

AOSAC SOUTH AFRICA

**CULTURAL HERITAGE IMPACT ASSESSMENT FOR  
PROPOSED DRILLING IN BLOCK 3B/4B  
SOUTH AFRICA**

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Photograph of Kelp by Laetitia Bosch, Port Nolloth. 2022.

## EXECUTIVE SUMMARY

The following document provides a Cultural Heritage Impact Assessment (CHIA) in relation to proposed drilling at the AOSAC 3B/4B block. These proposed drilling activities trigger a number of listed activities in terms of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), and as such requires an Environmental Authorisation before such activities can commence. AOSAC as the Operator of the Block, is the applicant for the Environmental Authorisation' (Briefing Note to Specialists, 1). Furthermore and as per the public notice for the proposed offshore operation, 'Africa Oil SA Corp, Ricocure (Pty) Ltd and Azinam Limited (a wholly owned subsidiary of Eco Atlantic) (the Joint Venture Partners of the Block 3B/4B Exploration Right - hereafter jointly referred to as the Applicants) ...are the holders of an existing Exploration Right for Block 3B/4B in terms of the Mineral and Petroleum Resources Development Act (No. 28 of 2002 – MPRDA), as amended. The license block covers an area of approximately 17 581 km<sup>2</sup> and is situated between latitudes 31°S and 33°S on the continental shelf in water depths ranging from 200 m to 2 000 m. Block 3B/4B is located approximately 120 km west off St Helena Bay and approximately 145 km south-west of Hondeklip Bay off the West Coast of South Africa. The area of primary interest is in the north of this block, but this could also cover other areas in future. As part of the process of applying for the Exploration Right, the applicant undertook and completed the reprocessing project covering 2 000 km<sup>2</sup>, which is a subset of the 10 000 km<sup>2</sup> BHP/Shell 3D seismic datasets, focused primarily on the most northern portion of Block 3B/4B.'

The Cultural Heritage Impact Assessment (CHIA) presented in this report responds to the above and is informed by anthropological field research conducted from Port Nolloth in the Northern Cape Province to False Bay in the Western Cape Province. The field research was conducted from March 2022 to May 2023. The scope of the research is to investigate human cultural heritage and cultural connections to the ocean and coasts, specifically Intangible Cultural Heritage (ICH) uses and how such practices and beliefs may be impacted by the proposed operations in Block 3B/4B. A multigenerational and multilingual team of South African and foreign national researchers, primarily educated in the social and human sciences, engaged local coastal participants on the cultural and social meaning of the sea for them, their memories of the sea, their uses of the sea and coast and what it would mean to them if drilling is to be implemented in the area of indirect influence. The key finding of the CHIA is that while the identified receptors of tangible and intangible cultural heritage are very sensitive prior to mitigation and while there may be stakeholder groups who categorically oppose the proposed operations, the sensitivity of the receptors do not drop below medium after mitigation.

### ACRONYMS AND ABBREVIATIONS

Areas Beyond National Jurisdiction	ABNJ
Areas of Interest	AOI
Cultural Heritage Impact Assessment	CHIA
UN Convention on Biological Diversity	CBD
Exclusive Economic Zone	EEZ
Indigenous Knowledge	IK
Indigenous Knowledge Systems	IKS
Intangible Cultural Heritage	ICH
Marine Intangible Cultural Heritage	MICH
Marine Protected Areas	MPAs
National Environment Management Act	NEMA
National Environment Management Act: Integrated Coastal Management	NEMA: ICM
National Environment Management: Protected Areas Act	NEMA: PAA
National Heritage Resources Act	NHRA
National Indigenous Knowledge Systems Office	NIKSO
Polycyclic Aromatic Hydrocarbons	PAH
Small Scale Fishers	SSF
Tangible Heritage	TH
Un Convention on The Law Of The Sea	UNCLOS
Underwater Cultural Heritage	UCH
UN Convention on Elimination Of All Forms Of Discrimination Against Women	CEDAW
Un Declaration on The Rights Of Indigenous Peoples	UNDRIP
Un Office Of the High Commissioner For Human Rights	OHCHR
World Heritage Sites	WHS

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## DECLARATION

I, Prof MJR Boswell, declare that –

I have prepared the document in an objective manner, even if this results in views and findings that are not favourable for the client. No part of this report may be copied/transferred/cited without my express permission, except in relation to the Basic Assessment conducted by EIMS Consulting on behalf of AOSAC.

- I declare that there are no circumstances that may compromise my objectivity in performing such work,

- I have the required expertise in conducting the specialist report, a copy of Curriculum Vitae (CV) is attached.

-I will comply with the relevant Heritage Legislation, the National Heritage Resources Act no. 25 of 1999, and

- I have not, and will not engage in, conflicting interests in the undertaking of the activity;

- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

- All the particulars furnished by me in this declaration are true and correct.

