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National map of sea-floor biodiversity

Marine scientists from five research agencies have pooled their skills and resources to map life on the sea floor – compiling a directory of biodiversity on Australia's continental shelf.

Credit: Museum Victoria

The work was part of a program conducted by the Commonwealth Environment Research Facilities Marine Biodiversity Hub, which brings together the University of Tasmania, CSIRO, Geoscience Australia, the Australian Institute of Marine Science and Museum Victoria under the Commonwealth Environment Research Facilities program.

Hub Director, Professor Nic Bax of CSIRO and the University of Tasmania, says the program's researchers developed and applied a consistent, national approach to biodiversity mapping.

'[We] compiled existing biological survey datasets, mapped 1868 square kilometres of seabed with multibeam sonar, recorded 171 kilometres of underwater video, and collected nearly 1000 samples of seabed sediments and marine life,' says Professor Bax.

'At a national level, we identified 37 environmental factors that shape seabed life, such as depth, oceanography, the type of seafloor, food availability, and the strength of currents and waves.

'Statistical modelling was then used to predict seabed biodiversity, at a scale of one square kilometre, across more than two million square kilometres of the continental shelf. Genetic techniques examined the links between biodiversity in different areas, and economic studies examined new options for biodiversity management,' Professor Bax explains.

Finer scale mapping of previously undescribed areas of the seabed in four important areas around Australia – Jervis Bay, Lord Howe Island, south-eastern Tasmania and Carnarvon Shelf – was also completed.

The program's new information will be incorporated into the Australia Ocean Data Network and the Atlas of Living Australia.

The Department of Sustainability, Environment, Water, Population and Communities has already used some of the maps to improve its understanding of Australia's oceans as part of the marine bioregional planning process.