

Challenger Wave



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

SUPPORT THE UK'S PREMIER CONFERENCE ON
MARINE RESEARCH

CHALLENGER SOCIETY FOR MARINE SCIENCE CONFERENCE 2016 *Oceans and Climate*

5-8TH SEPTEMBER 2016, LIVERPOOL

The 17th biennial conference of the Challenger Society for Marine Science will be held at the University of Liverpool, located within the heart of the city of Liverpool, host to world-leading marine research and a maritime business hub.

The 2016 Challenger Conference promises to provide a fantastic showcase of marine science and technology, covering all areas of ocean research.

Exhibitor space will be available in the conference area and there are opportunities for corporate sponsorship of events.
For details please contact Terry Sloane by email: terry@planet-ocean.co.uk or phone 01276 427 971

CONFERENCE INFORMATION

The official conference programme will commence with an ice-breaker event on the evening of the 5th September in the Victoria Gallery and Museum, followed by a three-day lecture and poster programme and conference dinner at the awe inspiring Liverpool Anglican Cathedral.

The Challenger conference provides exposure to around 400 of the UK's leading marine scientists and engineers in a focused and high profile meeting. Delegates cover the full spectrum National Centre directors to PhD students and is a unique opportunity to develop contacts within both academic and commercial marine sectors.

Opportunities are currently available for sponsorship of events within the conference and for exhibitor space in the shared social and refreshment areas.

Visit the website for more information:
www.liverpool.ac.uk/challenger-conference-2016



SPONSORSHIP PACKAGES

Headline Sponsor:

- 1st choice position for manned exhibition stand 3m x 2m
- Gold Upgrade
- Acknowledgement as Headline sponsor in all conference literature, advertising etc
- Full page advert (A5) in conference handbook £790
- Manned exhibition stand 3m x m £650
- "Gold Upgrade" (5 minute speaker spot in plenary sessions *only three slots available*) £180
- Sole sponsorship of conference dinner £5,000
- Co- sponsorship of conference dinner £1,000, £2,500
- Co-sponsorship of ice breaker drinks reception £1,000
- Co-sponsorship of poster session (four available) £500
- Co-Sponsorship of public lecture £500
- Sponsorship of keynote speaker £350
- Exhibition banner unmanned £250
- ¼ Page advert in conference handbook £100
- 1/3 A5 banner add in conference handbook £150

Corporate society members benefit from a 15% discount

NEWS

Moonlight drives winter 'werewolves' to gather for Arctic Ocean odyssey

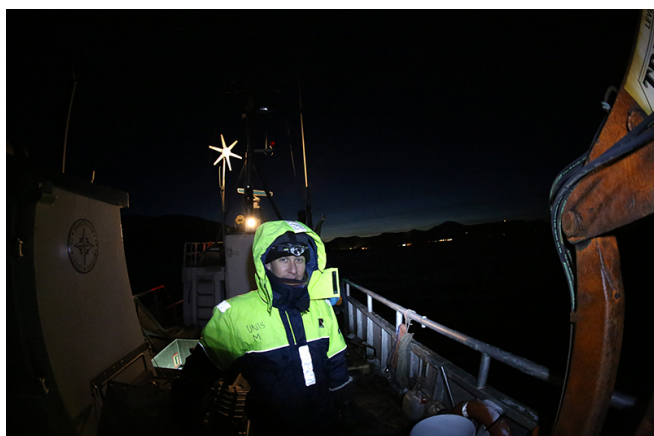
Scientists studying the moon's effect on marine life during the constantly dark Arctic winter believe they have uncovered the 'werewolves of the ocean', which regularly gather in their billions to undertake the largest migration on Earth. The team from the Oban-based Scottish Association for Marine Science (SAMS) have published find-

ings in the journal *Current Biology* that the actions of zooplankton (small marine animals) respond to the moon as the main light source during the polar night.

Using echo sounders fixed to the seabed and analyses more commonly associated with studying the human biological clock, the scientists observed zooplankton moving deeper into the darkness in response to the full moon. The team believes this migration is to hide from light-dependent visual hunters, such as the voracious centimetre-long crustacean *Themisto libellula*.

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This response could be seen across the entire Arctic at all water depths, ice covered and ice free, from 70°N to 90°N.



Report author Kim Last on field work collecting zooplankton in Isfjorden, Svalbard at midday in January.

