



## **Integrated marine observing in Australia's coastal zone in support of science and policy**

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Australia's Integrated Marine Observing System (IMOS, <http://www.imos.org.au/>) is a federal government research infrastructure program supporting marine and climate science in Australia's marine jurisdiction, the third largest on the planet. IMOS spans from the tropics to Antarctica, from ocean to coast and encompasses observations of physics, chemistry & biology. Many of the IMOS observations are focussed on the uniquely varying coastal zone including networks of moorings, HF radar stations, passive acoustic animal tagging stations, ships of opportunity and autonomous underwater vehicle transects monitoring benthic biodiversity, backed by satellite remote sensing. All data is open access.

In order to bring observations to policy and decision makers, as well as the wider community, data provision is not sufficient in itself. Amongst strategic responses to new and emerging socio-economic, legal and policy priorities is the development of value-added products which are relevant to end-user needs and easily accessible to non-scientists. Several steps are being undertaken to address these needs and to improve the uptake of IMOS data and data products. Firstly, all near real time data are mapped on a daily basis through IMOS "OceanCurrent" (<http://oceancurrent.imos.org.au/>); this brings scientifically robust data to users in a wide range of graphical representations, including animations. Secondly, as datasets and time series increase, policy-relevant analyses are being developed such as the Plankton 2015 Report, which demonstrated plankton as indicators of ecological change. Analyses like these can contribute to formal, periodic assessments such as the national State of the Environment and State of Climate reports. Of particular interest at present is the role underwater imagery can play in these reports, and in marine park management in general, and IMOS is central in developing national services to enable annotation and analysis of all kinds of underwater imagery.

Sustained observations, accessible data and analysis and interpretation can also be used to underpin marine modelling systems used to advise industry and decision makers; for example steps are in motion to develop services to provide 'model-ready' observations for a 25-year coastal ocean reanalysis as a prerequisite to the implementation of a national coastal ocean forecasting system.