

Challenger Wave

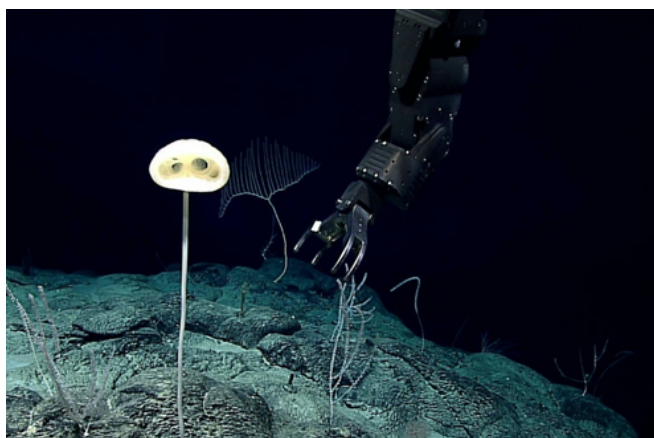


Monthly newsletter of the Challenger Society for Marine Science (CSMS)

NEWS

Top ten species of 2020 announced

2020 saw the identification of almost 2,000 fascinating new marine species. The National Oceanography Centre (NOC), in collaboration with The World Register of Marine Species (WoRMS) and other scientists around the globe, has been working to decide which of these incredible creatures will make it to the WoRMS top-ten.



The "E.T." Sponge

The WoRMS has released a list of the top-ten marine species, since 2017, and the list for 2020, www.marinespecies.org/news.php?p=show&id=8712, includes some particularly feisty and well-hidden creatures. The list includes 'The E.T. Sponge' (pictured above) named after the famous alien film character thanks to the round body of the sponge having two openings that look just like eye sockets. Over two kilometres below the surface, explorers came across a deep-sea environment with strange and beautiful animals that looked more like an alien landscape than something found on Earth. Read more on our website here, noc.ac.uk/news/top-ten-brand-new-marine-species-identified-2020.

Cancellation of postponed 2020/21 Challenger Conference

We have to inform our members and supporters that after detailed discussions and hard thinking, the local organising committee of the delayed 2020 Challenger meeting, hoped to be held in Oban in September 2021, together with Council, have taken the very difficult decision to cancel the meeting. I am sure you can appreciate what a challenging decision this has been, and you may well guess at many of the underlying reasons which are too extensive to list here. We are as disappointed as you that we will not have the opportunity to share our marine science and meet in person in the same way this year. With luck, however, our appetites will be well and truly whetted for the bonanza event planned for the Challenger 150th anniversary in London 2022 and we will look forward to seeing you all, in person (everything crossed !), at that time. All award and fellowship nominations will be carried over to 2022, and let me just encourage you all to take a moment, and nominate deserving individuals for this recognition, with a particular thought to equality and diversity. There is now even more time to put those nominations together. We thank you again for your continued support of the Challenger Society. - **Ros Rickerby and Nick Owens**

Creating the Ocean we want; 1st June 2021

The German Federal Ministry of Education and Research in partnership with the Intergovernmental Oceanographic Commission (IOC) of UNESCO are delighted to welcome you to the virtual High-Level Launch of the United Nations Decade of Ocean Science for Sustainable Development in Berlin. Join us for the official virtual High-Level Launch on the 1st June 2021 from 11 am to 3 pm (CEST).

Join our collective and international effort to celebrate the start of the UN Decade of Ocean Science for Sustainable Development and contribute to "Creating the Ocean we want". The

High-Level Launch will also provide an introduction to the seven virtual Ocean Decade Laboratories, that will take place from July 2021 to May 2022 and that aim to catalyze partnerships and evoke discussions and dialogues on key themes of the Ocean Decade.

The Ocean Decade stimulates innovative ocean research and strengthens the multi-stakeholder cooperation needed to develop the science we need for the ocean we want. With the High-Level Launch event we empower you to become engaged in protecting our fascinating and unique ocean: join government and business leaders, philanthropists, scientists, leaders of UN agencies and other ocean actors from across the globe and listen to inspirational talks. Witness the very first steps of our decade-long plan to rebuild and protect healthy oceans and learn more about the Ocean Decade activities to come. Make a note of the date and subscribe to our info mail via www.oceandecade-conference.com to receive further details.

