



FOREIGN & COMMONWEALTH OFFICE  
DEPARTMENT FOR BUSINESS, INNOVATION & SKILLS

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## UK-US Collaboration Development Award programme – Ocean Acidification January – March 2011

### Summary

The UK-US Collaboration Development Award programme – Ocean Acidification laid the groundwork for **16 new joint projects** between UK and US researchers. **Five collaborations** have already started. One visit led to plans for an institution-wide **memorandum of understanding** on collaboration between two world-leading marine research centres. The CDA programme also resulted in concrete plans for **six grant proposals** to US, EU and UK funding sources. **Three joint publications** are already in preparation with **another two in the planning stages**. Two groups have exchanged data sets, and two groups are exchanging samples. Other benefits include an invitation to a UK expert to **participate in a US research cruise**. Two institutions are planning to set up a **summer course for UK students** as well as **two joint PhD projects**.

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### Background

The UK-US Collaboration Development Award (CDA) programme – Ocean Acidification was launched in October 2010. It provided funding for UK and US ocean acidification researchers to facilitate communication of ideas, techniques, and information via short visits between research groups. The programme was sponsored the BIS Global Partnership Fund and is administered through the San Francisco UK Science & Innovation team. It was developed in partnership with the Natural Environment Research Council and the co-funded UK Ocean Acidification Research Programme.

After internal review by NERC and S&I, we granted 10 awards between £1500 and £2000, enabling 11 scientists to travel (one award covered more than person). Six UK scientists visited US institutions and five US experts visited the UK. All travel occurred between January and March 2011.

Awardees were required to return an evaluation form shortly after completion of travel. The San Francisco S&I team will actively monitor progress of the collaborations over the next year.

### Outcomes

The awards covered a breadth of research topics investigating the effects of ocean acidification; from culturing of foraminifera (shelled, single-celled protists) under different conditions, to modelling of deep-sea organism distribution in future CO<sub>2</sub> scenarios, and measurement of changes in ocean geochemistry due to ocean acidification.

Nine of the ten travellers indicated that they were very likely to begin active collaborations with researchers at their host institutions, with **five collaborations already started**. Five travellers were looking to start more than one joint project, or joint projects with more than one group at the host institution - bringing the **total to 16 potential new collaborations**.

One visit led to plans for an institution-wide **memorandum of understanding** on collaboration between two of world-leading marine research centres: the Plymouth Marine Laboratory (PML) and the Monterey Bay Aquarium Research Institute (MBARI). As part of their collaborations, MBARI will

assist PML in adapting their cutting-edge Free-Ocean CO<sub>2</sub> Enrichment (FOCE) system for research use in UK coastal waters.

The CDA programme resulted in concrete plans for **six grant proposals**: Researchers from the University of St Andrews and the Woods Hole Oceanographic Institution are preparing proposals to US (NSF) and EU funding sources to continue building links between the ocean acidification research communities. Two UK groups will be incorporating insights gleaned from their US hosts into grant applications to the Natural Environment Research Council (NERC), and one US group will incorporate the UK collaborator into a proposal to the NSF (e.g. to allow UK participation in a research cruise).

**Three joint publications** are already in preparation, with another **two in the planning stages**. Two groups have already exchanged data sets, and two groups are exchanging samples.

Other benefits include an invitation to a UK expert to **participate in a research cruise** on the US Eastern Seaboard in May 2011. Furthermore, the University of Bristol and the Smithsonian Research Institute in Panama plan to set up a **summer course for UK students** and **two joint PhD projects**.

Two key US researchers were able to combine their visit to the UK with **attendance at the first UK Ocean Acidification Research Programme meeting**, and will share insights into the UK community's work with their US colleagues – building a base for future UK-US collaboration. Information exchange between the UK and US communities was also enhanced through seminars: nine of the travellers gave presentations at their host institutions, including at a symposium with participants from six Northern California universities.

## Awards made

### UK researchers visiting the USA

UK researcher	US host	Main topic for collaboration	Dates
William Austin <i>Univ of St Andrews</i>	Daniel McCorkle & Joan Bernhard <i>WHOI</i>	Planning of joint experiments on benthic foraminifera (pH, carbonate, temperature)	16 – 22 Jan
Piero Calosi <i>Univ of Plymouth</i>	Jonathon Stillman <i>San Francisco State Univ</i>	Application of molecular tools to OA impacts on early life stages of invertebrates	1 – 14 March
Andrew Davies <i>Bangor Univ</i>	John Guinotte <i>Marine Conservation Biology Inst</i>	Predictive modelling of habitat changes (OA, temperature) for cold-water corals	25 Feb– 6 Mar
Erica Hendy <i>Univ of Bristol</i>	Rachel Collin <i>Smithsonian Tropical Research Institute</i>	Develop longterm record of carbonate sea-water chemistry for Caribbean coral reefs	12 Feb– 1 Mar
Andrew Rees <i>Plymouth Marine Laboratory</i>	Jonathan Zehr <i>Univ of California, Santa Cruz</i>	Planning joint studies on OA impacts on nitrogen fixation by cyanobacteria	5 – 11 Mar
Stephen Widdicombe <i>Plymouth Marine Laboratory</i>	William Kirkwood <i>Monterey Bay Aquarium Research Inst</i>	Develop UK capability for Free Ocean CO <sub>2</sub> Enrichment (FOCE) experiments	8 -15 Mar

### US researchers visiting the UK

US researcher	UK host	Main topic for collaboration	Dates
Joan Bernhard & Anna McIntyre Wressnig <i>WHOI</i>	Malcolm Hart <i>Univ of Plymouth</i>	Exchange samples and data; develop joint experiments on foraminifera	7–14 Mar
Terrie Klinger <i>Univ of Washington</i>	Jason Hall-Spencer <i>Univ of Plymouth</i>	Joint OA studies of impacts on shallow benthic systems; attend UKOARP ASM	1 – 8 Jan
Ed Miles <i>Univ of Washington</i>	Carol Turley <i>Plymouth Marine Laboratory</i>	Regional scaling of OA effects on ecosystems; attend UKOARP ASM	3 – 7Jan
Joseph Salisbury <i>Univ of New Hampshire</i>	Nick Hardman-Mountford <i>Plymouth Marine Laboratory</i>	Comparative studies on spatio-temporal variability of CO <sub>2</sub> dynamics in shelf seas	30 Jan –9 Feb

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