not created to focus on climate challenges, like the LC/LP. Part of the global climate agenda must involve expeditiously facilitating research into emerging solutions like mCDR that might be part of the carbon removal need for any path to net zero, and beyond.

“Sabin Center’s white paper outlines a path to apply cutting-edge legal rulings and principles

into real-world regulation of mCDR,” says Ack. “We agree with the paper’s recommendation that parties to the London Convention and Protocol are obligated to take a broader view of these potential solutions, and not simply consider them as “dumping.” By reframing how we look at potential actions as mitigation rather than dumping, as potential solutions rather than only risks, we can better advance development of responsible, scalable ocean-based climate solutions.” Ocean Visions is committed to supporting science-based innovation, and the legal frameworks needed to govern it, to ensure that potential ocean-based climate solutions are both effective and responsible.

### Safeguarding the polar regions from dangerous geoengineering: webinar with Prof. Martin Siegert

Examine the technical feasibility, long-term costs, environmental risks, and governance limitations of five polar geoengineering approaches at this Frontiers Forum Deep Dive webinar on the 24th September at 11:00 CEST (10:00 BST). You will hear from Prof. Martin Siegert, Dr Valérie Masson-Delmotte, and Prof. Steven Chown, the authors of a [Frontiers in Science lead article](#) outlining the scientific and policy challenges of deploying polar geoengineering tools as a climate mitigation strategy.



The article provides a critical analysis of the five most developed proposals: aerosol injection, sea walls, ice albedo modification, basal water removal, and ocean fertilization. The researchers will also outline their conclusions that these proposed interventions would harm the fragile polar ecosystems they intend to protect and how the proposals fail to meet core scientific and policy criteria. The authors are joined by Sophie Crump from the Inuit Circumpolar Council (ICC) for an in-depth discussion on how these initiatives may detract from achieving Net Zero, by diverting time, funding, and attention from

efforts towards achieving deep decarbonization. [You can also pose questions to the panel](#) during the live audience Q&A.

## SALTS

### NOC partners with Augmentum to support Arctic mission

Researchers from the National Oceanography Centre (NOC) have begun ground-breaking Arctic fieldwork in the fjords around Greenland, supported by [Augmentum](#). The team from NOC boarded Augmentum’s vessel *MY Akula* in August to investigate the impact of glacial melt on Dissolved Organic Carbon (DOC) cycling and microbial biodiversity in Greenland’s Sermilik, Narsarsuaq and Qaqortoq fjords.



*MY Akula - Augmentum*

Melting Arctic glaciers release dissolved organic carbon (DOC), which could impact the growth of phytoplankton and bacteria. These foundation organisms form the base of the marine food web play a critical role in regulating the ocean’s carbon cycle. The research expedition aims to characterise DOC sources, assess microbial biodiversity, and examine DOC’s role in fjord ecosystems. The findings will enhance scientific understanding of Arctic carbon cycling and the wider climate impacts as part of NOC’s Arctic Mission. The Arctic region is critical to understanding climate change. Shifts in the Arctic environment are not only affecting the local population, but every person in the UK and across the planet, through rising sea levels, changes to our climate and weather patterns, and threats to biodiversity and services provided by the ocean.

Augmentum has committed funding for the next year to enable leading scientists to conduct this

# CALENDAR

## 23rd-25th September 2025: 8th Euro-Argo Science Meeting

Crete, Greece

More information is available on the Meeting webpage:

<https://www.euro-argo.eu/News-Meetings/Meetings/Euro-Argo-Users-Meetings/8th-Euro-Argo-Science-Meeting>



## 30th September - 1st October 2025: Marine Autonomy and Technology Showcase

Southampton, UK

Having marked our 10th Anniversary last year we felt it was time to give MATS a refresh. The new look will feature a two full day programme with days running from 9am – 5pm. Ample networking and exhibitor breaks will remain a key feature of the day with one or two new features being added.

