



4 November 2020

Dr Paul Vogel
Chairperson
NT Environment Protection Authority
October 2020

Dear Dr Vogel,

Submission to the NT EPA Draft review of seabed mining in the Northern Territory: Environmental impacts and management

The Keep Top End Coasts Healthy (KTECH) is an alliance of environment groups including the Australian Marine Conservation Society, The Pew Charitable Trusts and the Environment Centre of the Northern Territory. We welcome the opportunity to comment on the NT EPA Draft Review of seabed mining in the Northern Territory.

Findings and recommendations of this KTECH submission

The Top End's coasts and seas are a unique mix of nature, culture, livelihoods and lifestyle that are now at risk from the threat of seabed mining. Were the Northern Territory Government to lift the Moratorium on seabed mining, the impacts would cause unacceptable environmental, cultural, social and economic costs. The unacceptable costs of seabed mining experienced around the world are driving communities to oppose seabed mining across the globe.

This submission concludes that there's a high risk that:

- The Top End's mangroves, seagrasses, tidal flats, coral reefs and estuaries would be devastated by proposed seabed mining in many iconic areas;
- The impacts of seabed mining would occur across a long-term process, beginning with exploration activity, followed by the mining operation, the transport and disposal of tailings, and the development of onshore processing facilities and associated infrastructure such as jetties, accommodation and access roads;
- Marine animals, including threatened species of marine turtles, dolphins, dugongs, migratory shorebirds, seabirds and sea snakes, along with saltwater crocodiles, fish and benthic invertebrates, would suffer from habitat removal and fragmentation,

reduced water quality and the general decline in the health of the marine environment;

- Ecological processes such as primary productivity, connectivity, climate regulation and hydrology would be severely disrupted by seabed mining and further impact Top End marine life;
- Indigenous communities in the areas targeted for seabed mining would experience impacts on many aspects of their lives including traditional knowledge, spiritual practices, physical heritage resources, traditional dances and songs, cultural landscapes and traditional land use;
- The economic benefits from seabed mining would be relatively small compared with its economic impact on tourism, recreational and commercial fishing, and ecosystem services;
- Access by Indigenous communities, commercial and recreational fishers and tourists to many of the Top End's important areas would be prohibited due to seabed mining operations within them;
- Although the current exploration licence applications already cover large areas of the Top End's coastal waters, if these were to be approved it could encourage seabed miners to look to expand their operations to more areas.

The Draft Review provides compelling evidence as to why seabed mining should be permanently banned in the Top End coasts and seas. However, there are several areas where the Draft Review lacks detail and clarity to ensure an open and transparent discussion about seabed mining's impacts. These matters include and relate to:

- Seabed miners and their existing interest in the Top End;
- Seabed mining definitions and the intertidal zone;
- The *Environment Protection Act 2019*;
- The inadequacy of mining laws;
- Impacts of seabed mining on Indigenous communities and cultural sites;
- Impacts of seabed mining on commercial and recreational fishing and tourism;
- Impacts of the land-based operations associated with seabed mining;
- The lack of a social licence for seabed mining;
- Cockburn Cement Limited, Moreton Bay and Darwin Harbour sand dredging.

KTECH recommends that the NT Government:

- Legislate to permanently ban seabed mining in the Top End's coasts and seas;
- Implement the NT Coastal and Marine Management Strategy, including prioritising the Government's 2020 election commitment to use marine spatial planning to implement two regional plans that will better manage and protect the Top End's coasts and seas in the face of seabed mining and many other threats;
- Move responsibility for regulating the environmental impacts of any seabed mining industry from the Department of Primary Industry and Resources to the NT EPA.

We recommend that the NT EPA, in its Final Review of seabed mining:

- Clarify its position on the inclusion or exclusion of activities above the low water mark i.e. the intertidal zone and coastal lands and whether it believes that mines could be established in the intertidal zone;
- Give greater prominence to the potential impacts of seabed mining on Indigenous communities, sites of cultural importance, and Indigenous rights in the intertidal zone and coastal lands;
- Provide analyses of the potential impacts of seabed mining on tourism and commercial and recreational fishing to ensure such impacts are given greater prominence in the Final Review;
- Include details of the companies that have made mining applications, minerals they seek, and more information about the values of those areas currently subject to mining applications;
- Include more detailed discussions about the interaction of mining laws with the Top End's coasts and seas;
- Include a section on the potential land-based impacts of seabed mining operations in the Top End;
- Provide more details on demonstrated community concerns about seabed mining, including those in the Northern Territory;
- Provide greater clarity on the stark differences between projects like those of Cockburn Cement, Moreton Bay and Darwin Harbour and the likely seabed mining impacts in the remote and largely intact marine and coastal environments of the Top End. It should also more clearly define what the NT EPA considers to be 'small-scale seabed mining projects'.

Yours sincerely,



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Introduction

A significant milestone is approaching – on 5 March 2021 the NT Government will decide on whether to extend or lift the Moratorium on seabed mining, or to ban it permanently in the Top End. The NT Government's decision on the Moratorium will indicate its level of commitment to protecting the Top End's natural, cultural, recreational and economic coastal values.

Seabed mining, if allowed, would devastate the Top End's unique coasts and seas, culture, livelihoods and fishing lifestyle. Proper protection for the Top End's coasts and seas from this destructive industry can only be achieved by a permanent ban on seabed mining in the Northern Territory. Evidence of this is clearly laid out in the Draft Review and the commissioned reports contained within the appendices, which cover in detail the operations of seabed mining and the likely impacts on natural environments and the culture of Traditional Owners.

The potential destruction of habitats, the pollution of coastal waters, the disruption to the life cycles of marine animals and plants, and the undermining of ecological processes are clearly laid out in the Department of Environment and Natural Resources (DENR) and Advisian reports. The TruNorth report reveals the potential for very negative cultural and social impacts in Indigenous communities would far outweigh any touted or perceived benefits from seabed mining.

The DENR/Solicitor for the NT (SFNT) report clearly shows that the mining statutes, the *Minerals Titles Act* and *Mining Management Act*, have been designed around land-based mines and are ill-equipped to cope with the very different circumstances of seabed mining in dynamic marine environments.

Opposition to seabed mining is growing in Australia and around the world, based on concerns about its environmental, cultural, social and economic impacts. Proper protection for the Top End's unique coasts and seas can only be achieved by a permanent ban on seabed mining in the Northern Territory. There is nothing in the Draft Review that would change this assessment, in fact its evidence strengthens the basis for that conclusion.

Values and threats of the Top End's coasts and seas

The Top End's coasts and seas are some of the last intact tropical habitats in the world and of national and international significance. They are a unique mix of seagrass meadows, coral reefs, mangrove forests, estuaries and vast intertidal flats that are biodiversity hotspots. Benthic communities of marine worms, amphipods, bivalves, sponges, sea fans, sea whips, sea stars, sea cucumbers, crabs and prawns are relied upon by migratory shorebirds, fish and other predators. Beneath the seabed surface, microbial communities form the basis of the food web, cycle nutrients and lock up contaminants. These habitats are dependent on ecological processes such as primary productivity and connectivity, each of which could be disrupted by seabed mining. Seagrass meadows, mangroves and coral reefs protect the shoreline and provide nurseries for fish, while seagrasses and mangroves also help mitigate

climate change by storing carbon. Tidal mudflats are visited each year by thousands of threatened migratory waders to rest and feed.

But they are also under threat from climate change, coastal development, dams and water extraction on rivers, overfishing and pollution. As noted in the Advisian Report, these ‘multiple pressures may interact in complex ways, generating effects which are greater, and much more difficult to predict, than a simple summation of individual impacts’¹.

There are more than 150 migratory and marine species that have been identified as threatened under Territory and national laws. These include coastal dolphins, sea snakes, migratory shorebirds and sawfish. Already under pressure, some marine animals may have already reached their tolerance limits. The introduction of additional pressures from seabed mining could push them past these limits and into decline. Those additional pressures include: deep pits and depressions that change wave and current patterns, decreased light availability for seagrasses, and sedimentation from tailing dumps that smother benthic communities.

Along with their ecological role, some of the Top End’s marine animals, such as the saltwater crocodile, dugong, turtle and barramundi, have great cultural and social significance, while fish, prawns and crabs are of commercial and recreational importance.

Community concerns for the health of the Top End’s coasts and seas

The Draft Review acknowledges that: ‘Community concerns about seabed mining in NT coastal waters are ongoing and strong – and focus on the protection of the environmental values of the shallow marine environment unique to northern Australia’².

A recent survey³ of 344 Territorians found that they love the coast but believe its health is in decline and that the Northern Territory Government must do more to maintain it. Of the respondents to the survey:

- 68% visit the coast at least once a week;
- 90% are concerned about the future of the Top End’s coasts;
- 72% said the health of Top End coasts are in decline (another 22% weren’t sure);
- 81% said pollution was the biggest threat to the health of our coasts;
- 83% said healthy coasts are vital to protect the Top End’s marine life and outdoor lifestyle;
- 74% said the government should do more to protect our coasts.

In the same survey, respondents were asked to list the threats to the Top End’s coasts and seas that concerned them. Of those surveyed, 81% mentioned pollution, 77% mangrove dieback and coral bleaching, 64% overfishing, 61% oil, gas and seismic testing, 58% development of Darwin Harbour and 56% seabed mining.

¹ Advisian Report, p.78.

² Draft Review 2020, p.84.

³ Keep Top End Coasts Healthy 2020, Community survey 2020: An attitudinal survey of people who love our coasts and fishing lifestyle, Keep Top End Coasts Healthy, Darwin.

Seabed mining projects would cover vast areas and last for years, even decades. Traditional Owners, environment groups, commercial and recreational fishers, tourism operators and marine scientists have voiced their opposition to the push for seabed mining in the Top End, concerned about its ecological, cultural, social and economic impacts. They join a growing opposition to seabed mining in other countries.