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## 1 INTRODUCTION

The following section of the report considers the conceptualization of culture and cultural heritage and its bearing on cultural heritage impact assessments (CHIA).

Cultural heritage is historically described and discussed as a legacy or gift that communities and their ritual elders pass from one generation to the next (Garcia-Canclini 1995). However, and as many scholars engaged in this field of study now confirm, cultural heritage is not merely an apolitical legacy or gift, it is also a repository of knowledge, a set of values, social orientations, and potential source of knowledge for future generations and the conservation of biodiversity. In this regard, culture and cultural heritage in particular, is afforded deep attention globally and it is also included in many policies for meaningful and inclusive change. The basic historical and social trajectory of the cultural heritage concept is discussed elsewhere (see Boswell 2022a), and it is noted that while there are public articulations of cultural heritage in the form of monuments, sites and artifacts which are generally referred to as tangible heritage (TH), there is a plethora and diversity of intangible cultural heritages (ICH), which are the non-palpable cultural products of dynamic local communities. For ease of reference, an extract from Boswell (2022a) is provided here, to offer an overview of the salience of ICH and TH in the international and national legal and policy environment. Furthermore, a table indicating these laws and policies is provided in this document.

ICH include the folktales/stories, beliefs, values, symbolism and attachments that people may have to particular sites and/or practices. The ICH contribute to senses of place or the meaningfulness of places and support the call for the conservation of such places, as well as the practices and beliefs associated with them.

The following document focuses on and seeks to provide a cultural heritage impact assessment (CHIA) that is relevant for AOSAC's Block 3B/4B. The purpose, following the baseline report produced to inform the CHIA is to assess the potential impacts of proposed drilling at Block 3B/4B on ICH and TH in the area of indirect influence. The CHIA accepts that cultural heritage in general, is protected by national heritage legislation (National Heritage Resources Act no. 25 of 1999) and associated laws (noted further on), that the expression of cultural identity and cultural diversity is protected by the South African (SA) Constitution and that South Africa is party to various international conventions which seek to recognise the cultural rights of indigenous peoples, as well as their right to be included in development processes that directly affect them. Furthermore, and in accordance with the impact assessment process required by the Environmental Impact Assessment (EIA) Regulations 2014, the CHIA contributes to the Environmental and Social Impact Assessment (ESIA) process initiated by EIMS. The research findings presented here therefore, forms an integral part of the consultative process of the EIA.

### 1.1 The Heritage Concept

It is noted elsewhere, Boswell (2022a)<sup>1</sup> and bears repeating here, that,

Heritage is the legacy and living cultural practice of communities, indigenous and recently settled in any national context. Heritage can be transnational, subject to processes of change such as creolization and globalization. It can also be forged for political purposes, elevating the history of political liberation for example, above other

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forms of culturally meaningful memories and practices. Scholars acknowledge and have studied the role of tangible maritime cultural heritage (including underwater cultural heritage) in the making of history of identity (Sharfman, Boshoff and Parthesius 2012). By the end of the 21<sup>st</sup> Century, more than half a billion humans will be living at the coast (Baldacchino 2022). This means that more and incisive analytical attention should be given to coastal areas targeted for development, since this is a rich history still emerging in this context and it is also the location of much social, cultural and economic change. The latter is additionally relevant when one considers the apartheid history of South Africa and the impacts of segregation on indigenous and majority populations and their inclusion in processes of coastal development.

The following Cultural Heritage Impact Assessment (CHIA) forms part of a larger body of research, funded by the Department of Science and Innovation and the National Research Foundation.<sup>2</sup> The goal of the nationally funded research is to investigate, document and analyse human cultural relations with the sea in South Africa and an additional four African countries – Namibia, Mozambique, Tanzania and Kenya. Key questions for the DSI-NRF research consider human memories of the sea, the role of the ocean and coast in cultural belief and ritual practices, as well as the role of the ocean in human health and cultural stories related to the ocean.

In terms of the scholarship on cultural heritage globally and in nationally, it is very clear that there is a vast and intellectually substantive literature that can be considered in preparing a CHIA. It can be stated that, regarding marine ICH in particular,

...There is a very long history of marine intangible cultural heritage through consideration of maritime heritage<sup>3</sup> and the interdependence of tangible and intangible heritage.<sup>4</sup> Heritage scholars have long interrogated the uses of heritage,<sup>5</sup> noting how the poor rarely have their heritages publicly signified<sup>6</sup> and how important it is to recognise ICH, pluralise pasts.<sup>7</sup> However, heritage management is not only important to heritage scholars, in the context of global environmental conservation, the conservation of cultural heritage is deemed critical to preserving biodiversity.<sup>8</sup> Thus, conserving ICH and ultimately marine intangible cultural heritage (MICH), is not only important to cultural inclusion and the recognition of cultural rights, it is critical to the conservation of biodiversity *tout court*. In South Africa, intangible cultural heritage conservation

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<sup>2</sup> The field research presented in this CHIA draws on NRF funded research Grant UID 129962. This report is therefore considered to be a technical, commissioned report for this NRF Grant.