The marine sector is evolving rapidly, driven by innovation, environmental priorities, and a growing need for sustainable solutions. For this year's MATS, we have three key themes, each incorporating elements of the Blue Economy, Sustainability, and the Future of Marine Research Infrastructure. For more information see the showcase [website](#).

## 7th-9th October 2025: Slocum glider users conference

Woods Hole, USA

The global oceanographic community is invited to gather in Woods Hole this fall for the Slocum Glider User's Conference. This three-day event will bring together Slocum glider users, marine scientists, engineers, and dignitaries for a collaborative exchange of knowledge, innovation, and mission collaboration. The conference will culminate in the official launch of the Sentinel Mission on October 10th, featuring REDWING, the first autonomous underwater glider that will

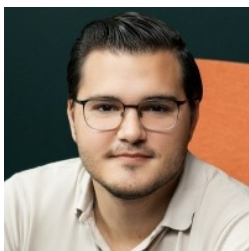
critically important research. Dr Elena Garcia-Martin, Principal Investigator: Phytoplankton Dynamics at NOC, said: "We are immensely grateful to Augmentum and the MY *Akula* crew for supporting this vital research. The Arctic is changing faster than almost anywhere else on Earth and understanding how glacial melt alters the ocean's carbon cycle is crucial to predicting future impacts on our climate and



ecosystems. This partnership allows us to carry out groundbreaking fieldwork, providing new data that will help scientists worldwide better understand the resilience, and vulnerability, of the Arctic Ocean."

Mr. Braglia, Augmentum Coordinator, said: "We are proud to support this vital research mission led by the NOC. The melting of Arctic glaciers is not only a visible marker of climate change, but also a hidden force reshaping marine ecosystems and the global carbon cycle. Our support goes beyond funding, it

represents an investment in the knowledge society urgently needs. By deepening our collective understanding of the Arctic's role in regulating Earth's climate, we can make better-informed choices for a sustainable future. We believe that partnerships between science and sponsors are essential to accelerate discovery, inspire action, and build resilience for generations to come."

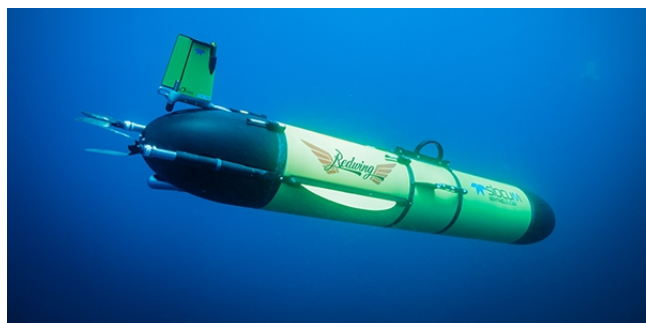


NOC has launched an ambitious Arctic Mission bringing together unique multi-disciplinary expertise and technologies to make an important contribution to the International Polar Year 2032/33. Find out more: [Arctic Research | National Oceanography Centre](#). To discover more about the vital role of philanthropy in Arctic science and how you can support our work, contact Holly Evans, Head of Strategic Relationships at the National Oceanography Centre ([holly.evans@noc.ac.uk](mailto:holly.evans@noc.ac.uk)).

embark on the first ever AUV mission to autonomously circumnavigate the globe.

“This conference is more than a technical gathering, it’s a celebration of innovation and a launchpad for a mission that will redefine what’s possible in ocean exploration,” said Shea Quinn, Slocum Glider Product Line Manager.

The Sentinel Mission, a collaboration between Teledyne Webb Research and Rutgers University to complete the first-ever global circumnavigation with an autonomous underwater vehicle, is supported by NOAA, the UN Ocean Decade, and the Marine Technology Society. The mission will launch from Woods Hole with the deployment of REDWING, a specially outfitted Slocum Sentinel Glider.