Lead author on the Current Biology paper Dr Kim Last, SAMS principal investigator in marine chronobiology, said: "It was previously presumed that there was little activity during the Arctic winter, as there is hardly any food and no light, but our recent work with partners from the University of Tromsø showed there is a surprisingly high level of activity. Now we know that when the moon rises, the zooplankton drop down in the water column to around 50 metres in depth, presumably to hide from predators."



Moon rise over Kongsfjorden in Ny-Ålesund, Svalbard where an acoustic mooring (ADCP) is positioned on the seabed and used to track zooplankton migrations.

The mass migration has been detected by the team at the North Pole, in water 4,000 metres deep and underneath thick ice. The research suggests that reducing sea-ice cover, resulting from climate change, may cause further changes in these migrations as more light penetrates the sea. This newly-discovered response to moon-

light during the Arctic winter has been described by the researchers as lunar vertical migration (LVM) and only occurs for a few days each month as the full moon rises above the horizon. The team also discovered that zooplankton follow the rising and setting of the moon. This phenomenon results in a new kind of daily lunar migration, the cycle of which is longer (every 24.8 hours) than the standard day / night solar light response in the sunlit waters of the rest of the world.

Dr Last added: "Diel vertical migration (DVM) of zooplankton is one of the biggest daily migrations on the planet, a process driven by sunlight. It's therefore a complete surprise to us to find that wherever we look across the Arctic during the winter, we witness a migration driven by moonlight. Perhaps the 'werewolf' isn't a myth after all?"



Themisto libellula, an amphipod crustacean and a predatory hunter of copepods such as *Calanus*, is a probable werewolf of the Arctic.

Laura Hobbs, a PhD student at SAMS and co-author on the paper, said: "The moon must have a dramatic effect on these creatures if they are undertaking such huge migrations. The next step is to find out more about the response, how it varies across the region and how the behaviours might change as Arctic sea ice cover reduces."

The work was funded by UK's Natural Environmental Research Council (NERC) and the Research Council of Norway (NRC) under projects Panarchive and Circa, respectively.

Stepping Stones

The Challenger Society has a new financial award available, called Stepping Stones, to support career development in marine science. The Stepping Stones scheme is designed to support career development of members of the UK marine science community who do not have current indefinite employment. The scheme can provide modest amounts of support (up to £1000 per

grant) for activities designed to enhance the career prospects for researchers, but not to provide direct salary support. Further information and application forms can be found on the Society website at www.challenger-society.org/Stepping-Stones.

Challenger Society members are eligible to apply for the Stepping Stones bursaries which can be used for research related activities including but not limited to travel, collaborative visits, laboratory or field work and conference participation. Bursaries are open to all career levels. Applications are particularly welcome from those seeking employment in a research environment post-qualification, and to active researchers between fixed term contracts. Applications from individuals holding permanent positions will not be considered. The society aims to fund four bursaries per year. - **Dr Ruth Airs** (ruai@pml.ac.uk)

VIEWS

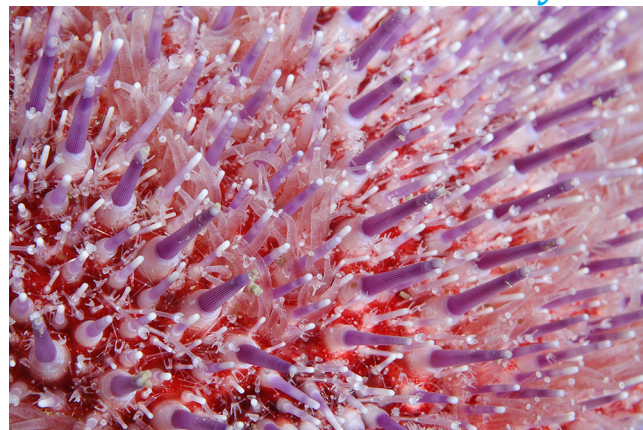
Citizen scientists sought to help survey storm-lashed Scottish coastline

Scottish marine experts are appealing for an army of 'citizen scientists' to help measure the potentially disastrous effects of this winter's severe storms on the nation's coastal creatures. Heavier rainfall and rough seas, key indicators of climate change, may have severely affected some of Scotland's best known animals and plants on the rocky coast.

Now scientists at the Oban-based Scottish Association for Marine Science (SAMS) want to train volunteers in monitoring and sampling coastal areas as part of Capturing Our Coast (CoCoast), the world's largest ever coastal citizen marine science project.

