

**Senate Standing Committee on Economics**  
**ANSWERS TO QUESTIONS ON NOTICE**  
Innovation, Industry, Science and Research Portfolio  
Budget Estimates Hearing 2009-10  
01 June 2009

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**AGENCY/DEPARTMENT:** COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

**TOPIC:** Climate change research

**REFERENCE:** Question on Notice (Hansard 1 June 2009, E35)

**QUESTION No.:** BI-46

**Senator IAN MACDONALD**—... Is CSIRO doing work on global climate change in relation to the cooling of the sea in the north? The Bureau of Meteorology indicated to me in answer to a question on notice that in the last 18 months the sea temperatures around Northern Australia had a downward decline from what had been an upward decline for the previous 18 years I think—18 years to 18 months. Is CSIRO doing work on that?

**Dr Clark**—One of the key aspects of our climate change research is in fact the observations both in the marine area, deep ocean as well as the surface temperatures. Dr Johnson has some of the latest information relating to that particular area.

**Dr Johnson**—I am happy to take that question on notice because I am not aware of the evidence given by the Bureau of Meteorology, whether they are talking about long-term temperature trends of the Pacific or the short-term variation in sea surface temperatures as part of the El Nino southern oscillation index—

**Senator IAN MACDONALD**—I think the latter.

**Dr Johnson**—which may be what they are referring to. In that case, yes, the sea surface temperatures in the Western Pacific have been cooling in the last few months, and, as I am sure many of the senators would know, projections are for return to an El Nino cycle in the months ahead. But, if you are talking about longer term deep ocean temperatures, again I would be happy to take that on notice.

**ANSWER**

In framing an answer to this question CSIRO has based its response on the answer provided by the Bureau of Meteorology to QoN 84 SBE of February 2009, which refers to variation in sea surface temperatures over the past 18 years and the past 18 months near the Great Barrier Reef

CSIRO studies sea surface temperature variability and change because of its significant influence on Australia's terrestrial and marine environment. CSIRO's work in the Great Barrier Reef region indicates that due to a long-term warming trend, lower than long-term average temperatures have become less frequent.

However, in recent months, sea surface temperature has been dropping from a high value, and this may be an indication of a developing *El Niño*, as predicted by the Australian Bureau of Meteorology.

In summary, there is an underlying warming trend, but variations between years and decades can produce significant fluctuations so that temperature in a given year is not always warmer than the year before. An analogy would be that while on average September is warmer than June, some days in September can be cooler than some days in June.