

# Marine reserves: Finding the balance with oil and gas

February 6 2014, by Cordelia Moore

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While we don't know much about oceans off north west Australia, we know they're important. Credit: Australian Institute of Marine Science

How do we get the most out of our marine reserves? The government is in the process of reviewing Australia's network of marine protected areas. The review focuses on zones that [exclude recreational fishers](#), and whether those fishers can be allowed back in.

However, fishing isn't the only threat to [marine life](#): [oil](#) and gas developments also influence offshore waters. Separating marine protected areas and regions with oil and gas potential leads to an unrepresentative reserve system. But working with oil and gas companies

could work out both for industry and our ocean.

## **Like oil and water**

Striking the balance between biodiversity conservation and industry is never easy. It is particularly difficult in regions that support both important biodiversity values and industry assets such as oil and gas resources and important commercial and recreational fisheries.

While the current management review will focus on fishing, a very different challenge exists in Australia's northwest marine region. Here, some of the world's most pristine and biologically diverse marine ecosystems overlay internationally significant oil and [gas reserves](#).

Australia's gas production has almost doubled since the turn of the century and is expected to quadruple by 2035. In a time of transition, following a decade-long mining boom, the government is seeking to maximise access to the nation's oil and gas resources. With the majority (92%) of Australia's conventional gas resources located in Australia's northwest, finding the right balance between biodiversity conservation and industry interests is difficult and potentially expensive.

In fact, disasters have happened. In 2009, this region experienced the worst offshore oil spill in Australia's history. The blowout from PTTEP's Montara wellhead, located 250km off the Kimberley coast, resulted in 10 weeks of continuous release of oil and gas into the Timor Sea.

In total, the oil spill was estimated to cover an area of 90,000 square kilometres. Ongoing aerial spraying with dispersants was the primary early response to the spill with tens of thousands of litres of chemical dispersants sprayed into Australian waters.

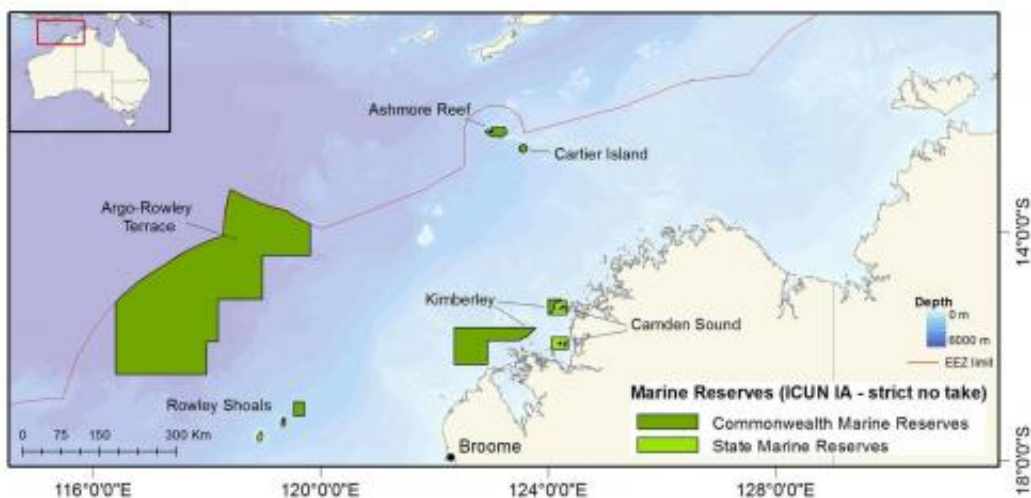
We learned two very important lessons from the spill. First, the threat of

an oil spill was realised and one of our most pristine and ecologically diverse marine environments was put at risk of irreversible damage.

Second, it highlighted what we don't know. We lack the ecological data for the region to be able to identify and manage the impacts of an oil spill.

## Protecting hidden reefs and biodiversity hotspots

After the spill, scientists hurried to start filling the gaps in what we know. While we lacked pre-existing ecological data, there was little evidence of a substantial impact from the oil spill. To improve this process in the future we now have some baseline monitoring sites in place. In addition, we have a new regulator focused on the implementation of more stringent oil spill response plans and risk management procedures and individual companies have had to upgrade their response and management plans.



The proposed strict no-take marine reserves for Australia's northwest leave many ecological communities unprotected. Credit: Cordelia Moore

One important discovery was the rich coral reef communities of the submerged banks and shoals. These abrupt geological features pepper the continental shelf and shelf edge. However, as these underwater mounds plateau beneath the sea surface they have previously gone unnoticed, hidden beneath the waves.

Intensive post-spill surveys revealed the shoals to support fish diversity greater than that seen on similar features within the Great Barrier Reef. They are also positioned to act as important stepping stones for biological connectivity across Australia's north west and may serve as an important refuge for species vulnerable to climate change.

However, the current national [marine reserves](#) system offers almost no protection for these areas (less than 2% fall within the no take marine reserves).

## **"World's largest marine park network"**

The previous government aimed to create the "world's largest marine park network". With the current network falling just shy of 30% of Australia's territorial waters, they came very close.