CoCoast, which launched on January 12, aims to train more than 3,000 citizen scientists from across the UK to help collect data around key species such as mussels, wading birds and hermit crabs. The results of the data collected will help inform future policy in conservation and marine protection and potentially give a better overall picture into how our climate is changing. SAMS is the only Scottish-based partner in the £1.7m project, which is funded by the Heritage Lottery Fund and led by Newcastle University.

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The European edible sea urchin, Echinus esculentus, is a key indicator species that marine scientists in Oban are keen to trace. Picture by Keith Hiscock

SAMS ecologist Professor Michael Burrows said: "Over the past few winters we have seen increasingly severe and frequent storms that are likely to be associated with rapid climate change. Alongside warming temperatures and ocean acidification, documenting how these changes are affecting our coastal habitats will be key evidence for influencing policy in the near future. Vulnerable rocky shoreline species can't escape the weather, and the storms we have seen the last two winters are likely to become more frequent, with greater damaging effects. As scientists, we can't be everywhere but people can tell us what's going on in their own back yard and we can collectively gather the evidence to fit into the wider picture."



Dr Hannah Grist, CoCoast project officer for Scotland, surveys the shoreline at SAMS, near Oban

Scientists are particularly keen to know how climate change is affecting coastal species that are not often recorded, particularly in remote parts of the country. Increasing ocean temperatures and more acidic seas could affect economically-important species like mussels and oysters, which

would have a knock-on effect for iconic Scottish coastal birds, such as Eider ducks, that feed on them.

Dr Hannah Grist, the SAMS-based CoCoast project officer for Scotland, said: "The beauty of this project is that people with no, or little, scientific background can work alongside academics to provide extremely important data for environmentalists and governments, and ultimately play a part in how their local coastline is managed and protected."

Dr Heather Sugden of Newcastle University, co-principal investigator on CoCoast, said: "This is the first project of its kind and an exciting opportunity for anyone with a fascination for marine life and a desire to make a real impact on our understanding, and ultimately the protection, of our coastal environment. What this project aims to do is develop a network of citizen scientists who can help us build an accurate picture of marine life all around the UK; a baseline against which we can better understand the impact of climate change and other environmental and human factors. The data we collected will fill key knowledge gaps such as geographic species distributions, movement of warm water species, and occurrences of invasive non-native species."

Other partners in CoCoast include the universities of Hull, Portsmouth and Bangor, the Marine Biological Association of the UK and the Marine Conservation Society. The project also involves Earthwatch Institute, the Natural History Museum, Northumberland Wildlife Trust, Cefas, the Coastal Partnerships Network, the Scottish Seabird Centre at North Berwick, Whale and Dolphin Conservation and the Clipperton Project.

Those interested in becoming a CoCoast citizen scientist can register at www.capturingourcoast.co.uk to attend training courses around the country where they will learn what to look out for and how to record important data. For those who are unable to get to the coast, there are other CoCoast projects that require help from budding citizen scientists. See the website for more details.

SALTS

No news from sea this month I'm afraid

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

CALENDAR

17th-18th February 2016: Society of Maritime Industries Annual Conference

Hull, UK

Maritime Engineering: Exploring Business Opportunities in a Diverse Sector. As per previous editions the 2016 conference will include industrial visits, one-to-one meetings and an evening reception and dinner. The programme will soon be announced info@maritimeindustries.org

7th-9th March 2016: The Annual Science Meeting of the Ecosystem Studies of Subarctic and Arctic Seas (ESSAS)

Yokohama, Japan

The title of the meeting is **Scientific Challenges in a Changing Arctic and Subarctic**. The various sessions cover paleo-ecology, biogeochemistry, physical oceanography, biological oceanography, fisheries and human dimensions. Details on the various sessions of the meeting as well as logistics can be found at <http://www.arc.hokudai.ac.jp/en/essas2016/>. We hope to see a number of you in Yokohama.

12th-15th April 2016: IX International Congress on the History of Oceanography; Discovery of changes in the oceans of the World

Adelaide, Australia

International congresses on the history of oceanography under the auspices of the International Commission of the History of Oceanography have been held over the years in Monaco (1966), Edinburgh (1972), Woods Hole (1980), Hamburg (1987), Scripps (1993), Qingdao (1999), Kaliningrad (2003) and Naples (2008). The ninth meeting (ICHO IX) is the first Congress to be held in the southern hemisphere, and will occur during the fiftieth year celebrations of the founding of Flinders University, which was the first institution in Australia to offer tertiary studies in oceanography.