Free Marine Engineering lecture, 19th May

The IMarEST invites you to register for our forthcoming webinar, taking place on 19th May 2021 at 14:00 UTC+1 (also available on catch-up). The lecture is entitled “Virtual Learning of Subsea Remote Technologies to Digital Twins”, and will be followed by a digital networking session. Registrants will also be sent a CPD certificate. You can register for free via this link on Eventbrite, www.eventbrite.co.uk/e/webinar-virtual-learning-of-subsea-remote-technologies-to-digital-twins-tickets-151741905123, and please do feel free to share this with your colleagues and contacts.

The IMarEST announces its 1st Global Conference for Seafarer Mental Health and Wellbeing

The 1st Global Conference for Seafarer Mental Health and Wellbeing has been announced for the 25th and 26th May 2021. The IMarEST event will bring together key stakeholders from across the maritime sector to discuss the critical issue and identify practical solutions to better support the needs of seafarers around the world. The focus for the virtual conference, which will take place using the IMarEST’s online event platform, will be on intervention and defining industry best practice, as well as increasing monitoring and agreeing key areas of improvement.

In a 2020 industry-wide survey on seafarer wellbeing, conducted by Lloyd’s Register, 54% of seafarers felt they were not being actively helped to manage levels of stress and fatigue, www.lr.org/en/latest-news/crew-feel-forgotten-and-abandoned-lr-survey-finds/. The research also highlighted the significant crew-change crisis impacting both seafarers and their families during a tumultuous year for the maritime industry. However, seafarer mental health and wellbeing was already an area of concern before the pandemic, with issues such as isolation, fatigue and stress commonly reported.

In 2019 the Institution of Occupational Safety and Health found that “significantly more seafarers report being happy or very happy at home than report being happy or very happy on board”. In the same **study**, 55% of employer respondents stated that their companies had not introduced any policies or practices to address seafarers’ mental health in the last ten years, iosh.com/resources-and-research/resources/seafarers-mental-health/. In contrast, the latest “Seafarers’ Happiness Index” highlighted the positive impact that small-scale solutions and investments with regard to connectivity, food and social activities have made to life on board, www.missiontoseafarers.org/news/latest-seafarers-happiness-index-report-reveals-seafarer-welfare-crisis-at-tipping-point.

Co-Chair of the event, Captain Panos Stavarakakis MBA MSc PhD CEng FIMarEST, comments: “The two-day conference programme will look at practical approaches and highlight solutions that can be implemented to tackle ongoing issues. It’s an incredibly important area and one that has not been properly addressed by the industry, until now. Together we need to raise awareness, overcome stigma and understand the effects of working at sea.”

Attendees can register for the event via the IMarEST’s website, www.imarest.org/events/category/categories/imarest-conference/1st-global-conference-for-seafarer-mental-health-and-wellbeing. For more information on the conference, or to speak to one of the conference committee members, please call Chloe Buchanan, PR Lead at The MTM Agency on +44 (0)7818 815735 or email: chloe@thetmtagency.com

Marine technology company achieves Made In Britain status

Valeport, a global leader in underwater measuring equipment, has achieved the internationally recognised Made In Britain accreditation for its range of innovative marine solutions that are developed, designed and manufactured at its UK headquarters in Totnes, Devon. The independent, family-owned business, which employs more than 90 people from state-of-the-art facilities on the River Dart, designs and supplies precision sensors and probes to a worldwide customer base that includes: environmental, energy, construction, dredging, engineering, scientific research and military sectors.



The Made In Britain accolade is part of an initiative to support and promote British manufacturing. Valeport will now use the Made in Britain registered mark of quality on their products, the mark is recognised as the ultimate stamp of British provenance and seen as an international seal of excellence domestically and worldwide. Matt Quartley, Valeport managing director commented: "The Made In Britain status promotes our passion for British manufacturing, our commitment to quality and maintaining production here in the UK. We also believe it highlights the quality of our products and expertise gained from over 50 years of British manufacturing expertise."