Conference Highlights to include:

- Expert Panels & Technical Sessions on topics such as long-endurance missions, passive acoustic monitoring, storm gliders, and under-ice operations.
- Advanced Training with sensor vendors and glider specialists.
- Live Presentation and Poster Sessions from the global glider community.
- Networking Opportunities with NOAA and WHOI leadership, state officials, and academic researchers.

Attendees are encouraged to register early and submit abstracts or posters for consideration.

RSVP to attend:

<https://forms.office.com/r/5R89xvUYiT>

Register to submit live presentations or poster:

<https://forms.office.com/r/Z5HiknxCey>

### **8th October 2025: Oceans of Knowledge 2025** *Southampton, UK*

Artificial intelligence (AI) and machine learning (ML) are delivering extraordinary advances in

science and technology. These capabilities have the potential to lead to some of the greatest developments in our history, with the oceans being no exception. [This conference](#) will set this critical future use of ocean-related AI/ML into the context of the associated scientific, technological, operational and ethical/data management challenges.

Join us in Southampton on 8 October 2025, become familiar with expert contemporary thinking on emerging technologies in the marine space and how you fit in. Hear from groundbreaking speakers from all aspects of oceanography, artificial intelligence and machine learning, progress your own continuing professional development (CPD) and expand your network of peers and develop vital relationships. [Look out for further details](#) about tickets and speakers. We'll be revealing our full speaker lineup and ticket info shortly, stay tuned.

### **9th October 2025: 6th Maritime Transport Efficiency Conference (MTE Conference)** *Geneva, Switzerland*

To take place at the Hotel President Wilson, Geneva. Held annually, [the MTE Conference](#) uniquely bridges the maritime and commodity trading sectors, addressing the shared challenges and opportunities of decarbonising the global shipping industry. Focusing on the commercial and operational aspects of decarbonisation and offering actionable strategies to reduce emissions across the maritime value chain, the event caters to shipowners, cargo owners, charterers, operators, fuel suppliers, regulatory bodies, and technology innovators.

The maritime sector is balancing volatile markets, fragile supply chains, regulatory pressure, and geopolitical choke points, all while racing to evaluate, adopt, and scale emerging fuels and digital tools. LNG performs but risks stranding. Ammonia offers zero-carbon potential with energy and safety trade-offs. Nuclear promises baseload power but invites political heat. Finance is engaged but cautious. Pilots prove little unless they scale. And AI is already reshaping operations while raising new questions around integration, transparency, and trust.

The conference will begin by turning the focus toward the human engine behind maritime transformation. Today's industry leaders face

mounting complexity with every decision, and without the ability to hold ambiguity, surface hard truths early, and build alignment under pressure, even the most promising tools can stall. We will explore how effective leaders turn uncertainty into coordinated action, not by avoiding it, but by leading through it.

The conference will close with a forward-looking plenary on Leading a Future-Ready Maritime Enterprise, Perform Today, Transform Tomorrow, a strategic conversation capturing insights from the day and exploring how leaders navigate uncertainty, act before the path is fully clear, scale what matters, align talent and operational focus, and rally their people to perform today while building for tomorrow.

### **13th - 17th October 2025: MEDIN Workshop: Marine Data Management, Governance and the MEDIN toolset**

*Online*

The Marine Environmental Data and Information Network (MEDIN) are pleased to announce that registration is now open for the next occurrence of our popular free online training workshop: 'Marine Data Management, Governance and the MEDIN toolset' on Ocean Teacher Global Academy. To self-enrol, go to the course page on [OceanTeacher Global Academy](#), create an account or log-in, and use the enrolment key: **MEDIN102025**.

This training course is suitable for anyone responsible for collecting or managing marine environmental data in the public sector, industry or for education or research. Familiarity with different marine data types, and how data is acquired and used, would be helpful but not essential. Prior knowledge or practical experience of data management is not required. This training course also helps to introduce the role of MEDIN, and improve the uptake, knowledge, and use of MEDIN Data Guidelines and the MEDIN Discovery Metadata Standard (and associated tools).

