



Marine Climate Change Impacts Partnership

Dear MCCIP news subscriber,

The MCCIP website has recently been updated with new marine climate change news and events. Below is a brief summary of the new items that have been added. For more details on all of the items listed below, simply go to www.mccip.org.uk and go to the relevant links in the 'news and events' box on our homepage. Please note that the material presented in MCCIP news does not necessarily reflect the views of MCCIP.

- **[Dramatic reorganisation of seafloor ecosystem due to climate change](#)**
Scientists from the University of California and the California Academy of Sciences exploring the Santa Barbara Basin found that abrupt climate changes caused small decreases in seawater oxygenation, leading to extensive seafloor ecosystem reorganizations. The team analysed thousands of microfossils in a sediment core that covers a period between 3,400 and 16,100 years ago, providing a snapshot of what happened during the global warming at the end of the last glacial period. The study showed that it took up to 1,000 years for the ecosystems to begin recovering from the dramatic climate change, suggesting that future global climate change may result in ecosystem-level effects with millennial-scale recovery periods. [Moffitt et al (2015) Response of seafloor ecosystems to abrupt global climate change. PNAS, [doi: 10.1073/pnas.1417130112](https://doi.org/10.1073/pnas.1417130112)]
- **[Rising carbon dioxide levels stunt sea shell growth](#)**
Scientists have discovered that stunted growth can be a genetic response to ocean acidification, enabling some sea creatures to survive high carbon dioxide levels, both in the future and during past mass extinctions. An international team of marine scientists and palaeontologists was funded by the EU MedSeA project and the UK Ocean Acidification Research Programme. The team studied the way in which sea snails cope in more acidic conditions carrying tests at natural CO₂ seeps – simulating the change in seawater chemistry that will occur in future as more atmospheric CO₂ is absorbed by the ocean. Findings are published in the

Nature journal and explain why marine species that survived previous mass extinction events were much smaller.

- **[Study questions whether phytoplankton reduces greenhouse gases or amplifies Arctic warming](#)**

A new study shows that phytoplankton could be potentially a key driver of Arctic warming under greenhouse warming. Using a coupled ocean-atmosphere model, scientists with Pohang University, Max Planck Institute, and Korea Institute of Ocean Science and Technology, have revealed that the additional positive feedback in the Arctic can amplify Arctic warming by as much as 20%. According to this study, it is the beginning of the geophysical feedback by which chlorophyll and the related pigments in phytoplankton absorb solar radiation and in turn raise the sea surface temperature even further. [Parka et al (2015) Amplified Arctic warming by phytoplankton under greenhouse warming. PNAS, **doi: 10.1073/pnas.1416884112**].

- **[Global warming more moderate than most worst-case models, empirical data suggest](#)**

A study based on 1,000 years of temperature records suggests global warming is not progressing as fast as it would under the most severe emissions scenarios outlined by the Intergovernmental Panel on Climate Change. Natural decade-to-decade variability in surface temperatures can account for some much-discussed recent changes in the rate of warming. Empirical data, rather than climate models, were used to estimate this variability. [Brown et al (2015) Comparing the model-simulated global warming signal to observations using empirical estimates of unforced noise. Nature, **doi:10.1038/srep09957**]

- **[Oceans 2015 Initiative Reports](#)**

These reports summarize the key findings of the Fifth IPCC Assessment Report (AR5) and bring in newer literature to assess the impacts of ocean warming, acidification, deoxygenation, and sea level rise, linking ocean physics and chemistry to biological processes and ecosystem functions (**Oceans 2015 Initiative, Part I**), and ecosystem services and ocean-related human activities (**Oceans 2015 Initiative, Part II**). These reports are the first two of several items being developed to provide input to the upcoming 21st Conference of the Parties to the United Nations Framework Convention on Climate Change.

- **Ocean acidification: What's it all about?**

This is a public meeting for discussion of the latest scientific findings from the UK Ocean Acidification research programme (UKOA, co-funded by NERC, Defra and DECC) and the German programme Biological Impacts of Ocean Acidification (BIOACID, funded by BMBF). The venue will be at the Royal Society, London, on 4 - 5 June 2015. There is no registration fee and refreshments will be provided. Click [here](#) for further details.

News stories: If there are any relevant news items or events that you would like to highlight on the MCCIP website please contact Susana Lincoln at office@mccip.org.uk. New items will be added to the website next month.

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