Valeport retains all aspects of developing and manufacturing processes in-house, an approach which means they have total control over every stage of the manufacturing process and can guarantee the quality and consistency of their products. The company's riverside premises house all the facilities for designing, CNC machining, environmental testing, assembly, calibration and servicing for all Valeport products.

With a global network of 72 distributors in over 54 countries, Valeport exports almost 80% of its outputs.

Valeport now joins a select group of manufacturers who are permitted to use the Made In Britain status and coveted quality mark. For more information on Valeport visit: www.valeport.co.uk.

IOCCP Summary of Ocean Carbon Knowledge and a Vision for Coordinated Ocean Carbon Research and Observations

IOC-UNESCO has just published the "Integrated Ocean Carbon Research: A Summary of Ocean Carbon Knowledge and a Vision for Coordinated Ocean Carbon Research and Observations for the Next Decade", a report which sets out to accomplish the vital task of indicating the current gaps and future directions for the integrated ocean carbon cycle research.



IOCCP was one of the five international research and coordination programmes on ocean-climate interaction, which have been working together since 2018 in the IOC Working Group on Integrated Ocean Carbon Research (IOC-R). The other organizations are: the Integrated Marine Biosphere Research Project (IMBeR), the Surface Ocean Lower Atmosphere Study (SOLAS), the Climate and Ocean Variability, Predictability and Change (CLIVAR) project and the Global Carbon Project (GCP).

The report presents a synthesis of the state of knowledge about the oceans' role in the carbon cycle and points to the way ahead. Its objective is to provide decision-makers with the knowledge needed to develop climate change mitigation and adaptation policies for the coming decade. It also

emphasizes the importance of scientific knowledge to the taking of informed decisions within the United Nations Framework Convention on Climate Change in order to achieve the goals of the Paris Agreement and build more resilient societies.

Through continued collaboration amongst IOC-R WG co-conveners, IOC-UNESCO hopes to develop an innovative joint programme of medium- and long-term integrated ocean carbon research to fill the gaps in this field. See our site, www.ioccp.org, for more information and to access the report. The official press release of IOC-UNESCO is found at, en.unesco.org/news/.

Sonardyne wins Queen's Award for Enterprise in Innovation for unlocking the secrets of our restless sea floor

A pioneering system developed by marine technology company Sonardyne to study ocean floor movement has been recognised with a Queen's Award for Enterprise in Innovation, the highest award a UK business can receive. Developed over more than a decade and in use globally by the energy and ocean science sectors, Sonardyne's seabed deformation monitoring system provides engineers and scientists with critical new understanding of the seafloor and the physical processes that act upon it.

Using a network of autonomous, battery-powered instruments deployed on the seabed, the system measures horizontal and vertical seabed movement, at a level of precision that was previously impossible. Initially developed for the offshore industry to identify geological hazards within oil and gas reservoirs, it has since been adopted by the earth science community to study everything from undersea landslips near volcanoes to deep sea plate tectonic motion. Such motion can trigger devastating tsunamis in some of the world's geological hot spots, including the infamous Pacific 'Ring of Fire'.

The Queen's Award, conferred by Her Majesty Queen Elizabeth II, on advice of the Prime Minister, recognises and encourages commercial success resulting from outstanding innovative achievements by businesses in the UK. Graham Brown, Managing Director of Sonardyne, says, "On land, global positioning satellites are used to undertake real-time earth observations, but the signals they transmit cannot penetrate through water. This has created a huge challenge for the

energy and earth science community. Put simply they've been bound by the limits of physics. We have broken through these limitations and opened up new capabilities. This has led to a whole new era of research for seabed science, delivering new insights into the fundamental processes around subduction zones and consequently understanding the risks of earthquakes and tsunamis. This award, our fourth Queen's Award, reflects the commitment of our workforce, both here at our headquarters in Hampshire and at our international locations, in solving our clients' most important underwater challenges. It has added significance this year, as we celebrate our 50th year in business."



Manufacturing Assembly Operator, Ian Hall, prepares a seabed monitoring instrument at Sonardyne's global headquarters facility in Yateley, England.

The instruments used in Sonardyne's seabed deformation monitoring system have been engineered using low power electronics and long-life batteries, all in pressure tolerant housings, enabling them to remain on the seabed for more than 10 years at a time. They also contain Sonardyne's underwater digital acoustic communications technology, which won a Queen's Award for Enterprise in Innovation 2014. This allows hundreds of instruments to be deployed simultaneously and the data they gather to be wirelessly gathered using subsea robots and crewed or uncrewed surface vessels.