Papers are invited over the following groups of subjects:

Observational oceanography
International co-operations
Interdisciplinary approaches
Economic aspects of oceanography
Institutional heritage
Archival resources
Mathematical simulation

Oral and poster presentations are welcome. It is proposed to run the Congress as a single stream in the main lecture theatre, with the inclusion of about 25 half-hour contributed oral presentations including discussions, together with two poster sessions in the adjacent facilities. The deliberations of ICHO IX will be reported in a proceedings volume. An attendance of between fifty and one hundred delegates is anticipated. The Congress will be hosted by the School of the Environment, of Flinders University.

Contacts:

International: Walter Lenz (President of the International Commission of the History of Oceanography) email: walter.lenz@dg-meeresforschung.de

Local: John Bye email: jbye@unimelb.edu.au

Jochen Kaempf email: jochen.kaempf@flinders.edu.au

Ian Jones email: ian.s.f.jones@hotmail.com

The registration for ICHO IX will open on 1st February 2016. Details including online payment options will be announced at the congress Webpage to be hosted at http://www.flinders.edu.au/science_engineering/environment/activities/. The anticipated Registration fees are:

Participant: AU\$ 440

Student participant: AU\$ 55

Accompanying person AU\$ 110

Registration includes the ICHO IX Dinner on the evening of Thursday April 14th, and for Participants, a Congress handbook and welcome late afternoon refreshment on Tuesday April 12th, and the electronic copy of the volume based on the Proceedings.

Authors are invited to submit a manuscript of their contributed oral or poster presentation as a pdf-file to *Ian Jones (Secretary)* before April 30th 2016 for inclusion in a volume based on the Ninth Congress. Submission prior to the Congress will enable interaction with authors to occur. Manuscripts will be peer reviewed, and may be revised and copy edited. If you cannot attend the Congress, your manuscript is also welcome, and may be presented in absentia. This is a rare oppor-

tunity to contribute to a volume devoted to the history of oceanography, which ANU Press have agreed to publish, subject to review by their reader. ANU Press will sell both the electronic and hard-bound version of the book.

Adelaide usually experiences pleasant autumn weather in the second half of April, and the waters of Gulf St Vincent on which it is situated are at their warmest of about 22 °C. The ICHO IX venue is a short walking distance from Tonsley railway station for access to the city hotels and restaurants. Evening return to the city can also be made by bus. The Tonsley campus is also about one-half hour by car from Adelaide Airport. The Southern Ocean lies about 80 km to the south of the venue, and during the course of the Congress some bracing oceanic or warm desert wind events may be experienced. Climate model predictions for Australia indicate that the central southern coast is likely to be the most live-able region under global warming.

13th-15th April 2016: Workshop on “High-resolution ocean modelling for coupled seamless predictions”

Exeter, UK

The scope of this workshop, to be held at the UK Meteorological Office, is to look at the scientific development of ocean models and global coupled prediction systems at resolutions of order 1/12° for seasonal to decadal prediction and short-range weather forecasting and to:

- Identify expected improvements to processes and performance
- Clarify the key choices for ocean model configurations and parameterisations
- Discuss the development of coherent designs and collaborations for experiments and diagnostics

A first [agenda](#) is now available from the workshop website. Please use this link to always get the latest agenda version. Registration for the workshop is now open. To register please complete the workshop [registration form](#) which will also allow the submission of abstracts.

All presenters must register in order to attend the HRCP workshop. The registration fee will cover costs for lunches, breaks, ice-breaker and poster boards and will be in the range of GBP 75-100 (exact level to be confirmed soon). The fee will be collected on-site in cash (only).

The deadline for registration is the 31 March April 2016. Venue, directions and accommodation information is available from the workshop website:

<https://www.godae-oceanview.org/outreach/meetings-workshops/external-meetings-supported-by-gov/international-coupled-seamless-prediction-meeting/local-information/>.

This is an International workshop supported by GOV and the GOV CP-TT (Coupled Prediction Task Team). For more detailed information about the workshop, agenda, sessions and local information please visit the workshop website.

12th-17th June 2016: Gordon Research Conference on Ocean Biogeochemistry

Hong Kong, China

The 1st Gordon Research Conference (GRC) on Ocean Biogeochemistry will be held at the Chinese University of Hong Kong. The topic of this first conference will be *The Biologically-Driven Ocean Carbon Pumps*.