Be empowered as a data champion and consider best practices to improve organisational efficiency in data acquisition, analysis, curation, and sharing with colleagues at your organisation. If you have any questions, please don't hesitate to ask [Roseanna Wright](#) or [Alice Rysiecki](#) More information on the MEDIN training workshop can be found on the [MEDIN website](#).

### **16th-18th October 2025: Arctic Circle Assembly 2025**

*Reykjavik, Iceland*

The [Arctic Circle Assembly](#) will be held in the Harpa Concert Hall and Conference Centre, and the [program](#) is now out. The annual Arctic Circle Assembly brings together governments, organizations, corporations, universities, think tanks, environmental associations, Indigenous communities, citizens and others for a comprehensive and democratic Arctic dialogue. The Assembly is the largest gathering on Arctic affairs. It is a place for international engagement, cooperation, and celebration. [Assembly roundtable applications are open](#), apply by the 7th October, 23:59 GMT.

The [Polar Dialogue](#) will return in October. It consists of a series of sessions, consultative meetings, workshops and high-level Plenary Sessions taking place during the Assembly. The initiative aims to facilitate science and research cooperation in the Arctic, Antarctic and Himalaya-Third Pole region, as well as other ice-covered areas of the world. Chaired by H.E. [Katrín Jakobsdóttir](#), Prime Minister of Iceland 2017-2024, the Polar Dialogue unites global experts and policymakers to address scientific challenges and foster collaboration.

The [Business Forum](#) will take place again during the 2025 Assembly at the Reykjavik Edition Hotel (located within the Assembly Area). It consists of a series of Sessions, consultative meetings, workshops and high-level Plenary Sessions. The Business Forum will delve further into areas of interest including tourism, the blue economy, infrastructure, innovation and more. Additionally, the assembly program has Business Forum Sessions that are open to all participants.

In the light of recent geopolitical developments, H. E. Lars Løkke Rasmussen, the Minister of Foreign Affairs and former Prime Minister of Denmark will speak on the first day of the conference. In addition, the [Frederik Paulsen Arctic Academic Action Awards](#) will be awarded for the fifth time at the 2025 Arctic Circle Assembly.

### **10th-13th November 2025: Mediterranean Geosciences Union 5th Annual Meeting**

*Athens, Greece*

Following the remarkable success of the [2024 MedGU Annual Meeting](#) in Barcelona, which

drew 750 attendees in person and online from 65 countries, the National and Kapodistrian University of Athens in Greece will host the [2025 MedGU Annual Meeting](#).

Your participation, whether in person or virtually, will help MedGU achieve its goals of promoting scientific cooperation and creating opportunities for new and fruitful partnerships between geoscientists on both sides of the Mediterranean and from around the globe. [MedGU-25](#) is looking forward to cordially welcoming you in Athens. Your participation will support MedGU's mission of ensuring a sustainable future for humanity in the region and for the planet. By popular request, the abstract submission deadline has been extended until the 25th September.

### **18th-20th November 2025: 15th MASTS Annual Science Meeting**

*Glasgow, Scotland*

The Marine Alliance for Science and Technology Scotland (MASTS) Annual Science Meeting (ASM) is a cross-disciplinary event that brings together members of the marine science community, with the aim of promoting and communicating research excellence and forging new scientific collaborations. The MASTS ASM will take place at the Technology & Innovation Centre (TIC), University of Strathclyde, Glasgow.

[Early bird registration is now open](#). This cross-disciplinary event brings together members of the marine science community, with the aim of promoting and communicating research excellence and forging new scientific collaborations. The first two days will bring together expert plenary speakers and contributed talks, panel sessions and e-posters outlining the latest research and management practices that address key topics related to marine science and management in the face of global climate change and a biodiversity crisis. Alongside our general science sessions, the event will include special topic sessions, and plenty of opportunities to network. The third day is devoted to workshops. Visit the [dedicated web page](#), or we look forward to hearing from you, [masts@st-andrews.ac.uk](mailto:masts@st-andrews.ac.uk).

