

Challenger Wave



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

NEWS

Capital Expenditure Proposals NMEP/MFAB

Members of the NERC-funded marine research science community, who are involved in research expeditions which utilise National Marine Equipment Pool (NMEP) equipment, www.noc.ac.uk/facilities/national-marine-equipment-pool, are invited to submit proposals for sensors, systems or platforms to enhance the NMEP. Proposals are collated and reviewed on an annual basis for consideration by the Marine Facilities Advisory Board (MFAB), new.noc.ac.uk/about-us/our-national-role/advisory-bodies, with those endorsed passed to National Marine Facilities (NMF) to progress when funding is available.

Between 2018 – 2020, 13 proposals have been reviewed, seven have been endorsed for inclusion as aspirations in the Technology Road Map, noc.ac.uk/files/documents/about/ispo/COMMS1155_NMF_TECHNOLOGY_ROADMAP_202021_V4.pdf, two of which with capital funding assigned. The seven include marine snow catchers, active heave compensation for RRS *James Cook*, and partial pressure CO₂ systems. For further information about Capital Expenditure proposals and/or the application process, please contact MFAB Secretary, Jackie Pearson (jfpea@noc.ac.uk)

Expressions of interest to sit on the MFAB are always welcome. Please contact the MFAB secretary Jackie Pearson jfpea@noc.ac.uk for information and guidance.

Marine Pollution Bulletin special issue call for papers

The Marine Stressors Forum of the Marine Alliance for Science and Technology for Scotland (MASTS) has been holding regular sessions at MASTS Annual Science Meetings over the past few years. A key outcome of these sessions is the shared recognition that our understanding of the nature and impact of the interactions of multiple abiotic and biotic stressors from a variety of sources on marine species has some major and critical gaps.

Sources of stress include chemical, noise and light pollution as well as climate change-related parameters, such as water temperature, pH and salinity, furthermore fishery, coastal/sea-use changes and changes in species interactions, such as predation and resource competition. To date, our knowledge of whether and how different stressors interact is minimal. It is often assumed that interactions are additive, but in fact they can be antagonistic, synergistic and include potentiation.

We seek contributions for a Marine Pollution



Bulletin issue presenting original data and new insight into Multiple Stressors and associated drivers in the Marine Environment. Find out more at: www.journals.elsevier.com/marine-pollution-bulletin/call-for-papers/special-issue-on-multiple-stressors-in-marine-ecosystems.

Submission deadline is 31-May-2021, for queries please contact the guest editors and MASTS Marine Stressors Forum Co-Convenors: Dr. Mark Hartl, Heriot-Watt University m.hartl@hw.ac.uk, or Professor Karen Diele, Edinburgh Napier University k.diele@napier.ac.uk.

VIEWS

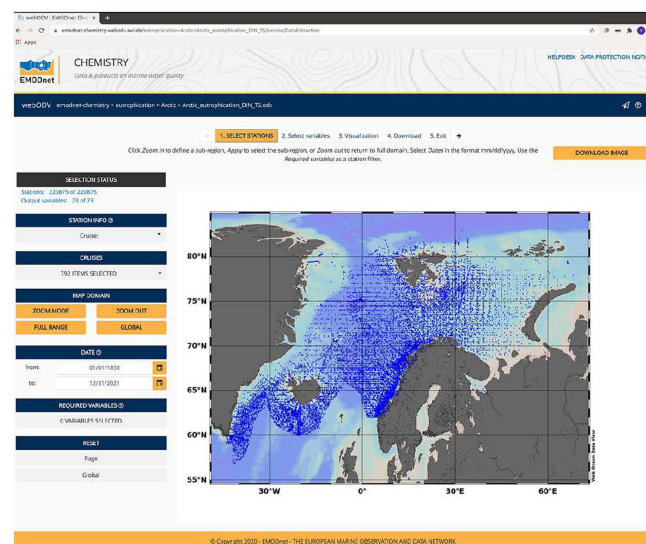
“webODV”; your new favourite tool for online exploration and extraction of EMODnet chemistry data

Our oceans are changing at a rapid pace. Waters are warming. Carbon concentrations are rising. Fertilizers and contaminants are finding their way into the sea, and litter is now found everywhere, not only along beaches, but also in the ocean interior and on the sea floor. Scientists all around the world are busy collecting data to document and understand these changes, and many international projects, such as EMODnet Chemistry, www.emodnet-chemistry.eu/, are working hard aggregating all the data into harmonized, global integrated datasets. These datasets are urgently needed to investigate the changes on regional and global scales.