Seabed mining has impacts before, during and after extraction of the seabed habitats and well beyond the mine site. Before any mining operation can occur, the resource needs to be proven by exploration, which can include drilling and seismic surveys. A growing body of scientific research shows that seismic noise can impact marine life by causing temporary or permanent injury or death, changed behaviours and a reduced ability to socialise or find food. Threatened species such as whales, dolphins and turtles exhibit avoidance behaviour when subjected to seismic-level noise. Whale song patterns have been altered, the hearing of dolphins impaired and zooplankton, the very basis of ocean food chains, is at risk.

A seabed mining operation could also require shore-based infrastructure such as jetties, access roads and processing facilities that use large volumes of freshwater and potentially toxic chemicals, and industrialise remote and intact coastal habitats that are part of an unbroken chain of significant scientific sites.

The ongoing failure to close knowledge gaps about the Top End's coasts and seas

In 2012 the NT EPA released an interim review of seabed mining, which stated:

'To date, there has been limited research into social, cultural and economic matters, but these will be important considerations in the development of NT-relevant management and regulatory frameworks. It is recommended the seabed mining review be continued, given the:

- Novel and technically innovative nature of seabed mining;
- Limited seabed mining knowledge and experience presently available within the NT and nationally;
- Many unknown problems likely to be encountered in securing sound environmental management and effective impact mitigation strategies;
- Increasing public expectations that new developments will be both economically and environmentally sustainable...'⁴.

In the eight years since, little has changed and the 2020 Draft Review states that there is:

- 'Substantial uncertainty about the likely impacts of most known seabed mining methods on the Top End's environmental values and on other resources industries, such as commercial fishing and tourism'⁵;
- 'Limited experience in regulating seabed mining in tropical environments in Australia and the world'⁶;

⁴ NT EPA 2012, Interim report: Seabed mining in the Northern Territory, NT EPA, Darwin, p. 6

⁵ Draft Review 2020, p.10.

⁶ Draft Review 2020, p.6.

- 'Difficulty in applying known management measures to poorly understood marine environments. This contributes to uncertainty about the effectiveness of management and mitigation measures'⁷;
- 'Unproven potential for shallow seabed mining'⁸.

As the report in Appendix 4 of the Draft Review states: 'The Northern Territory marine and coastal environment remains poorly studied or described. This lack of information introduces the largest and most significant uncertainty for assessing and managing risks of seabed mining. Without such data, it will be challenging to conduct evidence-based risk assessment of impact from seabed mining on marine and coastal values'⁹.

It goes on to say that: 'It is important to understand that the data needs are many and that a single project will not be able to collect all required data sets to fulfil evidence-based assessment criteria. Therefore, some consideration should be given to establishing a "communal" database for baseline and monitoring data that can be accessed by proponents, research and regulatory institutions'¹⁰.

However, under the *Environment Protection Act 2019*, it is the proponent with the principal responsibility to collect the data and prepare the draft, final and any supplementary environmental impact assessment reports.

The above quotes in the DENR report are followed by 13 pages of tables outlining the data and knowledge gaps for the values of the Top End's coasts and seas. This dearth of knowledge about these values, about seabed mining techniques and their impacts, and about how you manage and mitigate them, is again cause for permanently banning seabed mining.

Compelling evidence on why seabed mining should be permanently banned

The EPA commissioned reports, and the Draft Review itself, are attempts to address the deficiencies recognised in the 2012 Interim Review. Together they present compelling evidence that supports a permanent ban on seabed mining in the Northern Territory. What this evidence reveals is that:

- 'In many cases mineral resources are inherently associated with areas of high biodiversity and cultural value'¹¹;
- 'Active rehabilitation of the seabed in terms of both the substrate (habitat) and associated biological communities is not usually feasible and rehabilitation generally relies on natural recovery'¹²;

⁷ Draft Review 2020, p.7.

⁸ Draft Review 2020, p.27.

⁹ Smit N, Groom R and Griffiths A 2018, Seabed mining and coastal and marine environments of the Northern Territory. Department of Environment and Natural Resources, Palmerston, p.34.

¹⁰ Smit, Groom and Griffiths, p.34.

¹¹ NT EPA 2020, Fact Sheet: Review of seabed mining in the Northern Territory - Environmental impacts and management, NT EPA, Darwin.

¹² Draft Review 2020, p.20

- 'Rehabilitation and biological recovery of the mining site is not feasible for projects longer than five years'¹³;
- Mineral resources in the Top End's coasts and seas are unproven¹⁴ and would require exploration using seismic surveys¹⁵;
- There is the potential for destruction of habitats, pollution of coastal waters, disruption to the life cycles of marine animals and plants, and an undermining of ecological processes¹⁶;
- 'The high degree of connectivity in marine systems via the water column compounds the complexity of the marine environment and therefore the management of pressures to reduce any impacts of mining'¹⁷;
- 'Impacts from seabed mining on coastal processes are likely to occur beyond the immediate area of mining and affect a range of marine environmental values, ecological processes and man-made infrastructure'¹⁸;
- 'Sedimentation may also occur through hydraulic dredging and transport methods which slurry the sediment by adding large amounts of process water causing turbid plumes carrying sediments in suspension. The sediments eventually fall out of suspension and, over time, these activities may change the original structure of sediments and also associated biota'¹⁹;
- 'The most important impact on coastal processes results from alteration of the seabed through direct removal, generally equivalent to the disturbance associated with terrestrial strip mining'²⁰;
- 'Impacts on benthic communities and habitats may be direct, with often substantial and irreversible damage to habitat and communities, or indirect through shading or smothering from sedimentation'²¹;
- NT mining laws are ill-equipped to cope with the very different circumstances of seabed mining in dynamic marine environments²²;
- There is potential for very negative cultural and social impacts in Indigenous communities that would far outweigh any perceived benefits from seabed mining²³;
- There are many potential cultural and social impacts of seabed mining that include reduced opportunities for traditional activities such as hunting, camping, foraging, bushfoods and bush medicine gathering; reduced opportunity to pass on knowledge;

¹³ Draft Review 2020, p.20

¹⁴ Draft Review 2020, p.27

¹⁵ Draft Review 2020, p.16.

¹⁶ See Appendix 4 DENR report and Appendix 7 Advisian report

¹⁷ Draft Review 2020, p.40.

¹⁸ Draft Review 2020, p.42.

¹⁹ Draft Review 2020, p.42.

²⁰ Draft Review 2020, p.42.

²¹ Draft Review 2020, p.45.

²² See Appendix 3 DENR report

²³ See Appendix 5 TruNorth report

- loss of economic activities, such as small-scale aquaculture or agriculture and fishing; reduced connections to land and sea country²⁴;
- The ecosystem services from the Top End's coasts and seas support more than 6000 jobs and contribute \$2billion each year to the NT economy²⁵.

There are, however, several areas where the Draft Review lacks detail and clarity. These matters will be discussed below and relate to:

- Seabed miners and their interest in the Top End;
- Seabed mining definitions and the intertidal zone;
- The *Environment Protection Act 2019*;
- Inadequacy of mining laws;
- Impacts on Indigenous communities;
- Impacts on commercial and recreational fishing and tourism;
- Impacts of land-based operations associated with seabed mining;
- Lack of a social licence for seabed mining;
- Cockburn Cement Limited, Moreton Bay and Darwin Harbour sand dredging.

Seabed miners and their interest in the Top End's coasts and seas

The mining industry has applied to access iconic places such as Anson, Hyland and Fog bays, Galiwin'ku (Elcho Island) and the Wessel Islands, Blue Mud Bay and Limmen Bight for seabed mining. As well as their striking natural landscapes and important fishing grounds, these places are sea country for the Indigenous people of the Top End's coastline.

Figure 1 in the Draft Review indicates the extent of the NT Moratorium on seabed mining. The Draft Review also indicates that there are seven mineral exploration and six mining authorisation applications. Throughout the Draft Review, any mentions of the seabed mining sector's interests are couched in these vague terms. There is no identification of the companies that have made applications, the extent and values of the area over which their applications apply, or the nature of the resources they are likely seeking. Figure 1 of the Draft Review offers no help in determining the scale and location of the applications by mining companies.

The Draft Review suggests that the impact of a project will be connected to its scale and length of operation, with the larger and longer-term projects likely to have unacceptable environmental impacts. However, small scale and short-term projects could be just as devastating, especially if that small area is an important location for marine life, Indigenous communities, commercial and recreational fishers, and tourism activities.

When discussing the scale of seabed mining operations, it would be very helpful if the Final Review indicated that the current applications for seabed mining cover vast areas of the Top End's coasts and seas. So too would information on the companies that have made applications, the minerals they would likely target, the methods and technologies that they would likely use

²⁴ TruNorth Strategic Communication 2017, The social and cultural impacts of seabed mining in Northern Territory coastal and intertidal waters, TruNorth Strategic Communication, Darwin.

²⁵ Draft Review 2020, p.38.

and the habitats that their exploration and extraction would impact. The *Scientific inquiry into hydraulic fracking in the Northern Territory* (the Pepper Inquiry) used a similar approach and it should be the standard for the NT EPA's Final Review into seabed mining.

Since the release of KTECH's seabed mining report²⁶, it has come to our attention that one of the companies has been delisted, a second is in the process of deregistration, and a third has substantial overseas interests as its shareholders, meaning that any profits will largely disappear overseas.

In the interests of transparency, it would be helpful for the community if this information was included in the Final Review. The KTECH report, *Seabed mining threatens Top End treasures*, used what limited public information was available to create a map that also identified the companies associated with some of the applications. It is reproduced here in Figure 1 as a guide for the NT EPA in its preparation of the Final Review. Figures 2, 3, 4 and 5 provide more detail at a larger regional scale and include significant recreational fishing locations that could be affected by seabed mining.

Recommendation: The Final Review should include details of the companies that have made mining applications and more information about the values of those areas subject to mining applications.