ASM Workshops:

- Thurs 20 Nov - Introduction to Open-Source GIS (QGIS). This course will introduce postgraduates, early career researchers, and anyone new to Geographical Information Systems, to the

use of GIS, and specifically the Open Source QGIS program.

- Thurs 20 Nov - State-space modelling and model-based inference for animal-tracking datasets with pattr. This workshop will introduce state-space modelling and model-based inference for animal-tracking data. The workshop will focus on the pattr R package as a tool for model-based inference. Participants will gain the knowledge and expertise required to understand (a) where the pattr sits within the animal-tracking ecosystem, (b) when to reach for the package and (c) how to apply the package with their own datasets.
- Thurs 20 Nov - MEDIN Marine Data Management - MEDIN workshops are designed to enhance attendees' knowledge and skills in marine data management. Training will cover data management planning and tips for effective data management during a project as well as resources such as the MEDIN Discovery Metadata Standard, the MEDIN Data Guidelines, and controlled vocabularies.
- Thurs 20 Nov - Migration and Prey Energyscapes in a changing oceans: Advancing observations, models and synthesis. The MASTS Working Group on Migration and Prey Energyscapes in Changing Oceans aims to find new common ground and shared questions between movement ecologists and ocean modellers looking at the same food chains but with opposite perspectives: from top predators looking down, from lower trophic levels looking up.
- Thurs 20 Nov - Story Maps for Communicating Research to Broad Audiences. In this workshop, we will discuss the importance of good science communication and present ArcGIS StoryMap as one tool that can be used for effective science communication. Attendees will learn the fundamentals of designing a simple StoryMap; from deciding on a target audience, to structuring the content of a StoryMap and learning about potential dissemination avenues.
- Thurs 20 Nov - Grant Proposal and Fellowship Application Writing Retreat for Early Career Researchers. This workshop

aims to support late-stage PhDs and ECRs in developing and advancing their grant proposals, funding applications, and fellowship applications. By providing a structured environment with dedicated writing time and expert feedback, participants will be able to make tangible progress on their applications. The workshop will be structured as a writing retreat, with short instructional sessions followed by focused writing blocks and peer or mentor feedback.

- Thurs 20 Nov - High-throughput integrative ecological sampling at the Culzean floating wind platform – designing data pipeline for the scientific community. Culzean has the scope to deliver synchronised high-throughput observations from its sensors. We aim to estimate essential biodiversity variables (EBV) from those observations, particularly focussing on multi-sensor observation integration. Input from the MASTS community is invited.
- Thurs 20 Nov - Why, where and when? Learning the value of airborne drone surveys in nearshore marine environments. Drones have proliferated as a tool for high-resolution surveys of terrestrial environments, supporting habitat monitoring efforts and facilitating a wealth of scientific research. Increasingly, drones are used to survey nearshore intertidal and subtidal marine environments, for purposes such as monitoring the extent and health of seagrass meadows. However, drone surveys in nearshore marine environments can be logistically and technically more complex than terrestrial surveys. Issues such as site-access, sun-glint, water turbidity, sea surface roughness and a lack of tie-points affect both the feasibility of the survey work and the quality of the captured data. In this workshop, participants will consider the application of airborne drone surveys to a nearshore site of their choosing. We will use real-world case-studies of surveys in Orkney and Pembrokeshire to facilitate discussion and demonstrate output data quality. Together, we'll work to understand why, where and when drone surveys are best suited for monitoring and

research in nearshore marine environments.

#### **4th December 2025: MEDIN Open Meeting: "Unlocking the oceans: managing emerging and established marine data".**

*Exeter, UK*

Please save the date (4th December 2025) and register for the next MEDIN Open Meeting entitled "Unlocking the oceans: managing emerging and established marine data". This meeting will be hybrid at the Met Office, Fitzroy Rd, Exeter EX1 3PB and online using Microsoft Teams. The MEDIN Open Meeting 2025 is free and open to anyone with an interest in marine data. This meeting aims to highlight the progress in addressing marine data management challenges that have been made and to acknowledge and discuss unresolved issues around data. The meeting will include the following sessions:

Session 1: Marine data types without a MEDIN Data Archive Centre

Session 2: Solutions for marine data management challenges.

