

Challenger Wave



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

The Editor thanks RS Aqua for sponsoring this month's edition of Challenger Wave



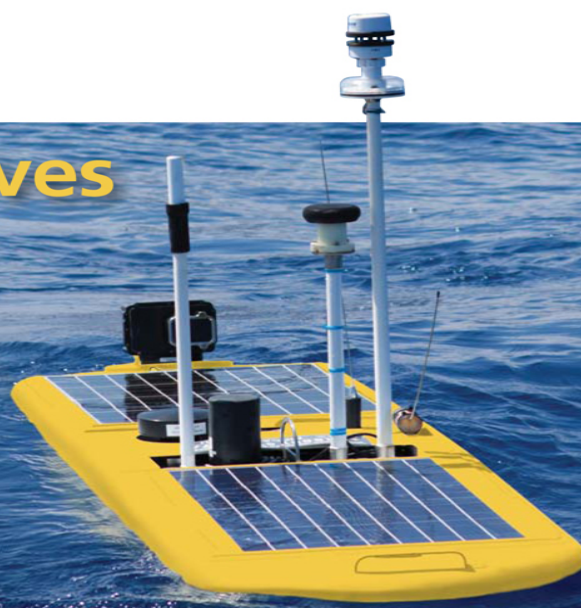
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NEWS

YCSEC2014 First Announcement

The 10th UK Young Coastal Scientists and Engineers Conference (YCSEC) will be held at Cardiff University, 14-15 April 2014. More information can be found at <http://sites.cardiff.ac.uk/ycsec2014>

The YCSEC is an annual event and aims to bring together early career researchers and practitioners (such as PhD students, Post-Doc researchers, and recently qualified professionals) from different disciplines, but all concerned with physical processes in the coastal environment. Attendees will be given the opportunity to discuss and present

their work, either orally or in the form of a poster, in a relatively informal setting. Prizes will be awarded to the best presentation and poster. Professor Dominic Reeve from Swansea University will present the keynote lecture. In addition to the formal elements of the meeting, there will be ample opportunity to socialise and network during the conference dinner and field trip (Cardiff Bay and Barrage).

Ocean Challenge

The latest edition of the CSMS journal, Ocean Challenge, is now online, thanks to the hard work of the editorial board.

The URL for access is: <http://www.challenger-society.org.uk/journals/oceanchallengelatest>

Challenger Society Schools Outreach

The Challenger Society will be exhibiting at the Association for Science in Education (ASE) annual conference in January 2014. The ASE aims to promote excellence in science teaching and learning with a focus on schools and colleges. Challenger Council believe this is an excellent opportunity to promote the society amongst UK educators and hopefully develop new links for education outreach for the marine science community. As Council member for Education and Outreach I am trying to recruit a couple of extra members to help with the event. I currently have plenty of assistance from the marine physics community but would appreciate assistance from other disciplines so that the full breadth of our members work is represented. If you are willing to help, and available to provide at least one days assistance at the University of Birmingham between the 9th and 11th January 2014 then please contact me directly. Many thanks, Matthew Palmer, Marine Physics and Ocean Climate, National Oceanography Centre, Liverpool, <mailto:matthew.palmer@noc.ac.uk>

New Coastal Ocean Processes Special Interest Group

"Linking Estuaries With The Open Ocean": the 1st Challenger Society Coastal Ocean Processes Special Interest Group meeting is planned for the 25-26th March 2014 in Liverpool. The workshop will bring together the coastal community to present and discuss current and future marine research. Registration and abstract submission can be made via the website <http://noc.ac.uk/workshops/cow>.

Aliens in British waters

In its fifth annual report card published today (28th November 2013), the Marine Climate Change Impacts Partnership (MCCIP) turned to Dr Liz Cook, a specialist in invasive species at the Scottish Association for Marine Science (SAMS), for a report on non-native and invasive species now living in British marine and brackish waters.

Based on recent studies, her report looks at the evidence for the influence of climate change on non-native species, discusses what could happen in the future, gives a description of socio-economic impacts in UK and Ireland and helps highlight the knowledge gaps.

