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Ocean science has a new guide to future investigation of climate change impacts on the marine food web, based on research released today in the journal *Nature Climate Change*.

The guide enables quick identification of regions experiencing non-linear climate change and also provides a framework for the effects of changing environmental parameters such as temperature, light, salinity, and oxygen to investigate biological knowledge gaps of phytoplankton responses to the changes.

Led by the University of Tasmania's Professor Philip Boyd from the Institute for Marine and Coastal Studies, the research will be utilised in Southern Ocean studies next year as part of the Australian Antarctic Gateway Partnership, announced last month.

Prof Boyd explains that the difference in sensitivity to environmental change of ecosystems versus sea microbial foodwebs. These much-needed insights into influences on marine life from midwater microbes to seafloor communities will be generated using a suite of observation, laboratory, laboratory culture experiments.

Prof Boyd said climate change is altering oceanic conditions in a complex manner. "So far Earth system modelling studies have focused on how alteration of individual properties will affect marine life, but none have simulated the impact of multiple biologically influential property changes."

Understanding the ramifications of climate change on the ocean, this rich source of information has been under-used as the basis for the design of studies to manipulate conditions for marine life.

In a future ocean, regions will encounter different permutations of change, which will

The paper was co-authored by German and long-term US collaborators.

Australia's Antarctic Gateway Partnership: [http://www.imas.utas.edu.au/right-column-content/whats-new3/news/\\$24-million-a-lease-to-unlocking-tasmania-place-as-a-gateway-to-the-antarctic](http://www.imas.utas.edu.au/right-column-content/whats-new3/news/$24-million-a-lease-to-unlocking-tasmania-place-as-a-gateway-to-the-antarctic)

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