Confusion on the definition of seabed mining and the intertidal zone

One area of confusion in the Draft Review, and between it and the 2012 Interim Review, relates to the definition for seabed mining, which it says is 'the exploration and extraction of sub-sea minerals and extractive minerals for commercial gain. Seabed mining does not include capital or maintenance dredging on any scale and excludes offshore oil and gas recovery'²⁷. With regards to the difference between seabed mining and dredging, the Draft Review states: 'The key differences are around the purpose and location of activities, the frequency and duration of activities, and expectations and feasibility of rehabilitation, irrespective of the magnitude of proposed activities'²⁸ ... and ... 'Seabed mining, the extraction of seabed material for commercial purposes; however, comes with the expectation of closure planning and rehabilitation, just as for terrestrial mining'²⁹.

However, confusion arises regarding the status of the intertidal zone, which is excluded from the area covered by the Moratorium i.e. NT coastal waters between the low water mark and the 3nm limit. In the NT EPA's 2012 Interim report it states: 'Seabed mining is defined as the commercial recovery of minerals at the surface or of or below the seabed. We extend this definition by adding "or in the intertidal zone", which is an important consideration for the NT'³⁰. But in the 2020 Draft Review: 'Seabed mining does not include mining in the intertidal

²⁶ Smyth C 2020, *Seabed mining threatens Top End treasures*, KTECH, Darwin.

²⁷ Draft Review 2020, p.14.

²⁸ Draft Review 2020, p.4

²⁹ Draft Review 2020, p.14

³⁰ NT EPA 2012, p.14.

zone, as considered by EPA (2012), but potential impacts from seabed mining on the intertidal zone and their management are recognised as an important component of this review³¹.

Figure 1. NT areas most immediately at risk from seabed mining if the Moratorium is lifted

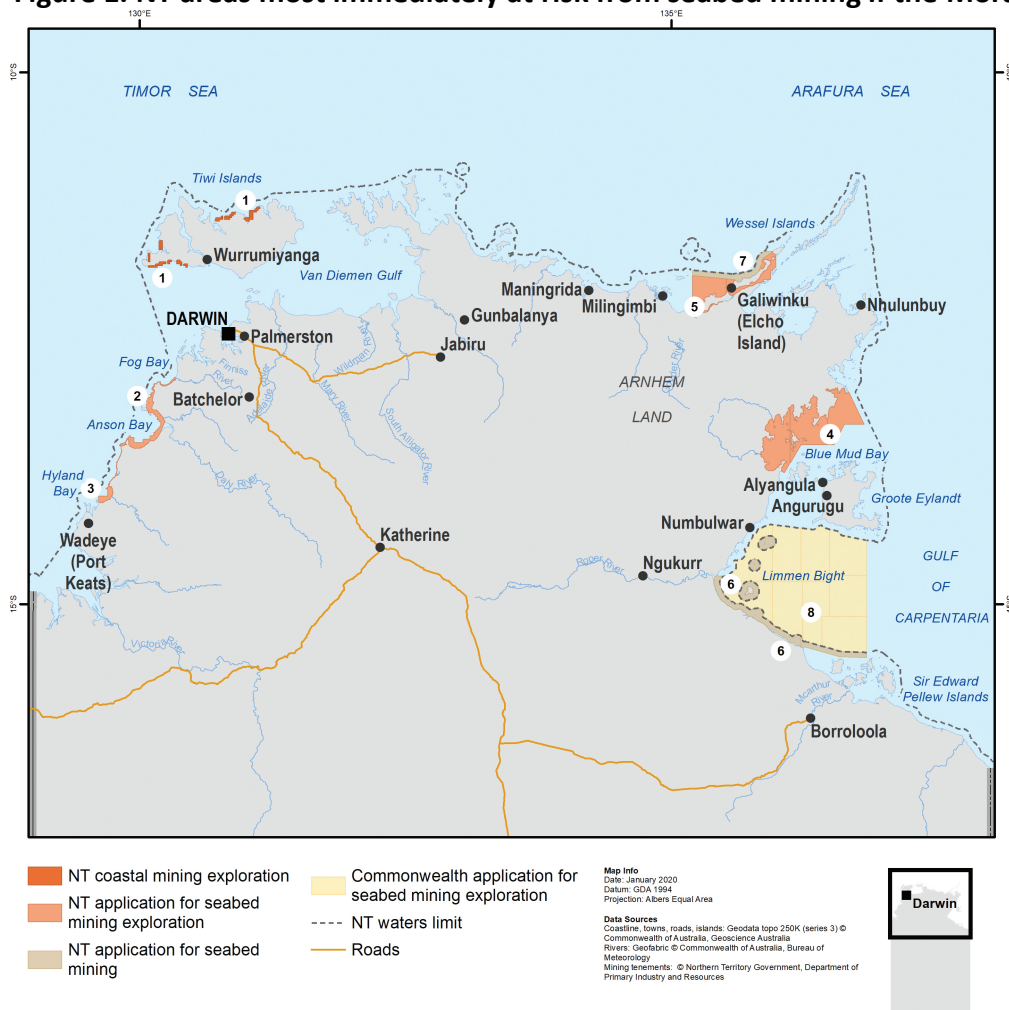


Table 1. Mining applications in Territory and Commonwealth waters

Map No.	Type	Status	Company	Area km ²
1	EL	Renew Retained	MZI RESOURCES LTD	265
2	EL	Revised Application	TERRITORY MINERALS LTD	453
3	EL	Application	TERRITORY MINERALS LTD	128
4	EL	Application	WINCHELSEA MINING PTY LTD	3826
5	EL	Application	OCRE ROUGE RESOURCES PTY LTD	1282
6	MA	Application	WINCHELSEA MINING PTY LTD	1745
7	MA	Application	OCRE ROUGE RESOURCES PTY LTD	535
8	OEL	Application	NTM GOLD LTD	13,640

EL=Exploration Lease, MA=Minerals Authority, OEL=Offshore Exploration Licence.

Why has the intertidal zone been excluded from the definition and just how important are the impacts on it as a review component? The Draft Review states that: ‘The scope of the NT EPA review on seabed mining excludes consideration of activities above the low water mark; however, it is noted that some components of any larger seabed mining proposal (e.g. ports,

³¹ Draft Review 2020, p.14

shipping channels and pipelines) are likely to extend above the low water mark, including the intertidal area, to the coast'³².

But in another passage: 'The NT EPA review includes discussion of impacts on the intertidal waters above the low water mark. These areas provide essential ecological services to maintain the environmental values of NT coastal waters and in doing so form an integral component of this review. Consequently, for the purpose of this report, the term "marine" should be read to apply to subtidal and intertidal areas and ecosystems'³³.

It is unclear from the Draft Review as to whether the NT EPA considers that the intertidal zone is a potential mine site in a seabed mining operation.

Recommendation: NT EPA Final Review of seabed mining should clarify its position on the inclusion or exclusion of activities above the low water mark i.e. the intertidal zone and coastal lands and whether it believes that mines could be established in the intertidal zone.

Environment Protection Act 2019

In its Draft Review, the NT EPA places great store by its own role and that of the *Environment Protection Act 2019* in ensuring that the Top End's coasts and seas are protected from significant seabed mining impacts. However, where seabed mining has been stopped in Australia and overseas, it has often been through sustained community opposition and legal action, and sometimes after government assessment processes.

Learning the lessons from poor decision making

In a series of three reports, KTECH analysed the issues that threaten the Top End's coast and seas and their environmental, cultural, social and economic values, and the solutions possible to secure a healthy future for them. The first report in the series, *Health Check of our Top End coasts: threats that impact on the health of the NT's coast and marine environment and the laws, policies and government decisions that allowed them to occur*, revealed that successive governments had neglected the Northern Territory's coasts through a combination of four factors, namely:

- poor decision-making;
- inadequate laws;
- lack of transparency; and
- incompetent oversight and regulation.

Examples of short-term decision-making were identified in the Gulf of Carpentaria, where decisions made by both sides of politics over very long periods have seen the area burdened with the legacy of two of the Northern Territory's most damaging mines - the Redbank Copper Mine and McArthur River Mine. The McArthur River Mine open cut expansion allowed a major tropical river to be diverted to allow access to the ore body, and was approved despite a recommendation from the NT EPA that it should not. Special legislation was used by the then NT Government to thwart those objections. A government report described the

³² Draft Review 2020, p.26.

³³ Draft Review 2020, p.12.

potential impacts on the environment as ‘catastrophic’³⁴. Loopholes in environmental assessment laws in the Territory also resulted in the large-scale Port Melville project in an area of considerable environmental vulnerability being completed without any environmental checks and balances in place.

The history of Northern Territory development projects also reveals that government interference, a lack of political will, inadequate resourcing and intradepartmental tensions cannot be ruled out in undermining environmental assessments. On such tensions, the NT EPA stated in its March 2014 report on the Redbank mine that: ‘Government agencies may have been challenged by the tension that can exist between supporting development and ensuring appropriate environmental management, and agencies have operated with little strategic guidance on how best to achieve an appropriate economic and environmental balance’³⁵.

Differing agendas among government agencies, especially when the proponent is a government entity, are illustrated by reference to expansion of East Arm Wharf in Darwin Harbour. South Shell Island near East Arm Wharf has ‘the highest diversity of sponges and soft corals in Darwin Harbour and almost the entire diversity of sponges in the Harbour’³⁶. The Department of Environment and Natural Resources (DENR) was concerned that the dredging program would severely impact this biodiversity hotspot: ‘Dugongs are known to feed on the sponge gardens beside South Shell Island’³⁷ and ‘dredging and constructing through the sponge beds and coral communities will cause a clear, direct loss of sensitive, highly biodiverse and important habitat, and should be avoided at all reasonable costs’³⁸.

