

14 November 2011

Te Korowai o Te Tai o Marokura

Submissions

PO Box 303

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Dear Sir

Submission on Proposed Kaikoura Strategy

Introduction

Many thanks for the opportunity to comment on the Kaikoura Marine Strategy. The Association represents the interests of petroleum explorers and producers in New Zealand, and as such, takes an active interest in proposals for marine protection that may affect access to ocean based petroleum resources.

We note that the strategy proposes 3 levels of protection that could impact on the operations our members undertake. These include:

- A marine reserve based on the Kaikoura Canyon
- A World Heritage site centred on the Kaikoura Peninsula and
- A marine mammal sanctuary also based on the Kaikoura Peninsula, but covering a much wider area.

Geology and History of Petroleum Exploration

The area has not seen significant petroleum exploration in the past, though in the absence of exploration this does not mean that the area is not prospective.

Two Petroleum Exploration Permits (PEP53618 and PEP52676) onshore, adjacent to and north of, the proposed marine mammal sanctuary have recently been submitted to Crown Minerals, MED (Figure 1).

Several offshore seismic lines were acquired during the 1972 Gulf and Mobil surveys. A single multi-channel seismic line acquired in 1994 by GNS was the first to reveal a thick sedimentary sequence (Pegasus Basin). Seismic lines also indicate the widespread presence of gas hydrates. A 3,400 km 2D seismic survey was acquired across much of the basin by Crown Minerals in 2010 and is currently being interpreted.

The offshore sedimentary basin extends from east of Marlborough, Cook Strait and Wairarapa. It lies adjacent to the transition zone between the East Coast subduction zone and the strike-slip margin of Marlborough and central South Island. The southern boundary of the basin is the ancient Gondwana subduction margin along the north flank of Chatham Rise. The northern and eastern limits remain poorly defined (nzpam.govt.nz).

High resolution seismic and swath bathymetric survey data acquired by NIWA has identified that offshore Kaikoura is dominated by four elements: the continental shelf, the continental slope, the Hikurangi Trench, and the Chatham Rise. The continental shelf has a smooth sea floor at shallow depth (<400m) that tapers from approximately 50 km wide in the north to about 10 km wide near Kaikoura peninsula. Immediately south of the peninsula, the Kaikoura Canyon is deeply incised into the shelf within 500m of the shoreline (Lewis & Barnes 1999). At the head of the canyon, the seafloor falls away abruptly so that only 4 km offshore the water is 1000m deep.

The canyon is responsible for the interruption of the north-flowing southland current, and the coincidence of the Subtropical convergence Zone with the Chatham Rise leads to the upwelling of plankton that attracts marine life such as whales, seals and dolphins.

The onshore geology of Marlborough and North Canterbury is dominated by a series of active SSW-NNE trending dextral strike-slip faults (Hope, Clarence, Awatere and Wairau) which connect the Alpine Fault to the west to the Hikurangi Trench in the East. Oil seeps are known from the Pahu Terrane rocks in Marlborough (Seymour Group) and occur in close proximity to major faults.

Several seeps have been observed in the Cheviot area, occurring in Torlesse rocks although the hydrocarbons are believed to have originated in adjacent late Cretaceous – Paleogene rocks (Eyre Group) (Rattenbury et al 2006). The oil seeps have most likely migrated up fault zones to the surface (Field, Uruski et al. 1997). While both source rocks and potential reservoir rocks appear favourable, deformation has limited the possibility of any significant hydrocarbon traps.

Early Cretaceous basement rocks, in onshore Marlborough, are moderately deformed, weakly metamorphosed sandstones and mudstones of the Gondwana margin accretionary complex. From mid-Cretaceous time, the Pegasus Basin developed as a northward-prograding passive margin basin. The Late Cretaceous and Paleogene successions are thin and sediment-starved.

During the Neogene, the basin was a depression into which sediments were deposited from the south and west, mainly as turbidite flows. Unlike the older units, the Neogene succession is very thick, with more than 6 km sediments estimated to fill the axis of the basin.