Please register to secure your place whether in person or online: <https://noc-events.co.uk/medin-2025>. The meeting will start at 09:30, but please arrive earlier to allow time for security. More information about the meeting will be on our webpage as we create the agenda and can provide more details. We invite you to [submit an abstract](#) to present on either of the sessions outlined above. If you have any questions please [email](#).

#### **22nd-27th February 2026: Ocean Sciences Meeting 2026**

*Glasgow, Scotland*

The OSM is the flagship conference for the ocean sciences and the larger ocean connected community. Every two years, the Ocean Sciences Meeting unifies the oceans community to share findings, connect scientists from around the world, and advance the impact of science. The Ocean Sciences Meeting 2026 is co-sponsored by the American Geophysical Union (AGU), the Association for the Sciences of Limnology and Oceanography (ASLO), and The Oceanography Society (TOS). This time we look forward to seeing you in Glasgow, Scotland in

February 2026. Visit the [Ocean Science Meeting website](#) for up to date information.

**Session OT004:** Autonomous observing technologies and methods for sustained ocean carbon observations and climate mitigation research. Topic Area: Ocean Technology and Observatories.

Oceanic carbon data and information are needed for accurate assessment of the ocean's carbon uptake rate and capacity. These insights are vital for shaping national and international climate policies and guiding mitigation strategies. Our ability to observe and model the oceanic carbon cycle depends strongly on the availability of sustained high-quality observations enabled by fit-for-purpose observing tools and methods. Such observations are also critical for evaluating current and future marine Carbon Dioxide Removal (mCDR) applications building the backbone of global Measurement, Monitoring, Reporting and Verification (MMRV) schemes.

Advancements in material science, ocean technology and evaluation of new sensing techniques are paramount in enabling ocean measurements on wide spatio-temporal scales necessary to: a) understand past, present and future changes in the global carbon cycle, and b) evaluate the feasibility, durability and efficiency of mCDR methods currently being investigated. We invite submissions from academic and government researchers, nonprofits and the ocean technology industry developing and evaluating novel tools and methodologies for direct observations of the seawater's carbonate system. The session aims to showcase the current state-of-the-art in ocean carbon observing and highlight new observing strategies using autonomous sensors and platforms. Technology performance evaluations in laboratory studies and field deployments are especially welcome.

**Session PI010:** Unraveling physical–biological interactions at meso- and submesoscales, <https://agu.confex.com/agu/osm26/prelim.cgi/Session/253850>.

Mesoscale and submesoscale structures, such as cyclonic and anticyclonic eddies, filaments, and fronts, play a fundamental role in shaping marine ecosystems. These dynamic features have been demonstrated to impact the

distribution of nutrients and enhance biological activity across trophic levels. They influence key processes including phytoplankton blooms, larval dispersal, and the biological carbon pump. Despite the growing recognition of their importance, the complexity and scale of these interactions are still not well understood, limiting our ability to quantify their regional and global impacts.

Technological advancements, such as higher-resolution ocean models and new generations of satellites like PACE and SWOT, are creating unprecedented opportunities to study these fine-scale processes, while also posing new challenges for data interpretation and integration. This session invites contributions investigating the interplay between physical processes and biological responses at meso- and submesoscales. We aim to bring together observationalists, modellers, and theorists working at the interface of physics and biology to deepen our understanding of how ocean dynamics at these scales influence marine life.

**Session AI006:** Philippa Rickard (Heriot Watt University) is delighted to be co-chairing Session AI006, [The Influence of Marine Biota on Air-Sea Exchange Processes](#) alongside Dr Theresa Barthelmeß and Prof Dr Anja Engel (GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel), and Dr Ryan Pereira (The Lyell Centre for Earth and Marine Sciences).