The final dredging plan realigned the channel away from South Shell Island. However, the response from the Department of Lands and Planning (the expansion project’s proponent on behalf of the Darwin Port Corporation and the Chief Minister’s Department) to the DENR comment about dugong feeding revealed that the proponent was unwilling to accept advice it dismissed as ‘anecdotal’, despite the expertise of the reviewer: ‘The Proponent remains unaware of recorded dugong feeding on the South Shell Island coral and sponge community in the published literature. It is considered likely that the reviewer’s statement is based upon anecdotal evidence’³⁹.

In the light of issues like these, KTECH and other community organisations advocated reform of Territory environmental laws and welcomed the passage of the *Environment Protection Act 2019*.

³⁴ KTECH 2015

³⁵ KTECH 2015

³⁶ Department of Land and Planning, ‘Chapter 9 EAW Expansion Project Draft Environmental Impact Statement’, Northern Territory Government, Darwin, p.150.

³⁷ NT Department of Land and Planning 2011, p.123.

³⁸ NT Department of Land and Planning 2011, p.86.

³⁹ NT Department of Land and Planning 2011, p.69.

The Environment Protection Act 2019 and knowledge gaps

The Draft Review expresses confidence that the Act provides a ‘transparent and robust regulatory and policy framework’⁴⁰, although it does question the adequacy of the current mining legislation and regulations to manage seabed mining⁴¹.

However, the Draft Review also states that: ‘Currently, the lack of adequate environmental information and knowledge about the existing condition of environmental values and the potential impacts from seabed mining is a major barrier to the robust environmental impact assessment, approval and appropriate conditioning of seabed mining in the Northern Territory’ ... and ... ‘There is difficulty in applying known management measures to poorly understood marine environments. This contributes to uncertainty about the effectiveness of management and mitigation measures’⁴².

Under these circumstances, it is hard to see that the *Environment Protection Act 2019*, as the Draft Review contends, can ensure the protection of the Top End’s coast and seas from seabed mining impacts.

Environment Protection Act 2019 and ‘no go’ areas

As part of its conclusions, the Draft Review states that the regulatory and policy framework ‘should be supported by: the declaration of marine environment protection ‘no go’ areas for areas with high biodiversity, economic, recreational and/or cultural value’. Under the *Environment Protection Act 2019*, the Minister can declare temporary and permanent environment protection areas by a notice in the *Government Gazette*. That notice specifies the allowable uses within the areas and thus, by definition, are not ‘no go’ areas. And just as easily as they are created, the Minister can revoke environment protection areas. They should not be seen as replacements for marine parks, which have greater security because they require a parliamentary vote to create, amend and revoke them.

Recommendation: The NT Government should legislate to permanently ban seabed mining in the Top End.

Inadequacy of mining laws and regulations to manage seabed mining

Although the Draft Review is confident in the application of the *Environment Protection Act 2019* in relation to seabed mining, it and accompanying commissioned reports do, however, question the robustness of the mining laws and regulations.

The DENR/SFNT report (Appendix 3) reveals that the *Minerals Titles Act and Mining Management Act* primarily address land-based mining operations and are ill-equipped to cope with the very different circumstances of seabed mining in dynamic marine environments. These limitations relate to policies and processes, stakeholder consultation, waste management and interactions with fisheries and parks legislation⁴³, and also the

⁴⁰ Draft Review 2020, p.61

⁴¹ Draft Review 2020, p.

⁴² Draft Review 2020, p. 7

⁴³ DENR/SFNT Report 2017, p.2.

absence of principles for Ecologically Sustainable Development to guide decision making under either statute⁴⁴ and uncertainty about rehabilitation requirements⁴⁵.

The DENR/SFNT report also reveals ‘the subordination of parks and reserves to mining interests’⁴⁶ and says that: ‘Generally speaking, prohibitions on works in parks and reserves do not apply to the exploration for, or recovery or processing of, minerals’⁴⁷. Where mining is proposed for a joint management park, ‘the joint management partners must be given the opportunity to provide an opinion and specify conditions that should be imposed on the mining interest’⁴⁸.

In the case of the jointly managed Garig Gunak Barlu Marine Park (Cobourgh Marine Park), mining is not permitted in the sanctuary area, which is above the low tide mark, unless it is approved by the park’s board. For mining proposals inside the marine park, the waters below the low tide mark, the board can only provide advice to the Minister responsible for the park who must then pass it on to the Minister responsible for mining laws, with both ministers obliged to consider the advice. What the DENR/SFNT Report shows is that some of the Top End’s most precious environments and fishing hotspots currently protected in the Territory’s two marine parks (including Limmen) could be opened up to seabed mining.

Under the mining statutes, the Minister can reserve coastal waters from seabed mining and this was done between Groote Eylandt and the mainland after Traditional Owners voiced their opposition to such mining. Like the creation of environment protection areas by the NT Environment Minister, the Mining Minister can create and revoke reservations by a notice in the Government Gazette. If the moratorium were to be lifted in 2021, it would open the door for seabed mining interests to have the reservations revoked.

There are also concerns about the regulatory framework in which the Department of Primary Industry and Resources (DPIR) promotes as well as regulates the mining industry. These concerns were shared by the Pepper Inquiry, with its final report stating:

‘The effectiveness of any regulatory framework is premised on an independent, competent and well-resourced regulator to enforce compliance with the regime. The need for an independent regulator was raised in many submissions. The Panel noted the widely and strongly held view in the community that DPIR is not independent from industry. Some submissions noted that there was a strong risk of regulatory capture. The CLC recommended that there be “external independent scrutiny over DME regulation...to allay concern over a perceived lack of independence’.

‘The Panel’s main concern with the current regulatory framework is that the Minister for Resources and DPIR have responsibility for both the promotion and the regulation of industry. On one hand, the Petroleum Act sets up a framework for the promotion of

⁴⁴ DENR/SFNT Report, p.12 and p.21.

⁴⁵ DENR/SFNT Report, p.23.

⁴⁶ DENR/SFNT Report, p.30.

⁴⁷ DENR/SFNT Report, p.29.

⁴⁸ DENR/SFNT Report, p.29.

exploration and production activities and the collection of royalties, and on the other hand, the Act seeks to ensure that petroleum development occurs in a way that reduces the risk “so far as is reasonable and practicable, of harm to the environment during activities associated with exploration of or production of petroleum”. It is not difficult to comprehend how perceptions of regulatory capture arise in a jurisdiction where the promotional and regulatory functions are consolidated into a single decision-maker. Therefore, to ensure that environmental decisions are being made independently from the promotion of any onshore shale gas industry, the Panel proposes that the regulation of the industry be the responsibility of an entity that does not also have responsibility for promoting the industry⁴⁹.

Since the Pepper Inquiry report was released, the NT Government has moved the regulation of the onshore gas industry to the NT EPA, but not the mining sector. In the lead-up to the 2020 NT election held in August, NT Labor committed⁵⁰ to bring mining regulation under the NT EPA, but this is yet to occur.

Recommendation: *a.* The Final Review should include more detailed discussions about the interaction of mining laws with the Top End’s coasts and seas. *b.* Move responsibility for regulating the environmental impacts of any seabed mining industry from the Department of Primary Industry and Resources to the NT EPA.

Potential impacts of seabed mining on Indigenous communities

The Draft Review provides considerable detail on the potential impacts of seabed mining on the health of the marine environment, but provides little detail on the impacts on Indigenous communities. It leaves the analysis of the impacts from seabed mining and its associated infrastructure of ports, processing plants, loading and shipping facilities, workers’ accommodation and access roads to the TruNorth Report in Appendix 5.

The impacts identified by the TruNorth Report are broad and affect ‘traditional knowledge, commonly held values such as respect for elders, oral history, spiritual practices, language, physical heritage resources, traditional dances and songs, place names, spiritual sites and cultural landscapes, traditional land use, values associated with the land and inter-generational relationship patterns⁵¹.

Although the Draft Review excludes consideration of land-based impacts of seabed mining, the TruNorth report states that: ‘Potential risks from onshore activities include increased traffic on local roads, such as travelling through towns at night, coming into contact with drink drivers, children playing on roads, people hunting at night, people drinking on the outskirts of dry zones and not being visible to construction traffic, increased drink-driving by community members associated with cash distribution of compensation monies and increased interaction

⁴⁹ Pepper R 2018, *Scientific inquiry into hydraulic fracking in the Northern Territory*, p.430.

⁵⁰ NT Labor 2020

⁵¹ TruNorth Report, p.53.

between local and project vehicles. Offshore, risks include collisions between commercial and recreational traffic and project dredging, offshore facilities or shipping'⁵².

The TruNorth Report also states that: 'The perceived magnitude of impacts is likely to be influenced by the fact that most of the coastal area is Aboriginal land, with sensitive habitats that have supported traditional economic and cultural activities. The scale of change is likely to be more acute given the small, dispersed populations, high natural values and limited experience of industrialisation'⁵³.

The localisation of impacts referred to in the TruNorth report illustrates that even at small scales and short-term timeframes, seabed mining projects could have devastating consequences for Indigenous communities. This would also be the case for highly localised biodiversity as well as commercial and recreational fishing hotspots.

In the case of large-scale projects, which the Draft Review believes will have the greatest impact, the TruNorth Report observes that they 'are seen as driven by outsiders' agendas, with economic benefits likely to leak to external developers, financiers, governments and FIFO workforces, while the local community is left with any negative legacies and "with little or no return for those who have and will always live here"'⁵⁴ ... and ... 'A key source of opposition to many seabed projects has been the potential impact on traditional economies. In many cases, people have traditionally hunted and fished and may aspire to apply these skills to commercial enterprises'⁵⁵.

According to the then NLC Chief Executive Officer Joe Morrison, 'promises over decades of riches to be derived from developing the north have been about as ephemeral and elusive as Bob Hawke's promise of a treaty. Ever since the north was settled...there has been a cascade of reports which have purported to map various El Dorados, just waiting to be discovered and developed by men of vision'⁵⁶.