Making these large datasets easily accessible to a wide user community, ranging from scientists on one side to decision makers, interested layman and the general public on the other, is a challenging task, but absolutely necessary to maximize the utility of the data and justify the immense costs of data acquisition and aggregation. The new online webODV tool, emodnet-chemistry.webodv.awi.de/, developed at the Alfred Wegener Institute in Bremerhaven, Germany - as a partner in EMODnet Chemistry, addresses this challenge and provides a huge step forward.

webODV provides fast and easy access to EMODnet Chemistry datasets, and seamlessly lets users explore, visualize and extract subsets of the data simply by using their web browser. No

software installation or download of the sometimes very large datasets to the user's computer is necessary. webODV provides a truly interactive user experience and very fast response times, even if users and the webODV server are located on different continents. This is possible using the recent WebSocket technology that maintains a permanent, bi-directional connection between web browser and server and avoids the ‘handshake and header’ overhead of classical HTTP approaches.



The webODV tool is accessible on the EMODnet Chemistry portal.

"EMODnet Chemistry dedicates huge efforts to collect, harmonise, validate data on water quality within all EU sea basins. This new webODV tool is the powerful access key to the regional data collections and related visualization products on eutrophication. This service is integrated into the EMODnet Chemistry Portal, increasing its user friendliness and potentiality.", commented Alessandra Giorgetti, Coordinator of EMODnet Chemistry and deputy Director of OGS Section of Oceanography.

"This new online webODV tool further simplifies the access to the diverse data and data products in EMODnet Chemistry for scientists, policy makers and the public, and it increases the dissemination and usefulness of the European marine data.", added Prof. Dr. Reiner Schlitzer of the Alfred-Wegener-Institut.

webODV builds upon the highly successful Ocean Data View software (ODV), which has been available for more than two decades for all common operating systems. With currently more

than 85,000 registered users world-wide, ODV proves to be very popular. ODV graphics are published regularly in a wide range of scientific journals, including *Nature* and *Science*.

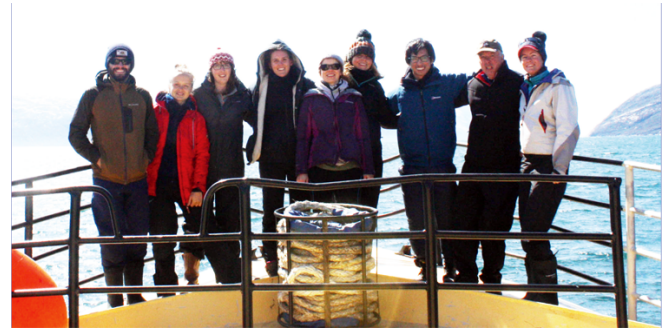
The Way Forward: a diversity article from Ocean Challenge

We urgently need to diversify our discipline through proactive mentorship, and by promoting and implementing positive change. Leading UK organisations, such as the Challenger Society for Marine Science, should show the way by implementing actions that will make a genuine difference, converting our ideas into a practical reality. The following proposals can be summarised as a call for a strong vision for equality and diversity in marine science, led by the membership of the Challenger Society. In developing each of these ideas we need to consider which initiatives that have helped women might also be effective in supporting other under-represented groups, and for which groups, and under what circumstances, the approaches might need to be different.

We should:

- Lead initiatives (websites, award-naming, guest seminars etc.) to increase visibility of past and present under-represented groups in sea-going marine science, for example: women, people identifying as Black, Asian or as from another ethnic minority, people identifying as LGBTQIA+, and people identifying as having a disability.
- Champion and ensure diversity in the Challenger Society (e.g. in the composition of Council, and with respect to those who receive awards) as well as in UK oceanography in general (e.g. in academic appointments, acceptance of Ph.D candidates, and during promotion processes).
- Fund and promote bursaries for under-represented groups to go to sea, particularly in leadership positions.
- Ensure that articles in Challenger Society publications are authored by, and feature, a diverse range of individuals.
- Lobby to encourage the community to take up opportunities to appoint a Co-PSO for every cruise, where either PSO or Co-PSO is an early or mid-career researcher, and to monitor and record the diversity of people in those positions, and their career progression in the longer term.