Users of Sonardyne's seafloor monitoring system include international energy company Shell and Earth research organisation Scripps Institution of Oceanography. Shell's research geophysicist Dr. Paul Hatchell (retired) said: "Sonardyne's seafloor deformation monitoring technology was a complete game-changer for helping Shell to gain insight into their offshore reservoirs, located in very deep water, where direct access to the

seafloor by people is obviously not practical. I worked closely with the Sonardyne team on this application from the very beginning. This award is highly deserved recognition of their dedication to technological innovation throughout our 15-year journey together and I am thoroughly delighted with today's announcement."



The seabed instruments which make up Sonardyne's seabed deformation monitoring system sit waiting to be deployed off the coast of Canada. Image credit: David Chadwell/ Scripps Institution of Oceanography

Scripps, together with its partners in the Ocean Networks Canada initiative, have deployed the system offshore Vancouver to monitor displacement of the subducting Juan de Fuca plate and overriding North American tectonic plate.

Chelsea Technologies Announces Research Partnership with Ground-Breaking Transatlantic Research Project 'Mayflower'.

Chelsea have been selected as a research partner to an international effort led by marine research organization Promare and will deploy a ground-breaking next generation multi-parameter algae sensor aboard the unmanned Mayflower Autonomous Ship when it embarks on its historic transatlantic voyage from Plymouth, UK, to Plymouth, Massachusetts in May.

The 15-metre vessel is designed to provide scientists with a flexible and cost-effective platform for collecting critical data about the health of the ocean, and further the technological

development of marine autonomous systems. The AI navigation suite has been trained to recognise other marine traffic and obstructions using over 1 million real-life training images.

Joining a global consortium of partners including the lead technology and science partner IBM, Chelsea will be collecting multi-parameter fluorescence measurements from the vessel throughout the hazardous ocean crossing. The 6-channel sensor, which is not currently available for general release, will continuously measure 4 algal pigments under test conditions, with 2 environmental fluorescence corrections integrated within a single, compact sensor housing. The data collected is expected to provide new insights into primary productivity and ocean health in the North Atlantic.

The probe will be mounted on board the autonomous vessel and will operate via a specially designed flow chamber. The sensor will be operated continuously throughout the voyage, providing valuable data on primary productivity and phytoplankton health.

Metrics gathered on the voyage will help the Chelsea development team evaluate the probe for general manufacture. Once the technology is assessed, the sensor has the potential to provide significant new capabilities to many service applications. In addition to algae, the multi-parameter probe may be available in hydrocarbon and tryptophan-like fluorescence variants. For more information please contact Matt Kenney, Head of Marketing, via marketing@chelsea.co.uk.

VIEWS

Sonardyne's Ranger 2 upgrade for US research vessel

Sonardyne's Ranger 2 Ultra-Short BaseLine (USBL) underwater tracking technology is to provide improved support to critical oceanographic work from the research vessel *Atlantis*, including science expeditions in the human occupied submersible *Alvin*. The most updated version of Ranger 2 provides greater precision, speed and range tracking and replaces the existing Ranger 1 system, which has been supporting research from the ship since 2009.

The Ranger 2 system will support the *Atlantis*' work by enabling science teams to precisely monitor the position of submersibles and other underwater platforms deployed from the vessel, including remotely operated vehicles (ROVs), autonomous underwater vehicles (AUVs), as well as tracking its CTD (conductivity, temperature and pressure sensor), towed sleds and dredges, in all water depths.

Additional upgrades include a new AvTrak tracking and telemetry instrument for *Alvin*, to support the increased depth rating of the submersible, from 4,500 m to 6,500 m. This bespoke 10,000 m rated AvTrak meets the requirements for a 1.5 times safety margin for human occupied submersibles. The team on the *Atlantis* will also be able to use Ranger 2 to communicate with scientists onboard the *Alvin* throughout every stage of a dive via the AvTrak using the secure Sonardyne Messaging Service (SMS) feature. The AvTrak can also act as a relocation beacon for the *Alvin*, as well as remotely operated vehicles (ROVs) deployed by the *Atlantis*.