The cultural, social and economic impact reported by the TruNorth report should be synthesised in more detail and given greater prominence in the Final Review. A table summarising the impacts, like Table 2 for environmental values on page 40 of the Draft Review, would also be very helpful, as would a clear articulation of how such impacts might be managed and mitigated and the weighting that would be given to them in any environmental impact assessment process (including the cultural, social and health impact assessments that must be conducted by the proponent under the *Environment Protection Act 2019*).

The DENR/SFNT report in Appendix 3 outlines the interaction between the NT *Aboriginal Land Rights Act* and seabed mining. With 84% of the Territory's coast freehold Aboriginal land, and

⁵² TruNorth Report, p.79.

⁵³ TruNorth Report, p.66.

⁵⁴ TruNorth Report, p.41.

⁵⁵ TruNorth Report, p.86.

⁵⁶ Morrison J 2017, 'Northern Australia Development Conference Keynote Speech', Cairns, Northern Land Council.

a further 8% under claim, Traditional Owners can veto any request for access to explore for or extract seabed mineral resources.

Recommendation: The Final Review should give greater prominence to the potential impacts of seabed mining on Indigenous communities and their rights over the intertidal zone and coastal lands.

Potential impacts of seabed mining on commercial and recreational fishing and tourism

None of the commissioned reports in the appendices seriously address the impacts on commercial and recreational fishing and tourism, although there is passing reference to them in the Draft Review. These impacts are significant and should be an integral part of any review to ensure the community has full knowledge of the potential impacts of seabed mining and how they would be addressed in the environmental impact assessment processes that the Draft Review recommends.

Seabed mining is not just the removal of benthic habitats at a mine site. It would also include an exploration phase and 'rehabilitation' phase after mining ceases, although such rehabilitation is unlikely to succeed. In addition, there will be water-based traffic to land-based sites and the spread of impacts well beyond the mine site.

The exploration phase could include drilling and seismic surveys. Such surveys carried out by the petroleum sector have been opposed by community environment groups, commercial and recreational fishing and tourism interests in other parts of Australia and overseas because of the harm that they can cause to marine life and targeted fish species.

Any decline in the environmental health of the Top End's coasts and seas and impacts on fish stocks can seriously harm the interests of commercial and recreational fishers and the tourism industry. For example, Figures 2, 3, 4 and 5 in this submission show the locations of seabed mining applications within regions of the Top End's coasts and seas, along with significant recreational fishing spots that could be affected by seabed mining. The areas applied for by seabed mining interests adjoin the ecosystems of the coastal lands. Any seabed mining activities would impact those ecosystems as well as the places that recreational fishers – and commercial fishers – favour.

Seabed mining would also impact the tourism experience for visitors to the Territory. Research has shown that many tourists visit the Top End to connect with intact natural environments and to experience Aboriginal culture. NT Department of Tourism and Culture research in 2017 indicated that experiencing other cultures is a key reason for travel because it makes a destination authentic – it represents the unspoiled nature of the destination and its personality.

The research also found that: 'Of Australians open to visiting the Northern Territory, 85 per cent believed that the Northern Territory was the best place to experience Aboriginal culture, 67 per cent want to visit sacred rock art sites, 64 per cent want to learn about Aboriginal

beliefs and connection to land and 60 per cent want to hear stories about the Dreamtime⁵⁷. However, seabed mining will damage the very values that fishers and tourists are seeking and restrict access to significant places, not just for days and weeks but for years, with obvious social and economic impacts.

Recommendation: The NT EPA should commission a new report that analyses the potential impacts of seabed mining on commercial and recreational fishing and tourism to ensure such impacts are given greater prominence in the Final Review.

Potential impacts of the land-based operations of seabed mining

The Draft Review report excludes the impacts that the land-based operations of the seabed mining industry – processing factories, wharves, roads and other infrastructure – would have on coastal habitats, local communities, recreation and tourism: ‘The review does not include any impacts of land-based activities associated with seabed mining, as these are analogous to similar activities for land-based mining operations which have relatively well-known impacts and risks and established mitigation and management measures’⁵⁸.

This is unhelpful and downplays the potential impacts on the environment, culture, livelihoods and lifestyle and undermines the ability of the community to gain a more accurate and holistic view of the industry’s impacts. If any review of seabed mining excludes consideration of the impact of associated land-based activities, it cannot be considered sufficiently robust or transparent.

The community needs to know the land-based impacts of seabed mining. The Draft Review indicates that the high level of connectivity in coastal waters can spread the impacts of seabed mining well beyond the mine site. Coastal waters, the intertidal zone and coastal land are also intimately connected in the Top End. Coastal wetlands, rivers and riparian vegetation, along with adjoining estuaries and mangrove forests, are all highly sensitive to disturbance and very different to any habitats impacted by current land-based mining projects. The Final Review should recognise this connectivity and that it too can spread the impacts on culture, commercial and recreational fishing and tourism activities.

Recommendation: The Final Review should include a section on the potential land-based impacts of seabed mining operations in the Top End.

Seabed mining lacks a social licence

The Draft Review is concerned that communities continue to oppose seabed mining even after informed assessments: ‘The community’s opposition to proposed seabed mining of iron sands in New Zealand, even after an assessment decision that impacts were acceptable, based on extensive baseline information and consultation, highlights the fine balance

⁵⁷ Department of Treasury and Finance website.

⁵⁸ Draft Review 2020, p.20.

between informed environmental impact assessment and earning a social licence to operate'⁵⁹.

Opposition to seabed mining has been widespread in the NT community and elsewhere in the world has not been placated by environment impact assessments prepared by proponents and approved by governments. What this shows is that the impact assessment is just one part of the decision-making process from a community viewpoint. This context has been most apparent to the community when governments have approved projects contrary to the advice from their own agencies.

Traditional Owners, environment groups, commercial and recreational fishers, tourism operators and marine scientists have voiced their opposition to the push for seabed mining in the Top End, concerned about its ecological, cultural, social and economic impacts. For the Anindilyakwa Land Council on Groote Eylandt: 'Any thought that the sea beds could be disturbed by a mining company is frightening and the impact on culture would be devastating... It would totally destroy the habitat, including pristine coral reefs, seagrass beds and fish habitat'⁶⁰.

The TruNorth Report notes that: 'Aboriginal people's growing confidence in claiming land and sea rights, and their aspirations to use the inheritance of the seas to provide economic independence are important in understanding the strong cultural, social and economic values that have prompted many seawater people to oppose seabed mining, such as that proposed near Groote Eylandt'⁶¹.

The need to preserve cultural and natural integrity has helped drive the proactive engagement of Indigenous communities in land and sea management through the establishment of ranger groups and Indigenous Protected Areas (IPAs). The Djelk, Dhimurru, Laynhapuy, Anindilyakwa and Yanyuwa IPAs each have significant marine and coastal habitats, and the IPA management plans stress the significant cultural and environmental values of each region.

Opposition to seabed mining has been embedded in the management plan for the Anindilyakwa Indigenous Protected Area and is recognised as one of three key threats, the others being weeds and feral animals. The IPA plan states that seabed mining would 'cut through our Songlines; destroy our sacred sites; destroy dugong and turtle feeding grounds; pollute our waters; lock us out of hunting areas'⁶².

The Territory's Amateur Fishermen's Association (AFANT) backed the Moratorium on seabed mining but urged that the Government should have gone further: 'it should be long term and

⁵⁹ Draft Review 2020, p.50.

⁶⁰ Tony Wurramarrba, chairman of the Anindilyakwa Land Council, November 2010 quoted in Murdoch L 2010, 'Groote Resources faces legal action over Aboriginal land', *Sydney Morning Herald*, 8 November 2010, <<https://www.smh.com.au/business/groote-resources-faces-legal-action-over-aboriginal-land-20101107-17ix2.html>>.

⁶¹ TruNorth Report, p.61.

⁶² Anindilyakwa Land Council 2016, Anindilyakwa Indigenous Protected Area Plan of Management 2016, Anindilyakwa Land Council, Alyangula, p.3.

should remove any possibility of seabed mining in environmentally and socially sensitive areas including those areas that are significant to recreational fishers. Intertidal sand mining has a very poor reputation elsewhere and we are not aware of any processes that would allow it to be conducted without very significant environmental disturbance'⁶³.

Environment groups have also been vigorously opposed to seabed mining: 'Open cut strip mining of the Territory's seabed would devastate the feeding grounds on which our fish, turtles, dolphins and dugongs depend. Seabed mining is risky business. Shifting ocean currents, sedimentation and disposal of waste materials combine to make mining minerals from the seabed incredibly hazardous'⁶⁴.

The Australian State of the Environment Report 2016 identified only two seabed mining operations in Australia, one in Moreton Bay Queensland, and the other in Cockburn Sound, Western Australia. The report then explained the limited seabed mining in Australia: 'Other submissions made across jurisdictions to explore and potentially exploit sea-floor resources elsewhere in Australia have been rejected or stalled because of the lack of existing baseline knowledge, lack of community support, and poor understanding of the potential social and environmental impacts of such activities. No national or regional assessments of the likely impacts of marine mining activities have been conducted for Australian waters, and the impacts of marine mining activities cannot be assessed'⁶⁵.

The lack of existing baseline knowledge referred to in the State of the Environment Report 2016 is a key point from the Advisian Report: 'Overall, the greatest uncertainty associated with understanding potential impacts associated with seabed mining remains the relatively poor current state of knowledge about the NT marine environment'⁶⁶.

In a major study of community perceptions about seabed mining in Australia, CSIRO found that 'the majority of the participants were reluctant to see development of seafloor mining in Australia, primarily because of concerns about the industry's potential environmental impact'⁶⁷. That community concern is not new and has stopped coral mining in Moreton Bay and supported the NSW Government's rejection of offshore sand mining.

