



## 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](http://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.

- [How unusual is 2016's record-temperature and will the hot streak continue in 2017?](#)

In 2016, the annual global temperature reached a record high for the third year in a row, a very rare occurrence in the **137-year NOAA record** not seen since the streak of record warmth (at the time) of 1939, 1940, and 1941. Using the average global surface temperature as the baseline, and comparing each year's temperature against that baseline, the three last three years 2014 to 2016 were clearly the hottest in record, with a difference. The previous record-warm was the period from 1939 to 1941, although due to global warming those years do not even rank in the top 30 warmest on record any longer.

- [New mercury threat to oceans from climate change](#)

There have been concerns over the levels of mercury in fish for many years but recent studies suggest that rising temperatures could boost mercury levels in fish by up to seven times the current rates. Mercury is one of the world's most toxic metals, and according to the World Health Organization, is one of the top ten threats to public health. High levels of mercury have been linked to damage to the nervous system, paralysis and mental impairment in children. In a recent study published in **Science Advances**, researchers have discovered a new way in which warming increases levels of this metal in sea creatures. They found that extra rainfall drives up the amount of organic material flowing into the seas and

alters the food chain, adding another layer of complex organisms which boosts the concentrations of mercury up the line.

- **[Oxygen levels in the ocean have dropped due to climate change](#)**

As well as having a drastic impact on the ice caps and glaciers, climate change is also changing the chemical make-up of the oceans. While the levels of carbon dioxide are increasing, a recent study published in **Nature** based on 50 years' worth of data has documented how the concentration of oxygen in the oceans is decreasing by an average of two percent. As the oceans warm, their ability to trap dissolved oxygen decreases. But at the same time, the warming of the upper reaches of the oceans decreases the density of the surface water, preventing it from mixing with and carrying life-giving oxygen to deeper layers. Combined with the myriad of other impacts climate change is having on the oceans, the results of this drop in oxygen could be catastrophic. Even small drop in oxygen concentrations can be enough to completely alter some ecosystems, including the formation of dead zones.

- **[From tiny phytoplankton to massive tuna: How climate change will affect energy flows in ocean ecosystems](#)**

Phytoplankton are the foundation of ocean life, providing the energy that supports nearly all marine species. Levels of phytoplankton in an ocean area may seem like a good predictor for fish that can be caught there, but a new **study** finds that this relationship is not so straightforward. Using a mathematical model to explore the transfer of energy from the base of the food web to fish, researchers have found that there are large regional differences in fish catch because of how surface ocean and bottom ecosystems channel energy sources. For example, coastal systems where large amounts of nutrients are 'upwelled' from deep waters via currents contribute to global fish catch that far exceeds what one would expect from phytoplankton production alone.

- **[It's time to talk about climate change differently](#)**

We need to speak the right language to persuade people that acting on climate change is in their own best interest. If the influencers: policy creators, decision-makers and public are not hearing the urgency of our message, then the fault lies not with them, but with us, the communicators. Just like an advertising agency pitching a campaign, we should always start by asking ourselves who is the core audience we want to reach and what language will motivate them into action? The

key may lay in making the best use of visual information, which helps deliver important news in an accessible way to people who are not necessarily looking for it.

**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](mailto:office@mccip.org.uk). New items will be added to the website next month.

**Susana Lincoln**

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