The *Atlantis* is also upgrading its through-hull transceiver from a High Performance Transceiver (HPT) 5000 to a Gyro USBL 7000, complete with a new gate valve, flanges and sea chest. Gyro USBL combines the vessel heading, pitch and roll data that's critical to USBL system performance, with an acoustic transceiver, all in one housing. *Atlantis* will be equipped with the latest generation Gyro USBL, which is 30% shorter and 40% lighter than its predecessor. That means it's easier to handle and install so more vessels, including small vessels of opportunity and unmanned surface vessels, can get the best performance from their USBL system.

Owned by the US Office of Naval Research and operated by Woods Hole Oceanographic Institution for the benefit of the US oceanographic community, *Atlantis* is one of the most sophisticated research vessels afloat. The vessel was specifically fitted out to act as a mother-ship for *Alvin* and can accommodate up to 24 scientists working in six labs for up to 60 days at sea. *Atlantis* is part of a class of similar Navy-owned research vessels, which includes the University of Washington operated research vessel *Thomas G. Thompson*, which is also fitted with a Sonardyne Ranger 2 Gyro USBL system.



Image Caption: Sonardyne's Gyro USBL completes the Ranger 2 package onboard the research vessel *Atlantis*.

Kim Swords, Senior Applications Engineer, for Sonardyne in North America, says, "We're delighted with the through-life service that Ranger 1 has delivered to the *Atlantis*' marine and science. This upgrade sees the *Atlantis* join the *Thomas G. Thompson* and a global fleet of scientific research vessels in being equipped with Sonardyne's most up-to-date USBL technology available."

SALTS

Coming soon to ITV Meridian News

Filming took place last week ahead of RRS *Discovery* and RSS *James Cook* leaving Southampton as part of the US NASA-led EXPORTS programme, which is sending a total of three ships to the Porcupine Abyssal Plain Sustained Observatory (PAP-SO) region in the North Atlantic. Follow their journey on Twitter using [#NASAEXPORTS](https://twitter.com/NASAEXPORTS).



RSS *Discovery* docked in Southampton

A huge thank you to the NOC's Guy Dale-Smith and Eleanor Darlington for taking part in interviews.

Success for A68a expedition

The Slocum glider, deployed from February's expedition to the A68a iceberg, has successfully been recovered by the South Georgia Fisheries Patrol vessel PHAROS. Thanks to all involved in its safe recovery.



The glider was launched at the start of a four-month mission to investigate the massive A-68a iceberg in the South Atlantic, one of the largest icebergs ever identified by scientists. Read more on our website here, noc.ac.uk/news/first-look-images-robotic-glider-launched-part-expedition-investigate-huge-south-atlantic.

CALENDAR

10th–13th June 2021: 3rd Euro-Mediterranean Conference for Environmental Integration *Sousse, Tunisia*

The editorial office of the Euro-Mediterranean Journal for Environmental Integration in collaboration with Springer organizes the 3rd EMCEI conference, www.emcei.net.

14th-18th June 2021: EMODnet Open Conference and jamboree *Ostend, Belgium*

The pre-registration for the EMODnet Online Open Conference on 14th-16th June 2021 is now open. This event will gather EMODnet partners and wider stakeholders and is open to all. It provides a unique opportunity to set goals for the future of EMODnet to 2030 and beyond, to recognise and further develop existing and

emerging partnerships, and to listen to marine data providers and users experiences and appreciation of the value of EMODnet data, data products and services, and what can be done further to optimise the user experience.



A related EMODnet Jamboree for EMODnet partner meetings of the 7 thematics and data ingestion will take place on the 17th and 18th June 2021, on invitation.

The conference will now be held entirely online and relate directly to EMODnet open access data, data products, applications and interoperability across data services, across the following themes:

- EMODnet contributors
- EMODnet for users
- EMODnet for innovation
- EMODnet partnerships

To find out more, visit www.emodnet.eu/en/conference2021.

14th-18th June 2021: the postponed EcoSummit 2020 *Gold Coast, Australia*

As a result of the spread of COVID-19, Elsevier and the EcoSummit 2020 Chairs took the decision to postpone the 6th International EcoSummit Congress to 2021, to be held in the same venue at The Gold Coast Convention Centre, Australia.