Scientific evidence of its long-term negative ecological impacts has generated strong community, and some government, opposition to overseas seabed mining projects. In 2017 the European Parliament called for an international Moratorium until the effects on the 'marine environment, biodiversity and human activities at sea have been studied and researched sufficiently and all possible risks are understood'⁶⁸. Fiji has also called for a 10-

⁶³ AFANT 2012, AFANT Annual Report 2012', <<http://afant.com.au/wp-content/uploads/2012/12/2012-Annual-Report.pdf>>.

⁶⁴ Daisy Barham, Australian Marine Conservation Society, quoted in EchoNet Daily 2013, 'Seabed mining ban "an excellent move"', *EchoNet Daily*, 13 June 2013, <<https://www.echo.net.au/2013/06/seabed-mining-ban-an-excellent-move/>>.

⁶⁵ Australian State of the Environment Committee 2016, 'Marine mining and industry', <<https://soe.environment.gov.au/theme/marine-environment/topic/2016/marine-mining-and-industry>>.

⁶⁶ Advisian Report, p.13.

⁶⁷ Mason C et al 2010, Charting the territory: exploring stakeholder reaction to the prospect of seafloor exploration and mining in Australia, *Marine Policy* 34 (2010) 1374-1380, p.1374.

⁶⁸ European Parliament 2017.

year Moratorium on seabed mining in the Pacific, and has been supported by Papua New Guinea (PNG) and Vanuatu⁶⁹.

Research consistently shows that mining operations require the support of local communities if they are to operate without conflict and tension, and without causing negative social impact in local regions. It is clear that seabed mining does not currently hold a social license to operate in the Northern Territory. It is unlikely that it ever will.

Recommendation: The Final Review should provide more details on community concerns about seabed mining, especially those in the Northern Territory.

Sand dredging projects in Cockburn Sound, Moreton Bay and Darwin Harbour

As noted previously, the Draft Review distinguishes between dredging and seabed mining: 'The key differences are around the purpose and location of activities, the frequency and duration of activities, and expectations and feasibility of rehabilitation, irrespective of the magnitude of proposed activities'⁷⁰.

However, the general lack of shallow seabed mining projects available for analysis has made the Draft Review and its commissioned reports reliant on sand dredging associated with major projects in Australia and overseas. The Australian examples referred to in the Draft Review are those for Cockburn Cement Limited (CCL) near Cockburn Sound in Western Australia, Moreton Bay in Queensland and Darwin Harbour in the Northern Territory.

Cockburn Cement Limited (CCL) dredging of Parmelia and Success banks near Cockburn Sound

In 1972, CCL signed a 40-year legislated agreement with the Western Australian Government for dredging shell sand, first from Parmelia Bank and then later Success Bank to the north of Cockburn Sound's entrance⁷¹. The 40-year agreement was signed to ensure CCL a continued supply of raw materials with the closure of its land-based quarry. The dredging has created a second shipping channel for Fremantle Ports⁷², with the sand from maintenance dredging another source of raw material for CCL⁷³.

The Parmelia and Success banks support seagrass meadows, a habitat also found in Cockburn Sound. In 2019 it was reported that in Cockburn Sound '80% of seagrasses (or 1200 hectares) have been lost over the last four decades and can be tied directly to nutrient input in the form

⁶⁹ Doherty B 2019, 'Collapse of PNG deep-sea mining venture sparks calls for moratorium', *The Guardian*, 16 September 2019, <<https://www.theguardian.com/world/2019/sep/16/collapse-of-png-deep-sea-mining-venture-sparks-calls-for-moratorium>>.

⁷⁰ Draft Review 2020, p.14.

⁷¹ <[https://www.legislation.wa.gov.au/legislation/former/swans.nsf/\(DownloadFiles\)/Cement+Works+\(Cockburn+Cement+Limited\)+Agreement+Act+1971.pdf/\\$file/Cement+Works+\(Cockburn+Cement+Limited\)+Agreement+Act+1971.pdf](https://www.legislation.wa.gov.au/legislation/former/swans.nsf/(DownloadFiles)/Cement+Works+(Cockburn+Cement+Limited)+Agreement+Act+1971.pdf/$file/Cement+Works+(Cockburn+Cement+Limited)+Agreement+Act+1971.pdf)>.

⁷² WA EPA 2001,

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Fremantle Ports, Maintenance dredging of Success and Parmelia channels,
<<https://www.fremantleports.com.au/news/maintenance-dredging-of-success-and-parmelia-channels>>.

of nitrogen'⁷⁴. 'Additional, localised losses of seagrass were attributed to changes in turbidity, harbour construction and dredge spoil dumping, overgrazing by sea urchins and direct removal of seagrass by channel dredging, scallop dredging, boat moorings and anchor drag'⁷⁵.

CCL dredges 'off the coast of Woodman Point, around 7km from their Munster plant. A trailer suction barge picks up the sand and carries it back to Woodman Point before depositing it next to Cockburn's jetty. A suction reclaimer then pumps that sand into their washing operations at Woodman Point where it runs through a filter to eliminate debris and shells. The washed sand is then pumped around 6km via pipe (both under and above ground level) to the Munster plant'⁷⁶.

Concerns about the damage to seabed and fish habitats saw the Coastal Waters Alliance (including conservation, fishing, scientific, boating and community groups) take legal action against the Western Australian Environment Protection Authority (WA EPA) in 1996⁷⁷ to quash approval of further dredging. The Alliance argued that the WA EPA had exceeded its statutory powers by considering CCL's commercial interests rather than just environmental factors when it recommended approval to the Minister⁷⁸. The Full Court of the Supreme Court of Western Australia agreed. The approval was quashed and the case set a precedent on the role and function of the WA EPA. It also led to the 'establishment of the Cockburn Sound Management Council and the State Environmental (Cockburn Sound) Policies 2005 and 2015'⁷⁹. Over time the CCL dredging program has been pushed towards areas of West Success Bank with no seagrass cover.

Although the NT EPA's Draft Review has excluded consideration of the land-based operations of seabed mining, it is particularly relevant to consider the impact of Cockburn Cement's land-based operations. In 2018 it was reported that: 'Residents of the southern suburbs of Beeliar and Munster say they are plagued by dust and stench from a coal-burning lime plant that is resisting a pollution crackdown by the State Government despite its emissions being deemed high risk. The Department of Water and Environmental Regulation received 187 complaints about the plant last year. The regulator imposed more stringent conditions in December 2016 after it concluded that odour from the two lime kilns and dust were a high risk'⁸⁰.

The air pollution from the CCL factory has been a problem for local residents for many years, while the company has at times used the courts to resist government attempts to force the installation of pollution mitigation equipment. What this shows is that the land-based

⁷⁴ McLeod I et al 2019, The role of restoration for conserving Matters of National Environmental Significance. Report to the National Environmental Science Programme, Marine Biodiversity Hub, p.18.

⁷⁵ Mohring, M. and Rule, M. (2013) Long term trends in the condition of seagrass meadows in Cockburn and Warnbro sounds. Technical report to the Cockburn Sound Management Council

⁷⁶ Anti-Dumping Commission 2016, investigation 348. Alleged dumping of quicklime exported from Malaysia, the Kingdom of Thailand and the Socialist Republic of Vietnam. Visit report. Australian Industry. Cockburn Cement Limited. Department of Industry, Innovation and Science, Canberra.

⁷⁷ Coastal Waters Alliance of Western Australia Incorporated (1996) 90 (2) LGRA 136

⁷⁸ Scott A, Coastal Waters Alliance of Western Australia Incorporated (1996) 90 (2) LGRA 136, *AEIN* No 3, 1996, pp. 27-28.

⁷⁹ Draft Review 2020, p.70.

⁸⁰ Milne P 2018, Environment Minister Stephen Dawson to consider future of Cockburn Cement plant in Munster, owned by the \$4 billion Adelaide Brighton, *The West Australian*, 24 April 2018.

activities of seabed miners can have major social costs and the companies, if they have deep pockets, can stymie the best of intentions of government agencies.

Professor David Harries, a member of the Cockburn Sound Management Council, says: 'It is not just the dredging that has environmental impacts but the cement plant itself, which uses coal and gas-fired lime kilns. The cement plant is now encroached by subdivisions in Munster and Beeliar that stop at a 1.5 km buffer zone. Residents and the City of Cockburn have complained about the dust and sulphur-like odours and have appealed to the Environment Minister, Stephen Dawson. However, the cement plant is considered to be vital to the State's alumina and gold industries'⁸¹.

Moreton Bay sand dredging

The Draft Review's focus on sand dredging extends to a reference to sand dredging operations in Moreton Bay for harbour works, the expansion of Brisbane Airport and beach renourishment.

However, there is another project, in fact a seabed mining project, that occurred in Moreton Bay and is of direct relevance to the Top End coasts and seas. Between 1937 and 1997, the coral reefs of Mud, St Helena and Green islands in Moreton Bay were mined for use in cement manufacture. The mining operation destroyed the reefs, while mangrove communities were damaged by smothering and foreshore erosion. Rising community concerns about its impacts eventually brought coral mining to an end. The Final Review should develop a case study around this example.

Sand dredging in Darwin Harbour

Dredging is a key feature of industrial development in Darwin Harbour. Almost 16 million cubic metres were dredged for Inpex's Ichthys gas plant between 2012 and 2014 to allow large tankers to access Blaydin Point. The dredged sediments were dumped 12 kms off Lee Point. The East Arm Wharf expansion project dredged almost one million cubic metres, maintenance dredging of up to 1.5m cubic metres over five years from 2018 has been approved, and ongoing Harbour dredging operations remove 50,000 cubic metres each year⁸².

Dredging can lead to changes in the composition of benthic animals and plants, changed behaviours in fish, loss of habitat and water pollution. Modelling by Fernando Andutta and colleagues from the University of New South Wales and the Australian Institute of Marine Sciences in 2014 showed that dredging disturbs sand and mud habitats and places sediments in suspension. This can change the shape of the seabed, smother mangroves and seagrass, and dumping pollutants. According to Andutta et al (2014) 'In the future, DH [Darwin Harbour] is likely to accumulate polluted sediment' and lead to 'similar conditions to many

⁸¹ David Harries, pers. comm.

