



Bay of Islands Coastal Park. Photo: Geoffrey Crane

Seismic testing in the Bay of Islands Coastal Park

In late May 2010, the Victorian Minister for Environment and Climate Change Gavin Jennings, under section 40(2) of the National Parks Act 1975, consented to the conduct of petroleum exploration (seismic surveys) within the Bay of Islands Coastal Park. The permit was granted pursuant to the Petroleum Act 1988 and is subject to terms and conditions. The decision was extensively reported in the mediaⁱ.

The local Parks Victoria chief ranger also needs to endorse the Operation Plan, which must identify all intended exploration sites and access routes within the park, equipment to be used, methods of working, measures to minimise environmental, cultural and social impacts, and measures to ensure public safety.

The permit will require formal assessment and approval under the Environment Protection and Biodiversity Conservation Act 1999 before exploration activities can occur. There will be a 10-day public submission period once the proposal has been referred to the federal environment minister.

The proposal by Origin Energy involves both land and offshore seismic surveys. These surveys commonly use high-intensity, low frequency sound waves that are directed through layers of rock below the earth's surface and reflected at boundaries between geological layers with different physical and chemical propertiesⁱⁱ. The reflected sound waves are processed to provide information about the structure and composition of geological formations buried below land and the sea. This is the basis for the use of high-intensity seismic signals to prospect for oil and gas reservoirs.

Offshore seismic surveys commonly use large ships to fire high-intensity air guns deep into the ocean to probe for the existence of oil and gas reserves. The high energy noise sources are directed downward into the seabed, commonly to depths of up to 10km, then reflected upwards again within the underlying rock strata.ⁱⁱⁱ

There are considerable environmental concerns in relation to the impacts on marine species from seismic testing, as well as the potential damage to the park's ecological and geological values. Land-based seismic surveys require onground vehicle access to areas within

the Coastal Park, which would potentially damage the fragile coastal vegetation if new roads or clearing are required.

A loophole in the National Parks Act allows petroleum exploration even though new mining leases are banned. These issues are explained further in this briefing.

Background

The Bay of Islands Coastal Park protects 950 hectares of fragile coastal vegetation and unique wildlife as well as offshore islands and rock stacks. The park protects the terrestrial environment above low water mark along a 32km narrow stretch of coastline. The Bay of Islands Coastal Park and the adjacent Port Campbell National Park combine to form a linear reserve along 65km of Victoria's Southern Ocean coastline and contain some of the largest and most important areas of remnant vegetation between Portland and the Otways. This stretch of coastline contains a number of major tourist attractions, including the iconic 'Twelve Apostles'.

There are two marine protected areas (MPAs) east of the Bay of Islands Coastal Park - The Arches Marine Sanctuary and the Twelve Apostles Marine National Park. The Arches Marine Sanctuary protects 45 hectares of the marine environment, and contains some of Victoria's most spectacular limestone formations, as well as a diverse range of plants and animals. The Twelve Apostles Marine National Park is significantly larger than The Arches and protects 7500 hectares along some 17 km of coastline.

The proposed exploration site is reportedly 30km west of the Twelve Apostles rock formation, outside the MPAs, but offshore to the Bay of Islands Coastal Park.

The current exploration permit is not the first time this region has been subject to such proposals. BHP Petroleum investigated the development of a gas field 12km offshore from Port Campbell in the late 1990s. Two well-head options were considered, with one of the options being clearly visible from land. Pipeline routes to bring the gas offshore would have passed through Port Campbell National Park, requiring the clearing of

continued next page...



Seismic testing in the Bay of Islands Coastal Park

vegetation and access roads. The park management plan for the area stated that 'both the offshore well head and pipeline could have a significant impact on the landscape values of the Parks'.^{iv}

Another seismic testing proposal for the Twelve Apostles Marine Park in 2003 was eventually denied consent by then Victorian environment minister John Thwaites. This Benaris Energy NV and Woodside Energy Ltd proposal faced widespread community opposition, with local professional and recreational fisherman voicing their concerns.^v The National Parks Advisory Council agreed with the government's decision to refuse the permit on the grounds that there was insufficient scientific evidence to show that there would be no impact on marine flora and fauna as a result of seismic testing.^{vi} Furthermore, during Federal Senate hearings, the then Minister for the Environment and Heritage, Senator Robert Hill, under questioning from Senator Bob Brown, stated that:

"Seismic testing may have a variety of impacts on marine animals depending upon the noise levels produced, propagation characteristics of the receiving environment, and timing or proximity of the survey relative to important life-cycle attributes."^{vii}

Former environment minister John Thwaites, in a government media release explaining his decision not to grant consent to the seismic exploration, stated that:

"A higher environmental test applies to national parks and we have adopted a precautionary approach in this case."

National Parks in New Zealand are also facing the threat of mining exploration, with a government proposal to allow mining in 7000 hectares (27 square miles) of high conservation value land.^{viii} The New Zealand government on one hand considers that mining is important for the country's wellbeing, and on the other openly states that areas of the richest mineral deposits are often where conservation, cultural and tourism values are high, too. Conservationists are understandably horrified and warn that:

"... mining would destroy precious, irreplaceable ecosystems and New Zealand's valuable image as a clean, green tourist destination."

There are other examples throughout the world where protected areas are the target of resource extraction activities. The New Zealand situation demonstrates that national park land tenure does not necessarily offer permanent protection if governments are determined to access them for mineral resources. Community vigilance in defence of these protected areas is essential.