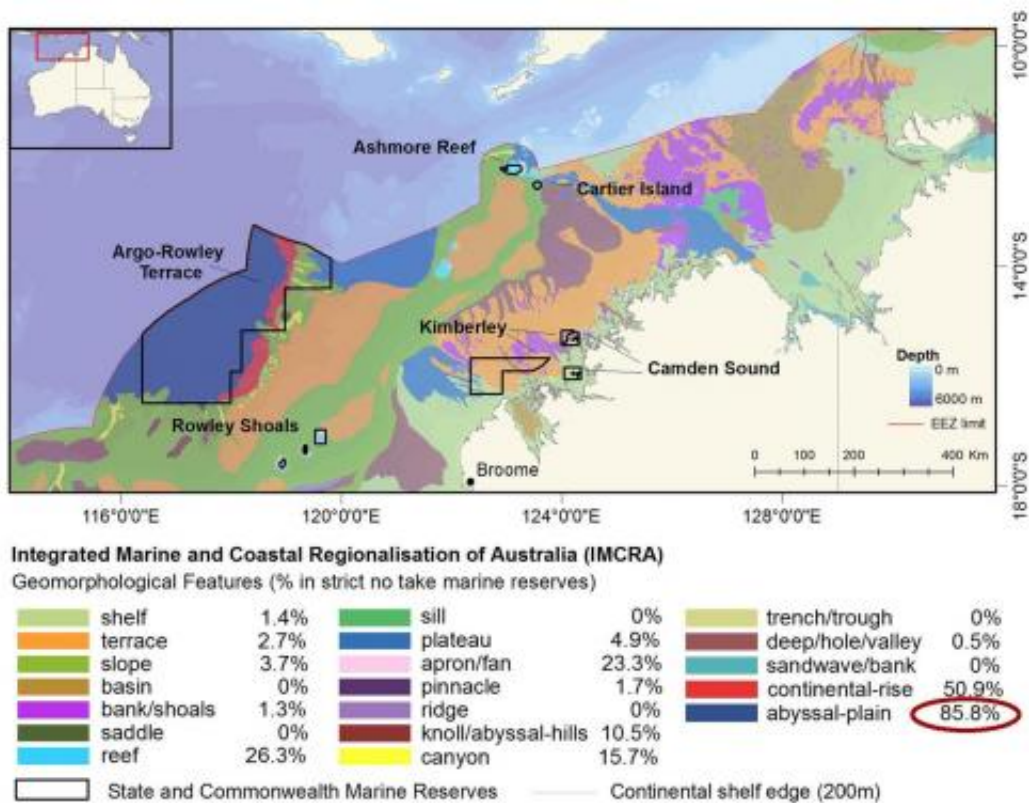
Although, as Bob Pressey detailed in his article on Australia's marine protected areas, size isn't everything.

Last month I lead a workshop at the University of Western Australia to assess the marine park network to the north west of Australia (north of Broome). The workshop included universities, government and industry.

During the workshop we assessed just how representative the marine parks of this region actually are. With little data available on biodiversity, we used the proxy of undersea geomorphology.

What we found is that of 19 different ecological communities, only four are adequately represented, two are over-represented, seven are under-represented and six aren't represented at all.

The most vulnerable section of our marine region is the continental shelf (less than 200m depth), where threats to biodiversity are concentrated. Despite this, the majority (75%) of the proposed no take areas focuses on the abyssal plain 3000-6000 metres below the surface.



Because we don't exactly know what's under the sea, we use geomorphology as a proxy. Credit: Cordelia Moore

Why? Protecting biodiversity to the north west of Australia comes with substantial opportunity costs to the oil and gas industry and commercial

fishers. As a result, the proposed marine reserves of Australia's north west have weighed heavily in favour of industry.

## **A way forward**

With a reserve system already struggling to be representative, there are very real concerns associated with making any changes outside a robust conservation planning process. Currently the federal government proposes to maintain the outer boundaries of the marine parks network, while changing zoning within the reserves to allow recreational and commercial fishers access. But without closing alternative areas, this will only compromise our limited ability to manage threatening processes and conserve biodiversity.

Examining a small fraction of the problem will only ever provide a small fraction of the solution.

At the workshop in WA, we tried to come up with a better solution. We looked at a way to maximise representativeness, while minimising costs to user groups using an advanced systematic [conservation planning](#) approach.

Preliminary analyses demonstrated that entirely excluding whole regions prospective for oil and gas reserves makes a system of [marine protected areas](#) unrepresentative while including these regions makes a reserve system very expensive.

One cost-effective solution could be found for this region by bringing industry users into the management process and agreeing that prospective areas for oil and gas extraction are not incompatible with marine [biodiversity conservation](#). Oil and gas developments often have stringent biodiversity protection targets and with people present on most sites all the time, enforcement of adjacent no take areas is potentially far

cheaper.

The possibility for the oil and gas industry to be actively engaged in the protection of marine biodiversity may be a way of offering presently unrepresented marine ecosystems some level of protection too. In general the industry's infrastructure footprint is quite small. Major oil spills from exploration and production activities world-wide are relatively rare with just one occurring on the west coast of Australia. While the risk is low, the consequences can be high. Therefore implementing multiple protected areas is one way of 'hedging our bets'.

In a region highly valuable to industry the costs of biodiversity protection will be high if we continue to see oil and gas interests as incompatible with conservation. But leaving these unique ecosystems without management and protection may cost us even more in the long term.

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