⁸² Andutta F, Wang X, Li Li and Williams D 2014, 'Hydrodynamics and sediment transport in a macro-tidal estuary: Darwin Harbour, Australia', in E. Wolanski (ed.), *Estuaries of Australia in 2050 and beyond, Estuaries of the World*, Springer Science+Business Media, Dordrecht, p.114.

European estuaries, where pollutant sediment has been found to be buried since the industrial revolution⁸³.

They concluded that the ‘trapping of polluted sediment within mangrove areas combined with increased suspended sediment concentration in the estuarine waters would negatively impact marine species. Additionally, if sediment pollution affects the mud crabs and many other local marine species that are responsible for local bioturbation, trapping of polluted sediment would increase further’⁸⁴.

What relevance does sand dredging in Cockburn Sound, Moreton Bay and Darwin Harbour have to seabed mining in the Top End?

The Draft Review has identified three classes of seabed mining impacts which, ‘based on their potential for significant environmental impact’, are:

1. Manageable impacts – are likely in some relatively data-rich, low sensitivity locations;
2. ‘Uncertain impacts – are likely in some situations, based on either the impact of seabed mining or the condition/quality of the receiving environment;
3. ‘Unacceptable impacts – are likely in some situations where serious risks and high uncertainty remains and no amount of information or knowledge is likely to adequately address the residual impacts in a reasonable time and at a reasonable cost’⁸⁵.

In terms of these classes, the CCL and Moreton Bay sand dredging projects would likely be seen as small in scale and ‘Manageable’, and this is the class that the NT EPA has applied to dredging in Darwin Harbour: ‘The NT EPA anticipates such proposals would be similar to capital dredging undertaken to date in Darwin Harbour, noting that the NT EPA has concerns that the cumulative impacts of multiple dredging activities has not yet been adequately considered’⁸⁶.

Cockburn Sound, Moreton Bay and Darwin Harbour projects have a number of things in common:

1. They are each at the centre of their state and Territory’s industrialised and urbanised landscapes, which has severely impacted environmental health;
2. The projects are deemed by the Government to be of sufficient significance to warrant the sacrifice of benthic habitats in support of industrial growth;
3. They are each subject to intense monitoring, research and analysis. At Moreton Bay, this has been formalised through the Moreton Bay Foundation, a not-for-profit organisation that conducts and fosters research;
4. They have local communities that are very concerned about their ongoing health;
5. In the case of Cockburn Sound and Darwin Harbour, they have advisory committees established by their respective governments to drive strategic planning;

⁸³ Andutta F, Wang X, Li Li, and Williams D 2014, p.115.

⁸⁴ Andutta F, Wang X, Li Li, and Williams D 2014, p.116.

⁸⁵ Draft Review 2020, p.7.

⁸⁶ Draft review 2020, p.68.

6. The dredging projects are over relatively small areas when compared to the vast areas of the Top End's coasts and seas subject to seabed mining applications.

Except for the fourth point, none of these factors apply to the Top End's coasts and seas beyond Darwin Harbour. They are remote and largely intact tropical marine and coastal environments, not like the altered environments of Cockburn Sound, Moreton Bay and Darwin Harbour, and not subject to the same demands for industrial and urban development. The role of these remote areas, of which relatively little is known, is very different to Cockburn Sound, Moreton Bay and Darwin Harbour and they would be subjected to what the Draft Review should categorise as 'Unacceptable Impacts'. As largely intact ecosystems they protect biodiversity, have significant cultural values and support tourism and commercial and recreational fishing. Seabed mining would break those connections and undermine the Territory's marine life, culture, livelihoods and fishing lifestyle.

In its recommendations, the Draft Review raises the possibility of seabed mining proceeding 'in the Northern Territory beyond a limited number of small-scale operations'⁸⁷. Even if it were to be just that limited number, this suggests that the NT EPA envisions replicating Darwin Harbour, CCL and Moreton Bay dredging operations scattered across the Top End's coasts and seas. If so, the impacts on those fragile marine and coastal environments would be devastating.

Further, as noted above, the NT EPA already has concerns that the cumulative impacts of multiple dredging activities in Darwin Harbour have not been adequately considered. If this is the case in the relatively data-rich Darwin Harbour, it is likely impossible in the data-deficient remote and fragile Top End coasts and seas.

Recommendation: The Final Review should provide greater clarity on the stark differences between projects like those of Cockburn Cement, Moreton Bay and Darwin Harbour and the likely seabed mining impacts in the remote and largely intact marine and coastal environments of the Top End. It should also more clearly define what the NT EPA considers to be small-scale seabed mining projects.

Draft Review's key findings and conclusions

The Draft Review ends with a summary of key findings and conclusions, many of which are in the context of 'if' seabed mining were allowed to occur in the Top End coasts and seas. We do not support this sentiment. Seabed mining should never be allowed to occur in the Northern Territory because of its unacceptable risks to the environmental, cultural, social and economic values of the Top End. Our comments about the key findings and conclusions will therefore be brief.

Key finding and conclusion 1 and 2 refer to environment protection no go areas, best practice standards for seabed mining and a seabed mining activity trigger for referral. We have already argued that the no-go areas are far less secure than marine parks for protecting biodiversity,

⁸⁷ Draft Review 2020, p.84.

there are no appropriate or acceptable standards for seabed mining and a trigger is moot because, in our view, seabed mining should be permanently banned.

The third key finding and conclusion refers to the three categories of impact identified by the NT EPA. This submission argues that all seabed mining activities are unacceptable which, in our view, makes the three categories moot.

Key findings and conclusions 4, 5 and 6 cover the lack of information that will undermine robust environmental impact assessment and management of seabed mining, the need to ensure that seabed mining proponents are aware of the critical data they must gather, the benefits of a central data repository established by the government and the importance of monitoring. Any efforts to improve our knowledge of the environmental, cultural, social and economic values of the Top End's coasts and seas should not be focused on providing data for the assessment of seabed mining projects because they would devastate those values. Rather, the increased knowledge should be used to ensure that places of significant natural and cultural value in the coasts and seas are properly protected in marine parks and Indigenous Protected Areas, and supports the management of commercial and recreational fishing and tourism activities so that they are ecologically sustainable.

In key finding and conclusions 7, the NT EPA indicates that the use of adaptive management will not be possible due to the high level of uncertainty and risk associated with seabed mining. That is just one more reason why seabed mining should be banned.

In key finding and conclusion 8, the NT EPA states that environmental offsets cannot be applied to seabed mining activities, largely due to the dynamic and connected nature of marine ecosystems and tenure and governance issues. Environmental offsets are never a good approach to the management of natural environments because at the end of the process there will be a net loss of biodiversity.

Key finding and conclusion 9 cover the closure and rehabilitation of seabed mine sites and the unlikely event of rehabilitation being possible for long-term projects. A ban on seabed mining would again make this discussion moot.

Key finding and conclusion 10 suggest that an expert advisory group funded by the seabed mining proponent would provide valuable advice. It also suggests that community concerns can be allayed with greater certainty about seabed mining's impacts, effective management tools and monitoring and early engagement. Our view is that community concerns about seabed mining and opposition to it are deeply held and based on compelling evidence, much of which has been presented in the Draft Review and the commissioned reports in the appendices. Community concerns will only be allayed when seabed mining is permanently banned from the Top End's coasts and seas.

Key finding and conclusion 11 again highlight the need for early community engagement processes but acknowledge there is much to be done to address community concerns and strengthen community involvement and trust. Such processes are no substitute for a permanent ban on seabed mining in the Top End's coasts and seas. That is the most effective way to develop the community's trust in the Northern Territory Government and its agencies.

Findings and recommendations of this KTECH submission

The Top End's coasts and seas are a unique mix of nature, culture, livelihoods and lifestyle that are now at risk from the looming threat of seabed mining. Were the Northern Territory Government to lift the Moratorium on seabed mining, the impacts would cause unacceptable environmental, cultural, social and economic costs. The unacceptable costs of seabed mining experienced around the world are driving communities to oppose seabed mining across the globe.

This submission concludes that there's a high risk that:

- The Top End's mangroves, seagrasses, tidal flats, coral reefs and estuaries would be devastated by seabed mining in many iconic areas;
- The impacts of seabed mining would occur across a long-term process, beginning with exploration activity, followed by the mining operation, the transport and disposal of tailings, and the development of onshore processing facilities and associated infrastructure such as jetties, accommodation and access roads;
- Marine animals, including threatened species of marine turtles, dolphins, dugongs, migratory shorebirds, seabirds and sea snakes, along with saltwater crocodiles, fish and benthic invertebrates, would suffer from habitat removal and fragmentation, reduced water quality and the general decline in the health of the marine environment;
- Ecological processes such as primary productivity, connectivity, climate regulation and hydrology would be severely disrupted by seabed mining and further impact Top End marine life;
- Indigenous communities in the areas targeted for seabed mining would experience impacts on many aspects of their lives including traditional knowledge, spiritual practices, physical heritage resources, traditional dances and songs, cultural landscapes and traditional land use;
- The economic benefits from seabed mining would be relatively small compared with its economic impact on tourism, recreational and commercial fishing, and ecosystem services;
- Access by Indigenous communities, commercial and recreational fishers and tourists to many of the Top End's important areas would be prohibited due to seabed mining operations within them;
- Although the current exploration licence applications already cover large areas of the Top End's coastal waters, approvals would encourage seabed miners to look to expand their operations to other important areas.

