

Marine microbial data initiative supports a sea-change

The Australian marine environment has been identified as a climate change hot-spot, with seawater temperatures in the Tasman Sea rising at four times faster than the global average. Marine microbial responses to this environmental variability are regionally specific and have potentially important feedback effects. Bioplatforms Australia through the Commonwealth Government NCRIS programme has co-invested \$1 million to facilitate a marine microbial data project, which will provide an unparalleled archive of marine microbial data for future research applications by the greater scientific community within Australia and overseas.

Australia's ocean environment is influenced by seven different oceans/seas: Indian Ocean, Timor Sea, Arafura Sea, Coral Sea, Tasman Sea, Pacific Ocean, Southern Ocean. It hosts a highly dynamic regional oceanography that is influenced by several boundary currents and mesoscale eddy fields. Australia is also home to the world heritage-listed Great Barrier Reef and has responsibility for the effective management and conservation of this national icon.

There has been a critical lack of datasets describing long-term marine microbial community dynamics, which has hindered Australia's ability to predict climate impacts on the marine environment.

Bioplatforms Australia General Manager, Andrew Gilbert, said, "The marine microbial data initiative will create a genomic reference resource on the effects of changing sea temperatures on marine microbiology and enable researchers to address critical questions about the Australian marine microbial environment."

Co-investment in the project has been made by the Integrated Marine Observing System, CSIRO, University of NSW, University of Tasmania, Macquarie University, Australian Institute of Marine Science, Sydney Institute of Marine Science, and Edith Cowan University. The project data will be leveraged for another 14 grant applications. Additional national collaborators include South Australian Research and Development Institute, James Cook University, Department of the Environment, National Marine Science Centre, Curtin University, Department of Parks and Wildlife, NSW Office of the Environment and Heritage and NSW Marine Parks.

"Due to Australia's unparalleled access to such diverse ocean regions, as well as their points of intersection where water bodies mix, research carried out in Australia will be of considerable value when extrapolated to global scales," said Gilbert. "This project will strengthen existing and develop new collaborations with international researchers wishing to utilise these data."

Key industries such as tourism, fisheries and oil and gas will also benefit from this project: the fisheries and aquaculture industries are directly impacted by marine pathogens, with algal bloom events being responsible for significant economic losses. Aquaculture productivity can be improved through a greater understanding of the most favourable places for farming aquatic organisms.

"There is enormous scope to develop indicators of ecosystem health and disturbance using marine microbiological approaches," said Gilbert. "Microbes represent a potentially critical tool and solution for bioremediation of impacted environments."

Further information:

Andrew Gilbert, General Manager, Bioplatforms Australia
E: agilbert@bioplatforms.com T: 02 9850 8281 M: 0410 538648