Interested researchers, postdoctoral fellows and graduate students are invited to apply for participation as soon as possible on the GRC website (Online Application):

<http://www.grc.org/programs.aspx?id=17297>

[Nianzhi Jiao](#) and [Eileen E. Hofmann](#) (Chairs)

[Louis Legendre](#) and [Sylvia Sander](#) (Vice Chairs)

5th-7th July 2016: UK Antarctic Science Conference

UEA, Norwich, UK

We welcome everyone working on Antarctic or Southern Ocean science, including techniques such as in situ measurements, numerical models, laboratory experiments or remote sensing. The conference welcomes all science disciplines, including cryosphere, earth, atmosphere, marine, climate and life sciences.

There are rooms booked for associated meetings Monday - Tuesday and Thursday - Friday, so if you would like to organise a side meeting (e.g. UK Polar Network, Sea Ice group) then please contact us. We also look forward to hearing from you if you are interested in sponsoring the conference or having a stand or display at the conference.

We look forward to welcoming you to Norwich. Details of the conference website, deadlines, reg-

istration and abstract submission will follow shortly.

5th-8th September 2016: 17th Biennial Challenger Society Conference: Oceans and Climate

Liverpool, UK

First announcement and call for sessions

<http://www.liv.ac.uk/challenger-conference-2016/>

We are pleased to announce the next biennial Challenger Society for Marine Science conference will be held in Liverpool in September 2016.

The call for abstracts under the successful session programme will be announced in February 2016. Where significant overlap exists between proposed sessions the committee will approach conveners to arrange joint or amalgamated sessions. The conference will provide space for up to 24 sessions, including oral presentations and dedicated poster sessions with multimedia capability over 3 days.

Space and funding is also available to support special interest groups (SIGs), large project meetings and education/outreach events, with free facilities offered on Monday 5th and Friday 9th September. Please submit proposed events of this type using the same format as for scientific sessions with the subject prefix "SIG:".

Further enquiries can be made via csms_enquiry@noc.ac.uk. We look forward to seeing you in Liverpool next September, - **Dr Matthew R. Palmer**

On behalf of the conference local organising committee.

12th-16th September 2016: CIESM Congress

Christian Albrechts University, Kiel

To All CIESM Friends, this will be the first time that our Congress takes place in Germany, which has been a Member of our Commission since 1969.

This message is a call for papers to the 41st CIESM Congress which will take place in mid-September in Kiel, on the Baltic shore, at the kind invitation of the German Government. You are invited to submit online, **between 8 January and 10 March**, one brief illustrated paper- two max.

Our Meeting, one of the largest multidisciplinary forums in marine science, will present

a major opportunity not only for researchers working on the Mediterranean and Black Seas, but also to any investigator from the Red Sea all the way to the Kara Sea, including the Atlantic shores, to come and share / compare / discuss their scientific approaches and latest findings in some 90 distinct sessions that will cover key issues. The sectors will range from marine geosciences, ocean climate, marine food-webs, invasive species, to marine plastics, biotechnology, geo-chemistry and marine policy. Note that each session will include a 30 minute-debate with the audience.



The link, www.ciesm.org/marine/congresses/Kiel.htm, will lead you to our Congress web pages, with details on the many Congress themes (your submitted paper must align with at least one of them), on Congress fees, on instructions to authors, etc. From there you will be able to register and submit your paper online.

NB. In the past, a number of authors took advantage of our reviewing work on their papers, but forgot (and ultimately neglected) to acquit their registration fee. For the sake of efficiency, a new procedure is now in place: each author will be able to submit her/his draft paper only after her/his individual registration fee has been paid on our web interface (this takes just a few seconds). No group registration will be allowed.

Please note that you will benefit of a special (-40%) discount if you register **before 20 February**, with the option to finalize and submit your paper later, provided that you meet our final deadline: no paper submission will be possible after 10 March. We look forward to see many of you in Kiel next September. With my best regards, Frederic Briand, Director General, The

Mediterranean Science Commission, CIESM

15th-17th November 2016: SUT 2016 Technical Conference, The Future of Underwater Technology

London, UK

Abstracts are now invited for submission of papers for the SUT Future of Underwater Technology Conference 2016. The conference will be held in London (UK) to celebrate the 50th anniversary year of the Society. It aims to attract the best authors in their field from across the world to showcase new technologies, products, best practices and in particular foresight the next generation of subsea engineering, marine science, and all aspects of underwater technology.

It will be a flagship event for the Society and it is the intent for it to become a regular occurrence and be held in future at SUT global centres around the world.

The SUT Technical Conference 2016 will offer:

- First class sessions and networking
- Opportunity to connect with underwater engineering, science, and business professionals from around the world and progress your knowledge
- A showcase for the latest technologies in subsea engineering, marine science, and all aspects of underwater technology
- An opportunity to see and meet the talent of students and young professionals that are emerging as the next generation in our industry
- The conference will have an intimate exhibition area which will provide excellent opportunities for networking and knowledge exchange.