Registration is open for the new dates, ecosummitcongress.com/conference-register.asp, and we look forward to seeing you at EcoSummit 2021. So that you can register with confidence we are relaxing our cancellation terms due to the Coronavirus COVID-19 situation. Rest assured that we will refund your registration fee, with no penalty, should you wish to cancel during the uncertainty of the outbreak.

EcoSummit 2021 Co-Chairs:

Jan-Olaf Meynecke, Griffith University, Australia
Robert Costanza, Crawford School of Public Policy at Australian National University, Australia
B. Larry Li, University of California, Riverside, USA

16th - 18th June 2021: 9th International Workshop on Marine Technology - MARTECH 2020

Vigo, Spain



The organising Campus de Excelencia Campus do Mar (University of Vigo, Spain) and the Universitat Politècnica de Catalunya (UPC, Spain) will call for papers for MARTECH 2021, www.martech-workshop.org.

The main objective of the MARTECH Workshop is to show latest investigations and exchange of information and points of view on current research in MARine TECHnology. The Program Committee cordially invites you to participate and submit your contribution in one of the proposed topics:

- Operational Oceanography
- Instrumentation, Metrology, Signal processing
- Seafloor observatories and sensor networks
- Observatories, remote sensing
- Marine Robotics: ROVs, AUVs, ASVs, Gliders
- Underwater imaging and communication
- Seafloor and Water Column characterization
- Technology for Marine Biology and Aquaculture
- Renewable energies
- Coastal, regional, and offshore research vessels and platforms
- Marine Geophysics technology and solutions
- Marine Data Interoperability and data flow
- Technologies for a sustainable dredging
- 2021 as a point between the past and the future

Yours sincerely, Dr. Ana Bernabeu, General Chair and Dr. Joaquin del Rio, Steering Committee Chair

17th - 18th June 2021: Structures in the Marine Environment (SIME2021)

MASTS are delighted to be working with the INSITE programme again. In 2019 we held the inaugural and successful SIME conference. This

was followed up by the session at the MASTS ASM in 2020, and now we are pleased to be preparing for the 2021 SIME conference. SIME2021 will be held online via HopIn and split over two half day sessions (afternoon of 17th June and morning of 18th June 2021).

In response to our societal need to generate energy, man-made structures (MMS) have been built into our coastal and marine environments. The structures range from oil and gas installations, associated pipelines and seabed infrastructure, and now we also look towards a replacement for carbon-fuelled electricity via offshore wind farms. Inevitably, these structures host communities by providing habitat and shelter, and potentially serve as stepping-stones for the spread of some species (some of whom will be non-indigenous). In addition to deliberately placed structures, shipwrecks can also serve a similar function. In turn, the biodiversity that develops on MMS can affect biological, hydrodynamic and biogeochemical processes from the water column to the seafloor, either directly (e.g. scouring, organic matter export from piles) or indirectly (e.g. population dynamics or closure/displacement of fisheries) and, hence, ecosystem functioning is also affected at various spatial and temporal scales. When flow effects in surrounding areas are included, the footprint of these structures is much larger than just the physical area. Science has an important role to play in both development decision-making as well as decommissioning, and we need a robust evidence base for informed environmental management decision-making. We need to be clear about what how future MMS that are put into the marine environment will affect the marine biological ecosystems, what should happen to these structures when they have been decommissioned and what the ecological best practice is in relation to decommissioning and rigs/renewables-to-reefs.

Academics, stakeholders, industry and government representatives and interested parties are invited to come together for talks, e-posters, networking and discussion about man-made structures already within the marine ecosystem, and any new infrastructures that may be put in place over the coming decades. Let's talk about the impacts, benefits and implications of these structures, and discuss how we can accelerate our understanding to support policy and regulatory decisions. Within an international

context, and taking MMS in its widest definition, the "Structures in the Marine Environment" (SIME2021) conference will focus on the impact that the presence or removal of these structures may have on biological marine ecosystems. For more information please visit, hopin.com/events/sime-2021.