Here we present a news item on Dr Cook's findings, <http://www.sams.ac.uk/news-room/news->

www.challenger-society.org.uk/

[items/alien-count-is-on-the-up](#) to see it on the SAMS website. For more information or images please contact Cathy Winterton by email, <mailto:Cathy.winterton@sams.ac.uk>, or on 01631 559 342

Alien species in our coastal waters are on the increase. Many more are likely to come. Some will expand their range. Some can cause environmental and economic impact and some are plain revolting.

Over the past few decades there has been an exponential increase in the spread of non-native species around the world. This trend has been seen around Britain and Ireland, and although increasing species numbers and species abundance may partly reflect more frequent and more intense monitoring, it is believed to be real.

Non-native species (NNS) are species that have been intentionally or unintentionally introduced to regions outside their usual, natural range and dispersal potential. Higher numbers of introductions are linked to snowballing human mobility and the growth of fast, efficient modes of transport, particularly international shipping, which help high levels of survival.

If a newly introduced species becomes established and begins to threaten biodiversity, cause economic damage or both, they are called "invasive". Biological invasions are one of the greatest threats to marine biodiversity and can be economically and ecologically devastating.

There are now more than 90 NNS species known to live in British marine and brackish waters. Of these, over 60 are established and several are considered to be high impact, environmentally, economically or both, and some of them continue to expand their range.

Already in Britain, NNS are estimated to cost the economy £1.7 billion a year, with the annual cost to marine-based industries, like shipping and aquaculture, estimated at £39.9 million, which is probably an underestimate because little distinction is made between native and non-native species during pest control operations.

Improved knowledge and understanding of taxonomy, biogeography, and invasion biology has exposed the origin of many species now in British waters, and DNA marker techniques have pro-

vided more precise methods of tracking alien species.

The two main areas of origin are the North Pacific and North-west Atlantic. Introductions from regions with similar environmental conditions are more likely to become established and widespread. There are, however, species like the zebra mussel *Dreissena polymorpha* from the Ponto-Caspian region, and the tubeworm *Ficopomatus enigmaticus* from the Indo-Pacific, that tolerate a lot of conditions and have successfully established in British waters.

Most alien species here were initially reported in the English Channel and have then expanded their range from 'hubs', using a selection of dispersal methods to spread northwards to the North or Celtic Seas.

Trade is mainly responsible for their introduction, bringing them in ships' ballast waters and sediments, on fouled hulls (and other hard structures) and in imported consignments of cultured species. Port and marina developments, increased leisure use of boats, and aquaculture all pose risks too.

Conditions created by climate change and extreme weather have also led to the introduction and establishment of some NNS in the North Atlantic and in poleward dispersal, northwards in to the Celtic and North Seas. Climate change can influence every stage of the invasion process, but because of a lack of biological and physiological data, it is often difficult to attribute, for example, shifts in distribution or increased reproductive success, directly to climate change.

Rising seawater temperatures have resulted in the recruitment of some species, like the Pacific oyster *Crassostrea gigas*, at more northerly locations in UK and Europe. They may have also led to others, including the bryozoan *Bugula neritina*, becoming established beyond the warm water areas created by power station outflows.

Regional climate models predict the current trend of warming will continue throughout the 21st century. If the environmental and economic impacts of NNS are to be mitigated, it is critical to understand how the indirect consequences of climate change –including changes in seawater temperature, increased atmospheric CO₂, increased rainfall, heat waves, frequency of storm events, and

ocean acidification, will influence the establishment of alien species and the range that they may occupy in the introduced environment.

The skills of national and international taxonomists have been essential to understand current NNS distributions around Britain and Ireland. Yet, marine taxonomists are in decline and the work done so far has concentrated on near shore marine and brackish water species because of the ease of sampling. This means there has been less offshore benthic and pelagic sampling. With the rapid development of offshore marine renewable energy, this is an area that requires urgent attention.

Despite the last MCCIP report card on non-natives (2010), the production of more biological data and the publication (Minchin et al, 2013) of a full list of NNS in British marine and brackish waters, there continues to be a lack of long-term data and in-depth biological information. Although there are a number of groups (SAMS, ERI, NAFC, MBA) trying to fill knowledge gaps, the overall intermittence of monitoring programmes and detailed surveys needs to change.