The Draft Review provides compelling evidence as to why seabed mining should be permanently banned in the Top End coasts and seas. However, there are several areas where the Draft Review lacks detail and clarity to ensure an open and transparent discussion about seabed mining's impacts. These matters include and relate to:

- Seabed miners and their interest in the Top End;
- Seabed mining definitions and the intertidal zone;
- The *Environment Protection Act 2019*;
- The inadequacy of mining laws;
- Impacts of seabed mining on Indigenous communities;

- Impacts of seabed mining on commercial and recreational fishing and tourism;
- Impacts of the land-based operations associated with seabed mining;
- The lack of a social licence for seabed mining;
- Cockburn Cement Limited, Moreton Bay and Darwin Harbour sand dredging.

KTECH recommends that the NT Government:

- Legislate to permanently ban seabed mining in the Top End's coasts and seas;
- Implement the NT Coastal and Marine Management Strategy, including prioritising the Government's 2020 election commitment to use marine spatial planning to implement two regional plans that will better manage and protect the Top End's coasts and seas in the face of seabed mining and many other threats;
- Move responsibility for regulating the environmental impacts of any seabed mining industry from the Department of Primary Industry and Resources to the NT EPA.

We recommend that the NT EPA, in its Final Review of seabed mining:

- Clarify its position on the inclusion or exclusion of activities above the low water mark i.e. the intertidal zone and coastal lands;
- Give greater prominence to the potential impacts of seabed mining on Indigenous communities and their rights over the intertidal zone and coastal lands;
- Commission a new report that analyses the potential impacts of seabed mining on commercial and recreational fishing and tourism to ensure such impacts are given greater prominence in the Final Review;
- Include details of the companies that have made mining applications and more information about the values of those areas subject to mining applications;
- Include more detailed discussions about the interaction of mining laws with the Top End's coasts and seas;
- Include a section on the potential land-based impacts of seabed mining operations in the Top End;
- Provide more details on community concerns about seabed mining, especially those in the Northern Territory;
- Provide greater clarity on the stark differences between the Cockburn Cement, Moreton Bay and Darwin Harbour projects and the impacts of proposals for seabed mining in remote and largely intact marine and coastal environments of the Top End. It should also more clearly define what the NT EPA considers to be small-scale seabed mining projects.



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Appendix 1

Proposed seabed mining areas and the fishing features that could be impacted

Figure 2. Limmen Bight and Sir Edward Pellew Islands

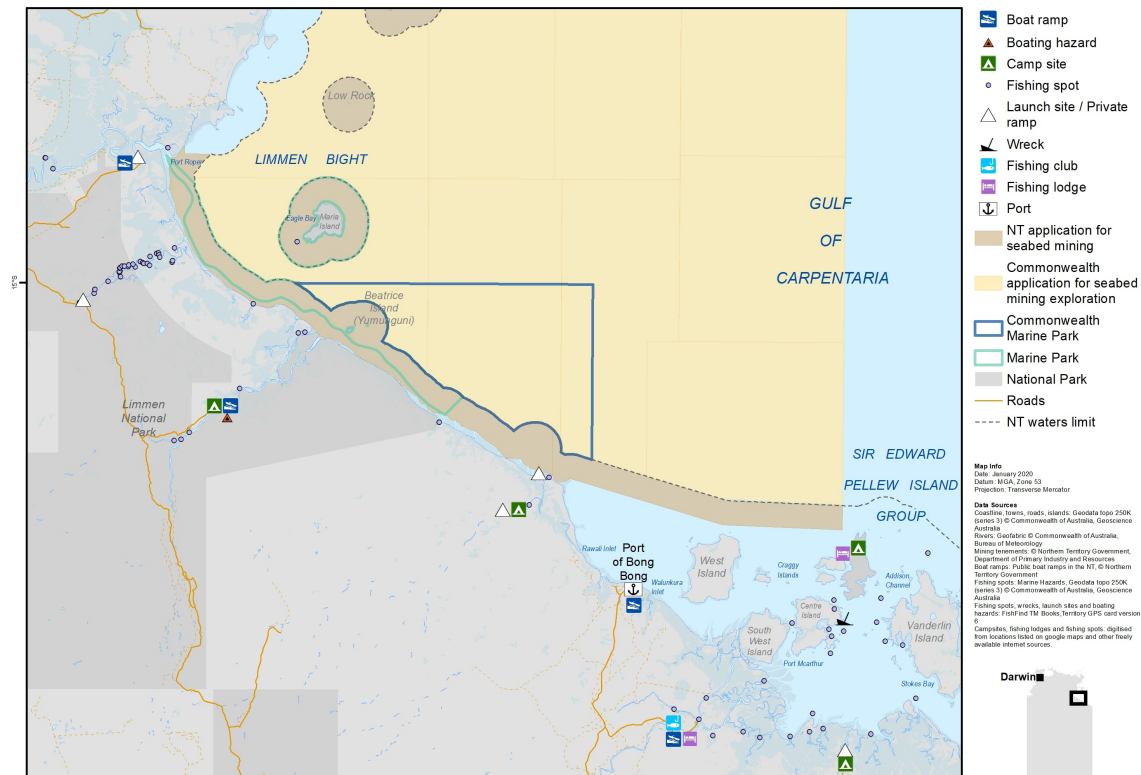
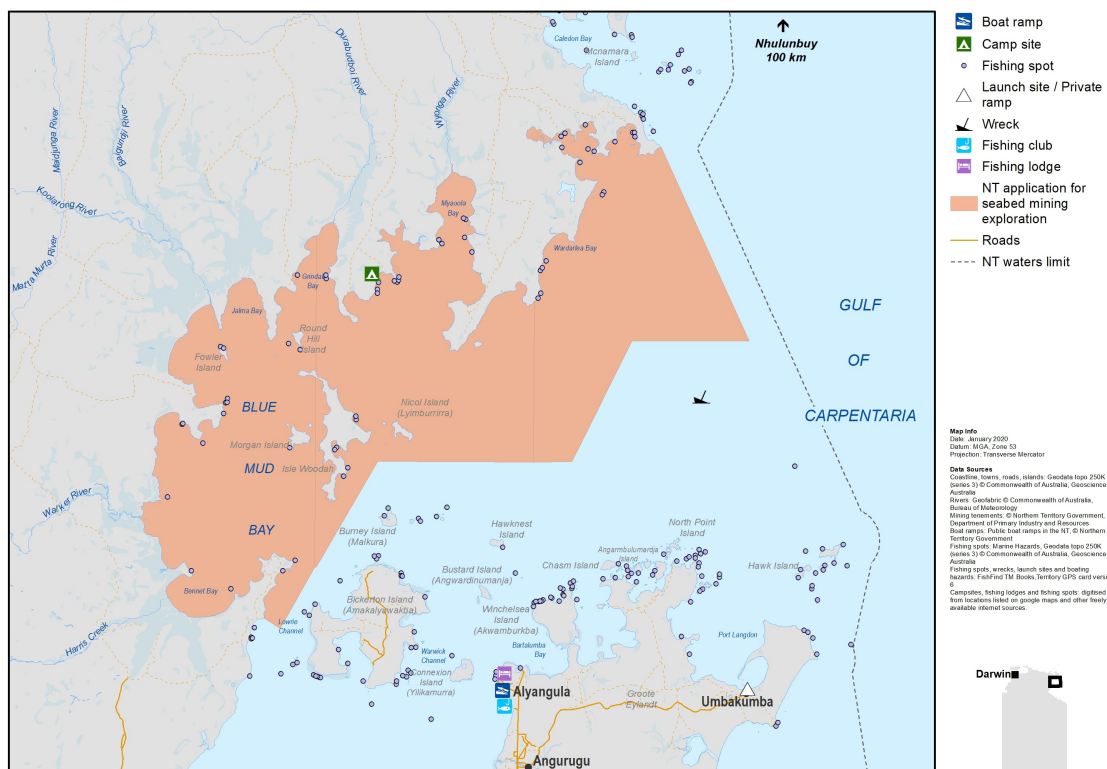


Figure 3. Groote Eylandt and Blue Mud Bay



Legend:

- Fishing spot
- Launch site / Private ramp
- fishing lodge
- NT application for seabed mining exploration
- NT application for seabed mining
- Roads
- NT waters limit

Map Info:
 Date: January 2020
 Datum: MGA Zone 53
 Projection: Transverse Mercator

Data Sources:
 Coastline, towns, roads, islands: Geoscience Australia
 Rivers: Geoscience Australia
 Mining tenements: Northern Territory Government, Department of Primary Industry and Resources
 Boat ramps: Public boat ramps in the NT, Northern Territory Government
 Fishing spots: Marine Hazards, Geoscience Australia
 Fishing spots, wrecks, launch sites and boating hazards: FishNet TUI Books, Territory GPS card version 6
 Campsites, fishing lodges and fishing spots: digitised from locations listed on guide maps and other freely available internet sources

Scale: 20 km

Map Title: Northern Territory Waters Limit

130°E

TIMOR SEA

Pirlangimpi

Milikapiti

Anson Bay

Wurrumiyanga

Victoria River

Anson Bay Creek

Darwin 35 km

Boating hazard

Camp site

Fishing spot

Wreck

fishing lodge

NT coastal exploration

National Park

Roads

NT waters limit

Map info

Date: January 2009

Datum: MGA, Zone 52

Projection: Transverse Mercator

Data Sources

Coastline, towns, roads, islands: Geoscience Australia 250K (series 3) © Commonwealth of Australia, Geoscience Australia

Rivers: Geoscience Australia 250K (series 3) © Commonwealth of Australia, Geoscience Australia

Boating hazards: Bureau of Meteorology

Mining tenements: © Northern Territory Government, Department of Primary Industry and Resources

Boat ramps: Public boat ramps in the NT. © Northern Territory Government

Fishing spots: Marine Hazards, Geoscience Australia 250K (series 3) © Commonwealth of Australia, Geoscience Australia

Fishing spots, wrecks, launch sites and boating hazards: Fish and TM Books, Territory GPS card version 8

Campsites, fishing lodges and fishing spots: digitised from locations listed on google maps and other freely available internet sources

Darwin

Figure 6. Hyland, Anson and Fog bays