This procedure has recently started on Marine Scotland Science cruises with very positive feedback.



Heading in the right direction! A happy group of researchers in coastal waters off Greenland in 2018 – the team is predominantly female and has representatives from a wide variety of backgrounds and four different countries. (Photo: Ellen Pedersen)

- Lobby for NERC to provide resources for extra childcare and other additional costs incurred by sea-going staff.
- Lobby for the adequate provision of PPE for sea-going women.
- Lobby for the collection and analysis of diversity and inclusivity data for all sea-going scientists, technicians and crew.
- Refocus the Society's Diversity in Marine Science (DiMS) initiative to form a Special Interest Group that includes scientists at all career levels. This group could formulate an effective training programme suitable for all, identify existing and new resources, and formalise the Society's commitment to accelerating progress towards equality.
- Create a Society award to recognise those working towards improving diversity in UK marine science.

- **Katharine Hendry, Associate Professor,**
K.Hendry@bristol.ac.uk

Ocean Infinity selects Sonardyne for pioneering Armada fleet

Sonardyne technology has been selected to support the world's largest and most environmentally sustainable fleet of ocean-going, multi-role robotic vessels, which is being launched by marine robotics company Ocean Infinity.

Sonardyne systems will provide the first wave of Ocean Infinity's new Armada fleet with key sensor technologies for underwater platform navigation, tracking, control and communications, as well as ensuring uninterrupted surface navigation, even

when global navigation satellite system (GNSS) services are degraded or denied.

The Armada fleet will mark a major technological advance, providing sustainable services to all corners of industry from offshore energy, to logistics and transport. The innovative, low-emission robotic fleet that can be launched from any shoreline on the globe was unveiled in February this year (2020), and will initially see 17 bespoke designed state-of-the-art un-crewed vessels added to Ocean Infinity's existing robotics fleet.

The vessels, initially measuring 21 metres and 36 metres long, will be able to perform offshore data acquisition and intervention in both shallow and deep water operating regions. The vessels will use a range of underwater platforms, including remotely deploying autonomous underwater vehicles (AUVs) and remotely operated vehicles (ROVs).

Sonardyne's acoustic communication and inertial navigation technologies were chosen to support Armada because of their performance and flexibility across a wide range of water depths and environments, supporting operations across all sectors in even the remotest locations. The package includes surface and subsea navigation sensors to remotely support deployment, operations and recovery of underwater robotic systems from an un-crewed vessel, from anywhere in the world. That includes being able to accurately track and control multiple robotics systems simultaneously and provide water current profile information, as well as support vessel dynamic positioning during critical phases of an operation.

Uniquely, the systems also provide navigation redundancy in the event of GNSS outages, which could occur while operating in multipath or shadowed environments, such as fjords or near large structures or where signals are deliberately interfered with.

Delivery of Sonardyne equipment for the first wave of Armada fleet vessels will be made by the end of this year. Further deliveries will be made through 2021. Alan MacDonald, Sales Manager, Sonardyne, says, "Over recent years, we've been focussed in Sonardyne on developing the flexible technologies that are required to support the revolution that is taking place in both surface and

subsea marine robotics. Consequently, we're very pleased to be part of Armada's pioneering vision to deploy robotics at scale. These systems will help a wide variety of industries to reduce how many people they need to send to sea as well as dramatically reduce CO2 emissions, by deploying these smaller, more efficient vessels out."



The Armada fleet. Image from Ocean Infinity.

Dan Hook, Managing Director, Ocean Infinity, says, "Our expert team of robotics specialists selected Sonardyne as the clear choice for our robotic ships, to provide underwater navigation, tracking, control and communications and that additional layer of positioning security in areas where GNSS signals might be obscured. We look forward to a long-term working relationship with Sonardyne, as we grow our fleet."