<sup>3</sup> Wang, J. 2019. 'A review on marine heritage study: Focusing on the relationship between community and marine heritage, the value, conservation and management of marine heritage', *International Journal of Geoheritage and Parks* 7(3): 145-51.

<sup>4</sup> Bouchenaki, M. 2003. 'The Interdependency of the Tangible and Intangible Cultural Heritage.' The World Heritage Convention: Future Challenges and Possible Lines of Actions European Conference, Roros, Norway, 03 -05 September 2003.

<sup>5</sup> Smith, L. 2006. *The Uses of Heritage*. Routledge: London.

<sup>6</sup> Kirshenblatt-Gimblett, B. 2004. 'Intangible Heritage and the Metacultural Production of Heritage.' *Museum International*. 561/2: 52-66.

<sup>7</sup> Graham, B., Ashworth, G.J. and J.E. Tunbridge, 2007. *Pluralising Pasts: Heritage, Identity and Place in Multicultural Societies*, Pluto Press: London.

<sup>8</sup> Kang Shua, Y. 2019. 'Cultural Heritage Conservation and the Planet', edited by UNESCO in *Asia Conserved III – Lessons Learned from the UNESCO Asia-Pacific Awards for Cultural Heritage Conservation (2010 – 2014)*. United Nations Educational, Scientific and Cultural Organization; Southeast University Press.

would also be key to redressing an unequal past and to foregrounding previously discriminated against indigenous knowledge forms.<sup>9</sup>

## 1.2 Culture, Identity and Democracy in South Africa

The report presented here accepts that South Africa is a culturally diverse country of more than 60 million inhabitants who define themselves as First Nations people, indigenes, descendants of Europeans and Indian populations, as well as diaspora peoples originating from the Western Indian Ocean. The report accepts that First Nations people may self-describe as aboriginal to distinguish themselves from more recently ‘established’ indigenes. The CHIA also acknowledges that South Africans consider their various tangible and intangible cultural heritages valuable. Such cultural heritages need to be considered a context shaped by apartheid, a racially segregationist system that continues to impact on South Africans long after it was abolished. Specifically, the report considers the impact of apartheid on spatialization and access of individuals and communities to sites of cultural heritage value. Indigenous and aboriginal peoples in South Africa consider the coast and sea (as well as associated natural features) to be valuable. Such cultural heritages are usually identified as either tangible or intangible, leading to concepts of tangible cultural heritage (TH) or intangible cultural heritage (ICH). The scholarly literature on cultural heritage indicates that it is difficult to separate these two forms of cultural heritage, that these are interdependent and that negative impacts on the one, may affect the other. Tangible heritage includes sites, monuments, artifacts, and objects of cultural value. Intangible heritage consists of folklore, beliefs, values, rituals, and practices related to culture. The report also notes that heritage is contested and is continuously produced, that is, cultural heritage needs to be actively sustained via rituals, practices, political ideology and commemoration for it to be sustained and retained.

It is also accepted<sup>10</sup> that,

Since the advent of democracy in South Africa in 1994, the national government has pursued the restoration of cultural heritage and cultural rights. The South African Bill of Rights Chapter 2(3) encourages the state to protect South Africans’ cultural and religious rights. Via the National Heritage Resources Act 25 of 1999 (NHRA), government also seeks to support the identification and conservation of heritage. Furthermore, South Africa is party to the Convention Concerning the Protection of the World Cultural and Natural Heritage (1972) (i.e., the World Heritage Convention) but the country is not party to the Convention for the Safeguarding of the Intangible Cultural Heritage (2003).<sup>11</sup>

In 1999, the state promulgated the country’s World Heritage Convention Act 49 of 1999, a law to guide the identification and nomination process for World Heritage Sites. The World Heritage Convention Act and ratification of the ICH convention suggest that government is committed to the conservation of both tangible and intangible heritage. Anthropological observations of cultural heritage expression in the form of rituals, the nomination and sustenance of ritual specialists and the safeguarding of ritually significant sites, suggests that cultural heritage remains important and is sustained by

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<sup>9</sup> Boswell, R. 2023 Under Review. ‘Legislating Marine Intangible Cultural Heritage in South Africa.’

<sup>10</sup> Ibid, Boswell 2022a.