Cretaceous half-grabens along the crest of the Chatham Rise include Late Cretaceous coastal plain and marine facies and there may also be paralic deposits along the northern flank within Pegasus Basin. Cretaceous and Paleogene marine shales are likely to be present and they are inferred to have been buried deeply enough to reach maturity over an area of about 6,000 km. (nzpam.govt.nz).

Summary of oil exploration

The southern Marlborough - North Canterbury region has received very little oil and gas exploration effort, with no wells drilled either onshore or offshore; and seismic data limited to the offshore. A number of gas and oil seeps through Marlborough indicate the existence and maturation of source rocks and is indicative of an active petroleum system but the viability of potential reservoir units is unproven, and the complex structural evolution creates significant uncertainty in relation to timing and seal integrity even where trapping structures can be mapped.

Marine Reserve Proposal

Of the various proposals for marine protected areas the Association has little concern about the proposed marine reserve. While it is proposed to go some distance offshore, and would undoubtedly make it more difficult to conduct seismic survey in its vicinity, there seems to be a good case made for affording the area this level of protection.

We would observe however that the proposed boundaries of the reserve fail to meet the requirements of the Department of Conservations *Site Identification and Protected Area Design Guidelines* that states on page 21 “keep boundaries simple and aim for low boundary to area ratio”. (See Marine Protected Areas – Classification, Protection Standard and Implementation Guidelines 2008)

Indeed in almost every respect the rather convoluted boundary that follows the shape of the underwater Kaikoura Canyon fails to meet that test. We would go so far as to say that in practice this boundary would be unenforceable in terms of protecting the area.

It would be our suggestion that the reserve boundary be redrawn as a simple rectangle, running on its landward side from the northern edge of the proposed Oaro Mataitai, north along the coast to the Peketa Township. If the northern and southern boundaries were then drawn perpendicular to the shore out to the

edge of the territorial sea this would create a simple and enforceable area that all the locals, and those who operate in the area could easily understand.

The second concern we have about the proposed marine reserve is the underlying scientific basis. The Marine Reserves Act only allows the establishment of reserves for the purposes of scientific study, not for the protection of representative habitat – which appears to be the reason for establishing this reserve. If the objective is the latter then we suspect that the proposed reserve could fail this test as set out in the legislation.

World Heritage Proposal

The ocean area proposed for World Heritage Status is more problematical for our industry in terms of operating in the area. It covers a long stretch of coast, some 60 kilometres, and extends 30 or so kilometres offshore. It also creates a dilemma for Te Korowai over your other proposal, the marine mammal sanctuary, in that it would require special legislation to give effect to its protection. Even then, World Heritage status does not automatically convey protection from petroleum development in the same way that creating a marine mammal sanctuary would.

Even if the Government were to promote World Heritage Status, there is no current category in domestic legislation with equivalent status. All other others that have been given this status in New Zealand have already been under some other form of protected area status, with the World Heritage Status being an overlay.

Marine Mammal Sanctuary

The Sanctuary proposal is even larger than the proposed area for World Heritage recognition, extending some 100km along the coast and 60 or so kilometres offshore. Whilst the Association understands the need to protect the whale watching operations the area proposed is much larger than the area where these operations are operating.

We wonder whether such a large area is required to afford the protection sought? If the proposal were reduced to the cross hatched area in Figure 12 where the whale watch activities take place the industry would agree to the establishment of a Marine Mammal Sanctuary off bounds to all forms of petroleum exploration.

You should note that the passage of new legislation and regulations affecting industry operations in the Exclusive Economic Zone will occur during 2012. From our perspective it would be helpful to have one set of rules governing operations like seismic surveying in marine mammal sanctuaries, especially if they straddle the EEZ and territorial sea boundaries.

Further Steps

Should Te Korowai hold public hearings to discuss submissions, or a public meeting I would be interested in receiving an invitation to attend.

Yours sincerely

John Pfahlert

Executive Officer

References

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