**Session CC006:** Kate Fraser (SAMS) is co-chairing a session called "[Climate Change in the Deep Sea: Impacts, Interventions, and Cumulative Stressors](#)" in preparation for the IPCC AR7 process.

**Session HC001:** Jack Laverick (University of Strathclyde) is cohosting a session on "[Advances in Marine Conservation for Local-to-Global Sustainability](#)". This session will complement a new "Advances in marine conservation for local-to-global sustainability" special issue in the journal *Aquatic Conservation: Marine and Freshwater Ecosystems*.

**Session HC003:** Bahareh Kamranzad (University of Strathclyde) is chairing a session on [Arctic Maritime Safety, Climate Impacts, and Human–Environment Interactions](#). As Arctic sea ice rapidly retreats and ocean conditions evolve, maritime activities in the region are increasing,

leading to complex environmental, operational, and societal challenges. This interdisciplinary session aims to explore the impacts of Arctic climate change on oceanic conditions, navigational safety, and human interactions.

**Session CM006:** Heather Hyewon Kim, Alicia Karspeck, Cristina Schultz and David Keller are hosting “Modeling approaches for marine Carbon Dioxide Removal (mCDR)”. There is growing interest in marine carbon dioxide removal (CDR) approaches, including ocean alkalinity enhancement, direct ocean capture, nutrient fertilization, biomass sinking, macroalgae cultivation, and artificial upwelling, as a portfolio of approaches aiming to remove 10–20 gigatons of atmospheric CO<sub>2</sub> annually by mid- to late-century. Modeling these approaches offers insights that enable assessment of carbon sequestration efficacy, permanence, and ecological impacts across broad spatial and temporal scales under various scenarios. These tools are critical for aligning mCDR deployments with climate goals and environmental safeguards.

**Session OB015:** Sarah Cryer (Heriot Watt University) is co-chairing a session on [Marine life and Carbon cycling in a changing ocean: Integrating observations, AI, and models \(OB015\)](#) which relates to the joint BIO-Carbon – MASTS international data workshop on the role of marine biology in helping the ocean store carbon.

**Session OB029:** Alex Poulton (Heriot Watt University) is chairing a session on [The Open Ocean Carbonate Pump: From Alkalinity to Ecology \(and Back Again\) \(OB029\)](#). This session will explore different aspects related to pelagic carbonate biogeochemistry that underpins the magnitude and functioning of the carbonate pump.

**8th-10th September 2026: Challenger Society for Marine Science Conference**

*Bangor, UK*

Save the dates for the next biennial Challenger conference, which will be in Bangor, 42 years on from the first modern Challenger conference which was also held in Bangor; then organised by John Simpson, Paul Linden, Steve Thorpe and Roy Chester, and run by amongst others a very junior Ed Hill and Bill Turrell.

---

The CSMS email address is [challenger.society@gmail.com](mailto:challenger.society@gmail.com). Contributions for next month's edition of Challenger Wave should be sent to: [john@myocean.co.uk](mailto:john@myocean.co.uk) by the 30th September.

---

# ***JOB*s and *OP*PORTUNITIES**

**There are jobs in the MASTS newsletter**

## **[New vacancies:](#)**

[Visit our Vacancy Webpage to find all the positions listed below.](#)

- ✓ Specialist Coastal Habitats Advisor - NRW - apply by 21/9/25
- ✓ Research Project Support Officer in Fisheries Science - University of Bangor - closing 3/10/25
- ✓ Youth Advocacy Officer - Young Sea Changers Scotland - closing 13/10/25
- ✓ Fisheries & Aquaculture Manager - Flatfish Ltd - closing asap
- ✓ Flood & Coastal Risk Officer - OPW, Ireland - closing 02/10/25

## **[New PhD studentships](#)**

**PhD: Profile the Killer Waves in the Ocean with Machine Learning – University of Manchester**

This PhD project aims to predict what these gigantic waves look like when they appear in the middle of the ocean, where many nonlinear effects take place.

---