Academics, Consultants, Engineers and Scientists, Business Executives and Managers, Lawyers, Insurers and Underwriters, Researchers, Technicians, Young Professionals and Students are some of the people we expect to see at the conference. There are also opportunities for sponsorship and to take up exhibition space. The venue will allow provision for vessel access alongside.

General Guidelines

- Abstracts will be reviewed and a decision on acceptance will be made by the Technical Steering Committee (TSC).
- You must obtain the necessary permissions

from your management/superiors to present/publish your paper.

- A brief abstract of 250-500(max) words is required for assessment and must be submitted on the abstract submission form (see below). Your abstract should include a description of the proposed paper, any results/conclusions, and the technical category most applicable to your paper (See website).
- Abstracts can be received any time up to 9th May 2016.
- Final written papers must be original and approximately 3000-5000 words.
- If accepted your paper will be published in the conference information media including the SUT website.
- Papers are to be technical in nature and SUT policy does not support the use of commercial trade names, company logos, or text that is overtly commercial in nature in the paper title, text, or slides. Use of such terms will result in careful scrutiny by reviewers evaluating abstracts.
- Presentation of papers at the conference will be in MS PowerPoint and are to be in a common conference format (template to be provided). Twenty minutes will be allotted to each paper, including introduction, presentation, questions and answers.
- Authors will be required to pay a fee (giving right to full registration – see website for registration fees) and present the paper at the conference. Failure to present the paper at the conference may exclude from publication.
- SUT have an Open Access policy. Papers will be published in digital format by SUT and will be archived on OnePetro.org. Selected papers will be assessed for publication in the Society's Journal, *Underwater Technology*.

The programme will consist of plenary sessions, technical sessions, and student poster displays. Substantial effort will be made to ensure the highest quality programme with emphasis on the theme of the event. The final programme will be developed by the Technical Steering Committee which will be made up of representatives from the whole SUT organisation including Branch Committees, Special Interest Groups, and Council. Provision has been made for approximately 200 papers to be presented in plenary and parallel sessions throughout the 3 day event.

Call for abstracts open: Oct 2015
 Deadline for abstract submissions: 9 May 2016
 Authors notified: 10 Jun 2016
 Deadline receipt of publication quality papers: 23 Sep 2016
 Deadline receipt of conference presentation: 7 Oct 2016

Please use the abstract submission form, which can be downloaded from www.sut.org/event/sut2016. Abstracts should be submitted in English and in Microsoft Word format; please do not send PDF format abstracts. Abstract forms should be submitted by the deadline by email to sut2016@sut.org. A notice of receipt will be emailed by return. Student poster submissions should use this call process and mark submissions as "Poster"; no paper will be required. If you have any queries about your submission please contact either David Liddle, Business Development Executive david.liddle@sut.org, or Kirsty Webster, Events Manager: kirsty.webster@sut.org

6th-7th September 2017: Advances in Marine Biogeochemistry Conference VIII

Oban, UK

Save the date for AMBIO VIII, more information nearer the time, www.challenger-society.org.uk/Marine_Biogeochemistry_Forum

Advances in
Marine

 **SAMS**



**Biogeochemistry
Conference VIII**

Marine Biogeochemistry Special
Interest Group of the Challenger Society

**Save the date!
6 – 7 Sept 2017
at SAMS in Oban**



Organisers:
 MBF Chair: Gary Fones, Uni. Portsmouth
 AMBIO VIII Co-convenors: Kirsty Crocket and Natalie Hicks, SAMS
 Photo: Emma Defew and Mark James

AMBIO meetings set the stage for Marine Biogeochemistry in the UK, connecting disciplines within the field and establishing networks for the integration of early career scientists. The AMBIO VIII meeting in September 2017 is to be hosted at the Scottish Association for Marine Science in Oban. Save the date! Registration will open in early 2017.

Info: www.challenger-society.org.uk/Marine_Biogeochemistry_Forum
 Contact: kirsty.crocket@sams.ac.uk, natalie.hicks@sams.ac.uk

CSMS email addresses are president, admin, membership, secretary and treasurer@challenger-society.org. Contributions for next month's edition of Challenger Wave should be sent to: john@vectisenvironmental.com by the 29th February.

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

No job adverts sent to me this month i'm afraid, come on let's get writing those grant proposals ! – Ed.