22nd-27th June 2021: ASLO 2021 virtual Meeting

Hoping that the virtual meeting can reach participants from farther places who normally cannot attend in-person meetings, and this platform can also be used as a "teaser" for the in-person meeting in Palma in 2023. The time zone of the meeting will be GMT European time to mirror the original June schedule (and will be held on the same days). ASLO 2021 goes virtual: <https://www.aslo.org/2021-virtual-meeting/>.

29th - 30th June 2021: The 8th PRIMaRE marine renewable energy conference Menai Bridge, Wales

The conference represents the latest in the annual scientific conference series of the marine renewable energy community. The conference will be held **online**, and run by Bangor University, School of Ocean Sciences, www.bangor.ac.uk/oceansciences/primare.php.en.

The conference includes universities, industry and research centres active in all aspects of marine renewable energy with presentations ranging from industrial developers, university researchers, marine environmentalists and policy makers. The aim of the event is to cover a wide range of topics in marine renewable energy, including: technology, policy, environment, hydrodynamics, resource characterisation, materials, operation and management, etc.

The 8th PRIMaRE conference will provide a platform for both industrial and university speakers to present their up to date activities and on-going research programmes through posters.

Conference Themes within Marine Renewable Energy:

- Materials
- Fluid Dynamics and Hydrodynamics
- Survivability and Reliability
- Environmental Impacts
- Power Conversion and Control
- Infrastructure and Grid Connection
- Marine Operations and Safety

- Marine Planning and Governance

We hope to build on the hugely successful online conference of last year, with over 210 delegates from all over the world. There is no conference fee; however please register to ensure a place by 29th May 2021. Instructions for conference registration details can be found on the PRIMaRE website, <https://primare.events/>. You can also sign up to the PRIMaRE network here; www.primare.org/.

9th - 13th August 2021: IMBeR ClimEco7 summer school Vancouver, Canada



IMBeR ClimEco7 summer school postponed to 2021

Unfortunately, due to the restrictions that we are currently all dealing with, and the uncertainty as to how things will be in August when we were planning to hold ClimEco7, IMBeR has taken the decision to postpone the summer school for a year.

All the applications that we received for ClimEco7 this year will be carried over to 2021. Results of the selection process will be made known during March 2021.

New dates for ClimEco7 are 9-13 August 2021

UBC, Vancouver, Canada

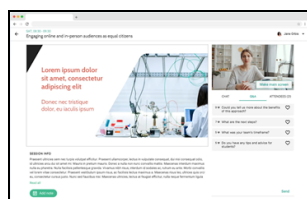
6th - 9th September 2021: Estuaries and coastal seas in the Anthropocene Hull, England



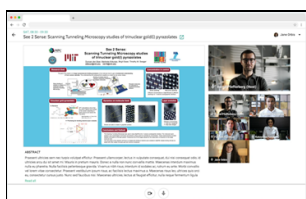
Same great content will now take place online as a live-streamed and interactive event. The conference will bring together our expert invited speakers, contributed talks and e-posters showcasing the latest research and addressing key topics from our cancelled in-person meeting. You will be able to participate in a live interactive conference experience direct from your desktop or mobile device.

Live-stream presentations, ask questions to the speakers and poster presenters and chat with other attendees via a dedicated conference platform. Plus, enjoy more flexibility with on-

demand access to recorded sessions for 12 months after the event.



Engage with speakers



Participate in poster sessions

We do hope that you will be able to participate in this exciting event, Conference Chairs:

Mike Elliott, University of Hull, and International Estuarine & Coastal Specialists Ltd

Tim Jennerjahn, Leibniz Centre for Tropical Marine Research, Bremen, Germany

Masataka Watanabe, Chuo University, Japan

20th – 22nd September 2021: Oceanology International Middle East

Abu Dhabi, UAE

Whilst it is hugely disappointing to postpone the launch, and not a decision we have taken lightly, we believe it is the best course of action for all involved. In the last couple of months, we have been speaking to customers, partners and

supporters to understand their views and to ensure we make the best decision, in such challenging circumstances, for the ocean communities we serve.