Initially, all of the first tranche of Ocean Infinity's Armada vessels will be fitted with Sonardyne's Ranger 2 Ultra-Short BaseLine (USBL) system augmented by the company's Marine Robotics Pack. This combination provides remote all-in-one tracking, communications and control capability for underwater deployed robotics so that even more operations can now be done from shore. These robotic vessels will also be fitted with Sonardyne's industry leading SPRINT-Nav hybrid navigation instrument, to provide continuous, uninterrupted navigational aiding to underpin safe remote operations, even if GNSS service is impaired due to their remote location or nearby infrastructure. In addition the system produces profiled water column data, which is particularly important during the deployment and recovery of subsea robots.

Wideband Sub Mini 6+ tracking transponders and SPRINT-Navs will also be fitted to the ROVs being deployed and operated by the Armada fleet. Ocean Infinity expects the first Armada vessel to be delivered in 2021 and, along with the

remainder of the fleet, will be controlled and operated by experienced mariners via satellite communication from onshore control facilities in Austin, Texas, and in Southampton, England.

SALTS

Research expedition begins to measure world's largest system of ocean currents

On the 8th December, RRS Discovery departed Southampton to measure one of the world's largest system of ocean currents, the Atlantic Meridional Overturning Circulation (AMOC). These measurements are used to understand the natural variability of the ocean and climate system and its impact on the weather.



You can read more about this important long-term research on our website, noc.ac.uk/news/research-expedition-begins-measure-worlds-largest-system-ocean-currents and hear from Principle Investigator Ben Moat on our YouTube channel, www.youtube.com/watch?v=r_8I191haBQ&feature=youtu.be. Follow the expedition on Twitter @RAPID_AMOC.

CALENDAR

11th – 14th January 2021: The Fifth Xiamen Symposium on Marine Environmental Sciences

Xiamen, China

The State Key Lab of Marine Environmental Science (MEL), Xiamen University and the Earth Science Division of the National Natural Science Foundation of China (NSFC) will hold the fifth bi-annual meeting XMAS-V virtually. The theme of

XMAS-V is **Multidisciplinary Sciences Serving a Sustainable and Healthy Ocean**. More information about the meeting can be found at <http://melmeeting.xmu.edu.cn/xmas5/>.

7th-10th May 2021: Arctic Circle Japan Forum *Tokyo, Japan*

The Third Arctic Science Ministerial Meeting is co-hosted by the Icelandic Ministry of Education, Science and Culture, and the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT). Arctic Circle is collaborating with the Sasakawa Peace Foundation, www.spf.org/en/. Governments, universities, companies, research institutions, organizations, associations and other partners are invited to submit proposals for Sessions to the Arctic Circle Secretariat at: www.arcticcircle.org/forums/japan/proposals.

14th-18th June 2021: EMODnet Open Conference and Jamboree

Ostend, Belgium

Due to the outbreak of the COVID-19 virus, the second EMODnet Open Conference and Jamboree which was initially scheduled to take place in September 2020 has been postponed. Save the date for this event, which will bring together the extended EMODnet family in Ostend (Belgium) to set goals for the next phase of EMODnet to 2030. More information will follow, www.emodnet.eu/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 submit your abstract and 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.



Call for abstracts open for our 2021 dates

14-18 June 2021 | Gold Coast, Australia



You can submit your abstracts and register with confidence as we are relaxing our cancellation terms due to the COVID-19 situation: we will refund your registration fee, with no penalty, should you wish to cancel during the uncertainty of the outbreak.

Join mailing list

Sponsorship enquiries

The **6th International EcoSummit: EcoSummit 2021** (rescheduled to 14-18 June 2021) will have a focus on coastal and marine ecosystems including adjacent terrestrial ecosystems and all habitats that are integrated within those ecosystems, including river networks, wetlands and catchments.
>> View our outstanding speakers and panelists

Oral and poster abstract submission for symposia and general sessions is open until **30 October 2020**. Abstracts should be submitted using the online abstract submission system.

>> View symposia and submit abstracts

Registration is open at the original 2020 rates for our new dates. Early-bird rates are available until **5 March 2021**. Remember you can cancel your registration at any time if affected by the COVID-19 outbreak.