VIEWS

Challenger Society Travel Award Report – Katie Quaeck (National Oceanography Centre, Southampton)

This October I was lucky enough to attend a week of intensive training at the world leading Otolith Research Laboratory and Shark Research Laboratory, at the Bedford Institute of Oceanography (BIO), Canada. I wish to thank The Challenger Society for the travel award that enabled me to gain this invaluable "hands on" experience, which has provided me with the essential skills necessary to process my own samples as part of my PhD studies. The trip also provided an excellent opportunity to work alongside other fisheries ecologists, allowing me to meet potential future collaborators and employers !

Whilst visiting the DFO, I worked under the supervision of world-renowned fisheries ecologist Dr Steve Campana, and his team. Here I was trained to process otoliths and vertebrae in preparation for sclerochronological investigation, learning how to embed, section, image and interpret

growth increments in a range of different tissues and species, including cod (*Gadus morhua*), brook trout (*Salvelinus fontinalis*), porbeagle sharks (*Lamna nasus*) and blue sharks (*Prionace glauca*).



Porbeagle and mako shark specimens.

Whilst staying in Nova Scotia, I also had the opportunity to explore the exciting city of Halifax and its stunning surroundings. The “Nocturne” arts festival was a particular highlight !



Weekend sightseeing at Peggy's Cove lighthouse

The trip to BIO was extremely productive and, as an exciting upshot of this visit, I hope to return to Nova Scotia next summer to carry out blue shark sampling ! Once again, I would like to thank the Challenger Society for the financial support.



Playing with blue sharks !

Challenger Society Travel Award Report –

Abigail Marshall (The University of Sheffield and Cefas)

The ICES Annual Science Conference (ASC), Reykjavik 2013, brought together nearly 700 scientists from 37 countries. The marine science at this conference covered a wide range of topics from social science to fisheries dynamics, from Arctic science to methodological specialities. There were multiple talks and topics suitable for all who went.

I was able to present in the ‘Responses of living marine resources to climate change and variability: learning from the past, projecting the future’ session. I focused on work from my PhD about the effects of temperature, oxygen, food and fishing on changes to the North Sea fish community size structure. This opened up the opportunity to form my first collaboration outside of my institute. Some of the talks I found most interesting in this session centred on Arctic fisheries. In this rapidly changing environment, the changes in fisheries in this area are an important topic, and the biophysics is thoroughly fascinating.

The second session I presented in was the ‘Hydrographic processes, circulation and water mass formation in the polar and subpolar basins’ on the Seasonal Variation of the East Greenland Coastal Current. This session was enjoyable partly due to the various aspects of research, but equally due to the discussions formed from the presentations.

Iceland is a lovely country and I would highly recommend anyone wanting to experience “a natural geographer’s home”. Therefore, my thanks go to the Challenger Society for Marine Science for funds allowing me to attend my first conference, find my first external collaborator, and experience a lovely setting for an excellent conference !

SALTS

No news from sea this month I’m afraid

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

16th - 17th December 2013: A kaleidoscope of colour: from the turbid to the oligotrophic Plymouth Marine Laboratory, Plymouth, UK

A joint meeting of the Marine Optics forum of the Challenger Society and the Remote Sensing and Photogrammetry Society. Please find additional information, flyer, abstract template and registration details for this forthcoming meeting at the following web-

site: http://www.pml.ac.uk/accessible_science/events_page/marine_optics_event.aspx. Please note in particular the following dates:

Abstract deadline: 9 October 2013

Registration deadline: 15 November 2013

25th - 26th March 2014: Coastal Ocean Workshop: Linking Estuaries With The Open Ocean Liverpool, UK

This first meeting of the Challenger Society Special Interest Group for Coastal Ocean Processes will bring together the coastal community to present and discuss current and future marine research. The meeting will take place over two half days and talks and poster presentations are invited within all fields of coastal marine science (deadline 31st January 2014). Keynote speakers will be Prof. Jonathan Sharples (Liverpool) and Prof. David Bowers (Bangor)

