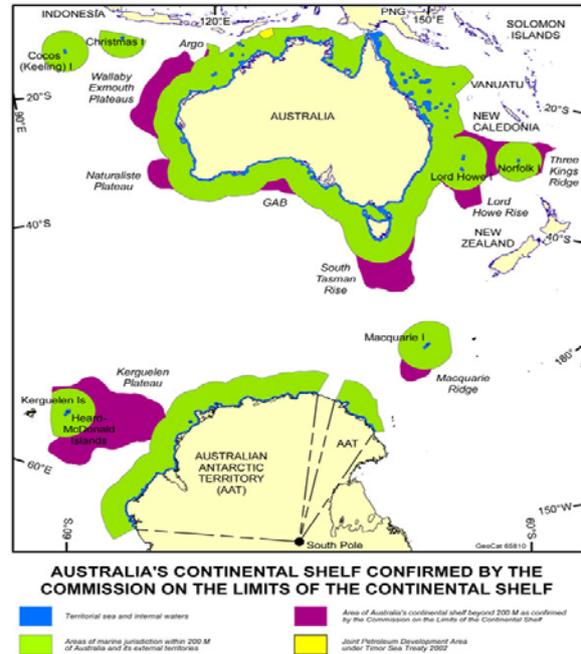


Supplementary Submission to the Parliamentary Inquiry into Climate Change and Biodiversity
The need for institutional support for long term observation of Australia's ocean territory
 Institute for Marine and Antarctic Studies, University of Tasmania
 March, 2012

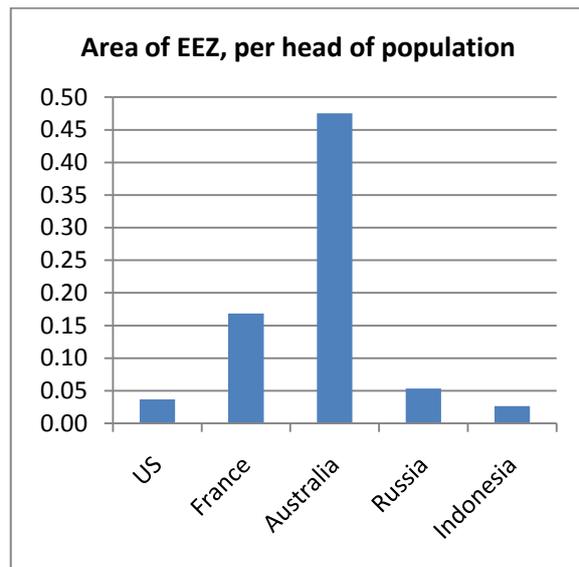
Australia is a 'marine nation', with the third largest ocean territory on Earth. Only the United States and France have larger ocean territories. The extent of our marine jurisdictions are shown opposite, including territorial seas (blue), Exclusive Economic Zones (green), and extended continental shelf (purple). Australians are highly sensitive to an ocean-influenced climate, through drought, flood, and extreme events. We live in a highly-urbanised society, with 88% of the population in major cities and inner regional areas on or near the coast. We are custodians of marine assets with globally significant conservation value, uniquely spanning the high tropics to Antarctica. And we are extracting huge economic benefit from our ocean territory, through industries such as marine tourism, oil and gas, shipping, and fishing and aquaculture.



According to the latest Australian Institute of Marine Science (AIMS) Index of Marine Industries, the total measurable value of economic activity based in the marine environment in Australia in 2008-09 was around \$44 billion¹.

Our ocean territory therefore represents a great opportunity for the Australian people. But it also represents a great challenge for a country with a relatively small population. The graph opposite shows the nations with the world's five largest EEZs, relative to their populations.

Unsurprisingly, Australia still has much to discover and understand about its vast ocean territory. It is therefore essential that our efforts to observe the ocean are well coordinated and highly collaborative, to ensure that our investments yield maximum value.



¹ <http://www.aims.gov.au/source/publications/pdf/AIMS%20Index%20of%20Marine%20Industry-Dec%202010.pdf>

Tremendous progress has been made in recent years, particularly through the establishment of IMOS, Australia's Integrated Marine Observing System². Through Australian Government investment in this program, the marine and ocean-climate research community now has a nationally coordinated approach to marine observing and data management, which has also attracted co-investment from several State Governments, most significantly Western Australia and Queensland.

However the job is far from done. IMOS is only funded on a short-term basis (initially for five years, with a two year extension), and current funding lapses on 30th June 2013. The observing network is still quite sparse, and there are gaps that need to be filled. Core funding for IMOS (currently \$18M per annum) is only 0.04 of one percent of the annual value Australia's marine industries, so the level of investment required is quite modest relative to the opportunities and benefits. Furthermore, IMOS is funded as a research infrastructure program and is not designed to meet operational needs for ocean observing, though it can make an indirect contribution. Australia does not have an operational entity with a clear mandate for ocean observation.

By way of comparison with other 'marine nations', France has dedicated, separately-funded observatory programs, and in 2009 the United States legislated the requirement for an integrated ocean observing system (US-IOOS), which is operated by the National Ocean and Atmospheric Administration (NOAA), a federal agency focused on the condition of the oceans and the atmosphere. These countries also have more highly developed and coherent approaches to operational oceanography, managed by operational agencies with a clear mandate for the ocean eg, NOAA.

In summary, observation of Australia's ocean territory needs to be adequately funded over the long-term. This need is becoming ever more obvious as we grapple with the impacts of our changing climate, increasing ocean acidification, and sea-level rise - problems which are slowly but inexorably accumulating and require persistent observation to assess and plan for efficient adaptation. The need for persistent coordinated support is also emphasised by the complexity of ecological responses, which commonly develop over decades or longer timescales, owing to the "ecosystem engineering" aspects of key species, and the lifetimes of top predators.

In the near future, the continuation of IMOS appears to be the most efficient and useful approach. In parallel, establishment of some long-term ecosystem research sites as part of the global LTER³ program also has merit. Over the longer term, commitment to an institutional arrangement, such as expansion of the mandate of a government agency or the creation of a dedicated university consortium, is warranted.

² www.imos.org.au ³ www.lternet.edu