Impacts on marine species

One of the leading scientific studies that researched the impacts of seismic surveys on marine species was a Curtin University of Technology project in 2000.^{ix} This study examined the environmental implications of offshore seismic survey noise on Humpback Whales, Sea Turtles, fishes and squid. Field trials were conducted on marine animals in their natural habitat as well as in simulated cage trials. There was a range of results from the study, with key conclusions including:

- Observations from the seismic vessel showed that fewer whales were seen within three kilometres of the vessel when its air-gun arrays were operating as compared to when they were not, indicating localised avoidance;
- At higher air-gun levels, turtles' behaviour became increasingly erratic, possibly indicating that if they had not been constrained (in cages) they would have avoided the approaching source;
- A greater startle response for some smaller fishes, as well as potential impacts on fishes' hearing systems (depending the air-gun noise level); and
- Squid showed strong alarm responses to a nearby air-gun starting up, with many firing their ink sacs and jetting directly away from the noise source.

Victorian Environment Minister Gavin Jennings has stated that seismic testing would take place in October-December so that migrating whales are not disturbed. However, the Curtin study, as well as the historical concerns of local fisherman (Stateline Victoria, 2003), show that there could be some level of impact on local marine species.

Greenpeace released a broadly referenced report in 2008 highlighting the impacts of seismic testing and other anthropogenic generated noises on whales.^x The report explained that the ocean is an acoustic environment, not a visual one, and therefore marine mammals rely heavily on sound for survival. Furthermore, without their heightened sense of hearing, marine animals struggle to find food, avoid possible predators or communicate with each other. Seismic testing introduces another threat to the survival of marine animals, on top of continued commercial whaling, entanglement in fishing nets, and collisions with ships.

Discussion

The proposed seismic surveys in the Bay of Islands Coastal Park set a dangerous precedent for further

continued next page...



Seismic testing in the Bay of Islands Coastal Park

oil and gas exploration in Victoria's national and other parks. The Brumby Government has left the door open for drilling outside the marine park or long-distance drilling from land. If gas is found in the park and drilling given the go-ahead, the associated well-head and pipeline infrastructure would potentially damage the natural and cultural values of the area, and consequently impact on tourism.

The VNPA will be keeping a watching brief on this exploration permit, and continue to highlight our conviction that parks are for people and nature, not for oil and gas wells or mines.

What can VNPA members do?

1. Write to the State Government requesting an amendment to the National Parks Act 1975 to prohibit seismic testing and other mining exploration within the boundaries of all marine national parks and marine sanctuaries.
2. Write a submission for the EPBC Act referral comment period, stating the reasons why seismic testing in the Bay of Islands Coastal Park will have a significant impact on matters of national environmental significance.^{xi} At the time of writing the seismic survey proposal hadn't been referred under the EPBC Act – we will provide an update when this occurs.
3. Call or write to members of parliament explaining why seismic surveys in the Bay of Islands Coastal Park sets a dangerous precedent for further oil and gas exploration in Victoria's national and other parks – and that parks have been set aside for people and nature, not for oil and gas wells or mines.^{xii}

Endnotes

- i For example: Herald Sun (2010) Minister Jennings approves Twelve Apostles oil exploration: Victoria's Twelve Apostles could be in for a shake-up, sourced from <http://www.heraldsun.com.au/news/victoria/minister-gavin-jennings-approves-twelve-apostles-oil-exploration/story-e6frf7kx-1225872283205>, June.

- ii Swan, J.M., Neff, J.M. and Young, P.c. (Eds) (1994) Environmental implications of offshore oil and gas development in Australia – the findings of a independent review, Australian Petroleum Exploration Association, Sydney.
- iii McCauley, R.D. et al. (2000) Marine Seismic Surveys: Analysis and Propagation of Air-gun Signals; and Effect of Air-Gun Exposure on Humpback Whales, Sea Turtles, Fishes and Squid, Prepared for Australian Petroleum Exploration Association, Centre for Marine Science and Technology, Curtin University of Technology, Western Australia.
- iv Parks Victoria (1998) Port Campbell National Park and Bay of Islands Coastal Park Management Plan, September.
- v Stateline Victoria (2003) Fisherman question Woodside's permit for oil, gas testing, sourced from <http://www.abc.net.au/stateline/vic/content/2003/s974766.htm>, June 2010.
- vi Arnis Heislars, (2004) National Parks Advisory Council: Seismic Testing in Marine National Parks and Marine Sanctuaries, Letter to The Hon John Thwaites, Minister for Environment.
- vii The Senate Questions on Notice (2003) Environment: Seismic Surveys, sourced from http://parlinfo.aph.gov.au/parlInfo/genpdf/chamber/hansards/2003-11-24/0173/hansard_frag.pdf;fileType%3Dapplication%2Fpdf, June 2010, Pg 1.
- viii Ministry of Economic Development and Department of Conservation (2010) Maximising our Mineral Potential: Stocktake of Schedule 4 of the Crown Minerals Act and beyond, Discussion Paper, New Zealand.
- ix McCauley, R.D. et al. (2000) Marine Seismic Surveys: Analysis and Propagation of Air-gun Signals; and Effect of Air-Gun Exposure on Humpback Whales, Sea Turtles, Fishes and Squid, Prepared for Australian Petroleum Exploration Association, Centre for Marine Science and Technology, Curtin University of Technology, Western Australia.
- x Michael Stocker (2008) An evaluation of impacts of specific anthropogenic noise types on cetaceans: New types of guidelines needed to protect whales from ocean noise, Greenpeace, sourced from <http://www.greenpeace.org/raw/content/usa/press-center/reports4/now-hear-this.pdf>, June 2010.
- xi For more submission information go to http://www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referrals;limit=7
- xii For more information about your local members go to <http://www.parliament.vic.gov.au/mps.html>

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