>> View rates and register

We send you our warmest wishes at this challenging time.

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

Supporting publications



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:

www.challenger-society.org

- 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

9th - 13th August 2021: IMBeR ClimEco7 summer school

Vancouver, Canada

6th - 10th September 2021: Postponed Challenger Society Biennial Meeting

Oban, Scotland

The biennial Challenger conference attracts around 300 leading UK marine scientists, science managers and early career scientists. As well as showcasing cutting edge marine science and technology, the conference is noted for its training of young scientists and networking events, including a public lecture by an eminent authority

on relevant societal marine issues.



Once again the call is out for sponsors and exhibitors wishing to participate in next year's conference. The conference is a great place to be if you are recruiting marine science graduates.



For the only the third time, the conference will be held at SAMS (Scottish Association for Marine Science) in beautiful OBAN. SAMS hosted the first post war conference back in 1946 and since then only once more since in 2006.

6th - 10th September 2021: Estuaries and coastal seas in the Anthropocene



The ECSA 58 - EMECS 13: Estuaries and coastal seas in the Anthropocene will take place at the University of Hull, UK. The submission deadline for oral and poster abstracts is 9 April 2021 and we look forward to receiving submissions from new authors.

One of the Co-Convenors, Professor Victor de Jonge, recently passed away suddenly and unexpectedly. As such, the symposium will be held as a tribute to Victor and we are encouraging sessions and presentations which reflect Victor's enormous contribution to estuarine and marine science and management.

We invite contributions within a broad range of topics, covering the diversity of threats and

opportunities facing estuarine, coastal and marine ecosystems and the people they support. For our full list of topics and special sessions please visit the website.

We look forward to welcoming you and our keynote speakers to Hull in September 2021.

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', stayed 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 31st December.

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

There are jobs on the IMBER web site

<http://www.imber.info>



Integrated Marine Biosphere Research

Jobs and opportunities

- DAAD PhD Scholarship for sub-Saharan African students. Apply by **20 December**
- Postdoc: Coastal processes, hydrodynamics and sediment transport modelling. University of Melbourne, Melbourne, Australia. Apply by **23 December**
- Two postdocs for African candidates: Marine spatial planning and sustainable development, Nelson Mandela University, Port Elizabeth, South Africa. Apply by **6 January**
- PhD: Role of sponge competition in cold-water coral reefs, Aberdeen University, UK. Apply by **6 January**
- Three lecturer positions: Ecosystem resilience, energy transition and climate change and geohazards and risk, University of Plymouth, Plymouth, UK. Apply by **10 January**
- Postdoc: Acoustics obs technology for benthic mapping, Institute of Marine Research, Bergen. Apply by **10 January**
- PhD: Will climate change cause the ocean to run out of breath? UEA, Norwich, UK. Apply by **15 January**
- Antarctic Program Manager, WWF, Hobart/Melbourne, Australia. Apply by **21 January**
- IPBES Call for nominations of experts to assist with the scoping of a methodological assessment of business and biodiversity. Submit by **1 February**
- ECR Funding opportunity: 'Freigeist' fellowships. Apply by **1 April**

In case you missed it...

- Postdoc: Novel oceans accounting, CPUT Centre for Sustainable Oceans, South Africa. Apply by **24 December**
- PhD: Sponge competition in cold-water coral reefs, Aberdeen University, Scotland. Apply by **6 January**
- Two PhDs: Interaction of physical, geochemical and microbiological factors to affect organic carbon transformation, University of Delaware and McGill. Apply by **15 January**
- PhD: Understanding social values on low carbon sub-surface technologies in Scotland and Northern Ireland. Aberdeen University, Scotland, UK. Apply by **18 January**
- IPBES call for biodiversity experts for methodological assessment of business and biodiversity. Apply by **25 January**
- Knauss Marine Policy Fellowships, Apply by **19 February**
- PhD: Influence of ocean alkalinity enhancement on phytoplankton growth and metabolic rates, University of Tasmania, Australia. Apply by **1 April**
- PhD: Influence of ocean alkalinity enhancement on phytoplankton species composition. University of Tasmania. Apply by **1 May**

Visit the IMBeR Website

imber@imr.no