Registration Fees: Full delegate (Challenger Society member / non-member) - £60 / £70
Student delegate (Challenger Society member / non-member) - £40 / £50
Retired - £50

The registration fee includes lunches, refreshments and an evening dinner and social event on the 25th March. The website is soon to go live where you can register and submit abstracts online at noc.ac.uk/workshops/COW

7th-10th April 2014: Marine Imaging Workshop

National Oceanography Centre, Southampton, UK



Marine Imaging Workshop
7-10 April 2014
National Oceanography Centre
Southampton, UK

Imaging is increasingly used to assess the marine environment. Improvements in photographic equipment, devices for carrying cameras, and data storage in recent years have made the collection of high-quality underwater photographs an easy and useful way of capturing information. How do we get the best use of this data?

Themes

- Image collection
 - Strategies and practicalities
- Processing of images
 - Including correction for colour, size, and camera position
- Still image/video annotation
- Annotation strategies for large data sets
 - Including automation and crowd sourcing
- Data management

Important Dates

2 December 2013	Registration and abstract submission open
15 January 2014	Abstract submission deadline
7 February 2014	Abstract acceptances announced
14 February 2014	Registration and photo competition entry deadline
7-10 April 2014	Workshop

Photo Competition
Submit your best underwater photos to be judged for prizes!

For more information or to register go to marine-imaging-workshop.com

14th-15th April 2014: Young Coastal Scientists and Engineers Conference (YCSEC) 2014

Cardiff University, Cardiff

We invite you to attend the 10th UK YCSEC conference, for which more information can be found on our website at <http://sites.cardiff.ac.uk/yccsec2014>.

The YCSEC is an annual event and aims to bring together early career researchers and practitioners (such as PhD students, Post-Doc researchers, and recently qualified professionals) from different disciplines, but all concerned with physical processes in the coastal environment. Attendees will be given the opportunity to discuss and present their work, either orally or in the form of a poster, in a relatively informal setting. Prizes will be awarded to the best presentation and poster. Professor Dominic Reeve from Swansea University will present the keynote lecture. In addition to the formal elements of the meeting, there will be ample opportunity to socialise and network during the conference dinner and field trip (Cardiff Bay and Barrage).

A provisional programme can be found on our website. You are encouraged to submit your work

for presentation as a talk or a poster, and abstract submission is expected to open within the next week. The deadline for submission of abstracts is 27th January 2014 and notification of acceptance is expected by mid-February 2014. The registration fee is expected to be £75 (depending on sponsorship level). Enquiries may be directed to YCSEC2014@cardiff.ac.uk

27th April – 2nd May 2014: EGU General Assembly 2014

Austria Centre, Vienna

The next EGU General Assembly 2014 (EGU2014) will be held again at the Austria Centre Vienna (ACV) from 27 Apr 2014 to 02 May 2014,

(<http://meetingorganizer.copernicus.org/EGU2014/provisionalprogramme>)

23rd-27th June 2014: Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) Open Science Conference

Bergen, Norway

“Future Oceans – Research for marine sustainability: multiple stressors, drivers, challenges and solutions”



The Integrated Biogeochemistry and Ecosystem Research (IMBER) Project is convening its Open Science Conference from 23-27 June 2014 in Bergen, Norway, with the goals of:

- highlighting research results from the IMBER project and activities,
- promoting integrated synthesis of IMBER research, and
- developing a science plan and implementation strategy for the next phase of IMBER research.

The first day of the IMBER Open Science Conference will be devoted to topical workshops that address aspects of IMBER science. The following three and half days of plenary and contributed sessions will focus on the main achievements of the IMBER project and provide a basis for planning future initiatives. The open call for presentation abstracts will be advertised from early May 2013.

IMBER science is structured around four research themes:

www.imber.info/index.php/Science/IMBER-Science-Themes/Overview.

More information on the IMBER Open Science Conference:

www.imber.info/index.php/Meetings/IMBER-OSC-2014.

CSMS email addresses are president, admin, membership, secretary and treasurer@challenger-society.org.uk Contributions for next month's edition of Challenger Wave should be sent to:

john@vectisenvironmental.com by 1st January

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.**