We trust that postponing Oceanology International Middle East will enable us to deliver the true value of this world-leading brand next year. Amid these challenging times, we would like to reiterate our commitment in creating new opportunities and connections for our industry. Over the next several months, we will offer our support to the global community by hosting various digital activities that will connect our exhibitors with their targeted clients. In advance, we thank you for your understanding and support. If you require any further clarification or information regarding this situation, please feel free to email us at info@oceanologyinternationalmiddleeast.com.

5th - 9th September 2022: Challenger Society Biennial Meeting – celebrating the 150th anniversary of the Challenger Expedition

London, UK

To be hosted by the National History Museum, just a 'date for the diary', stay tuned.

The CSMS email address is info@challenger-society.org.uk. Contributions for next month's edition of Challenger Wave should be sent to: john@vectisenvironmental.com by the 28th May.

We continue to send printed copies of Challenger Wave to members of the CSMS without email addresses. However it is in everybody's interest to send your email address to Jennifer Jones, jxj@noc.ac.uk, as soon as possible

JOBS and APPOINTMENTS



Integrated Marine Biosphere Research

Open call for applications for 1 Chair or 2 Co-Chairs of the IMBeR Scientific Steering Committee

The Integrated Marine Biosphere Research project (IMBeR, www.imber@info) welcomes applications either from one person for the role of Chair or from two people willing to act as Co-Chairs of its international Scientific Steering Committee (SSC) for a term of three years beginning on 1 January 2022.

The Chair or Co-Chairs of the SSC will be responsible for the overarching leadership and future scientific direction of IMBeR including the successful completion of the scientific and capacity building objectives in the **IMBeR Science Plan and Implementation Strategy 2016-2025**, and the appropriate positioning of the IMBeR community to take advantage of future funding and scientific opportunities after 2025. Considering the current funding landscape, we envisage that a new IMBeR Chair would have expertise in natural sciences such as marine ecology or biogeochemistry, whereas the joint expertise of two Co-Chairs could span these natural sciences and a social / interdisciplinary science.

More information on the role of the Chair or Co-Chairs of the SSC is available [here](#).

IMBeR is looking for scientific excellence, and a high level of commitment to IMBeR's goals, but also seeks to achieve a balance of expertise, nationality, gender, and career stage across its SSC.

Applications should include a brief curriculum vitae and personal statement and be sent to the IMBeR Director, **Dr. John Claydon** by **Friday 4 June 2021**.

Informal enquiries can be directed to the current SSC Chair and Chair of the Appointments Committee, **Prof. Carol Robinson**.



imber@dal.ca

There are jobs on the IMBER web site

<http://www.imber.info>



Integrated Marine Biosphere Research

Jobs and opportunities

New

- Managing Director: US Arctic Program, WWF, Anchorage, Alaska, USA. Open until filled; **apply now**
- Marine Biologist: US Arctic Program, WWF, Anchorage, Alaska, USA. No deadline give; **apply now**
- Research Biologist: Marine Mitigation Monitoring, Marie Science Institute, UCSB, North San Diego County, USA. Apply by **15 May**
- Call for lead authors: Special Reports on burning issues in the region, network of Mediterranean Experts on Climate and Environmental Change (MedECC). Submit by 15 May
- Assistant/Associate Professor: Ecosystem Oceanographer, Oregon State University and NWFSC, Newport, USA. Apply by **21 May**
- Assistant Professor: Ocean Ecologist, Oregon State University and NWFSC, Newport, USA. Apply by **21 May**
- Campaign Associate: Save the Orcas, Environment America, Seattle, Washington, USA. Apply by **23 July**

In case you missed it...

- Ocean Frontier institute launches call for international postdoctoral fellows. Apply by **31 May**
- Postdoc: nitrous oxide reduction in oxygen minimum zones. Bermuda Institute of Ocean Sciences, Bermuda. No deadline given, **apply now**
- Postdoc: ocean modelling, UCLA, USA. No deadline given, **apply now**
- Simons Postdoc: Marine Microbial Ecology. Apply by **14 May**
- Senior Staff Scientist, Ocean Networks Canada, Victoria, BC, Canada. Apply by **14 May**
- Environmental Affairs officer, United Nations Environment Programme, Montreal, Canada. Apply by **22 May**
- Postdoc: Marie Skłodowska-Curie action, call for expression of interest. Submissions due **15 September**

Visit the IMBeR Website

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