<sup>11</sup> Henceforth referred to as the ICH Convention.

local custodians. Anthropological observations also reveal uneven heritage conservation in South Africa, poor resourcing of heritage management and less than ideal processes of heritage management, which still tend to prioritize tangible heritage conservation and management above the conservation and management of ICH.

The area under consideration by AOSAC lies beyond coastal sites of archaeological and tangible heritage significance. But because of the potential impacts of drilling in Block 3B/4B on ICH, it is imperative that the ESIA includes a cultural heritage impact assessment. A consideration of ICH in relation to Marine Protected Areas (MPAs) is important, as MPAs form part of the natural heritage of South Africans and natural and intangible cultural heritages overlap and are often, interdependent. However, and as noted in this report the span and conservation activities of MPAs may run counter to local community expression of coastal ICH. For this reason, the report considers the natural heritage aspect of coastal biodiverse sites separately from the ICH expressed by indigenous and aboriginal groups.

Further points raised in the baseline study related to this CHIA report must be reinstated here because it has bearing on the conceptualization of culture used in this report, as well the prevailing and globally accepted conceptualization of culture that is in circulation among experts on culture and cultural identity worldwide. Essentially, and as indicated in the citation noted below, culture is now understood as deeply social process subject to the creative endeavor of human beings. While culture is socially meaningful, there is no doubt that it can be used to achieve instrumental and/or political ends. There is also no doubt that primordial concepts of culture, in which heritage is perceived as an uncomplicated legacy passed from one generation to the next (Garcia-Canclini 1995), endure and ignore the dynamic nature of human communities. Regarding the latter, field research in South Africa from March 2022 to May 2023, reveals substantial cultural diversity and dynamism in South Africa, as well as situational identities and heritage reconstructions. In the baseline report, I note the following and assert it here for consideration in this CHIA:

To understand the placement of cultural heritage in South Africa and the placement of cultural politics *tout court*, it is imperative to be cognisant of recent and current concepts of culture and heritage, so as to understand the dynamism of culture and cultural heritage. Neither culture nor heritage are fixed or slow to change articulations of human values and practices. The view of culture and heritage as dynamic and often, political inheritances is supported by several, influential scholarly sources (Kirshenblatt-Gimblett 2004, Ashworth, Graham and Tunbridge 2007, Harrison 2010, Winter 2013, Peterson, Gavua and Rassool 2015), all of which indicate that both culture and heritage are human social constructions, valuable to social meaning but social constructions nevertheless, constructions which may be used to achieve political ends.

And,

The Constitution of South Africa (1996) does not allocate greater or lesser importance to specific cultures and cultural heritages. The SA Constitution indicates that in South Africa, although valued, cultural diversity and cultural heritage should be protected because of their inherent value, however, no single cultural group should be prioritized above another, as this may infringe on the cultural rights of another group.

Furthermore,

Analysis of global trends for cultural identity formation for instance, reveals that in the 1990s, as global society grappled with Western globalization and the fall of the Soviet

Union, nationalist politics and processes deepened in Eastern Europe leading to the establishment of new nation states along with attendant cultural politics, which were, as the world found, to include violent expressions of primordialism... Several social scientists (See Eriksen 2020, de Sousa Santos 2014, Robinson 2011) have discussed these processes as having global, as well as national impacts. They have noted a tendency to frame and articulate culture in absolutist ways and the use of such absolutism for political ends.

### 1.3 Marine Cultural Heritage

The previous conceptualization of culture and cultural heritage allows a more nuanced consideration of marine cultural heritage and its relevance to the conservation of cultural and biodiversity. Specifically, the dynamic nature of culture and heritage should be borne in mind.

In the Convention on Biological Diversity (CBD) ratified in 1992,<sup>12</sup> it is noted that state parties should remain:

Conscious of the intrinsic value of biological diversity and of the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components.

Conscious also of the importance of biological diversity for evolution and for maintaining life sustaining systems of the biosphere,

Affirming that the conservation of biological diversity is a common concern of humankind,

Reaffirming also that States are responsible for conserving their biological diversity and for using their biological resources in a sustainable manner.

Bearing in mind the CBD and the importance of tangible and intangible cultural heritage to the development of South Africans and humankind in general, this CHIA keeps in mind that culture is malleable and dynamic. The CHIA summarises the research findings and discusses the tangible (including natural) and intangible cultural heritage of sites from Port Nolloth to False Bay in the Northern and Western Cape.

The CHIA report draws on fieldwork conducted to describe normal operation impacts, unplanned events impacts and potential cumulative impacts on the sites, as well as limits of acceptable change. The CHIA also provides: the methodology guiding the CHIA (as well as the consultation process undertaken while preparing the specialist report), a note on the duration, date and season of the field research, a summary of the findings, a description of assumptions made (hypotheses) and any uncertainties or gaps in knowledge identified, information regarding the sensitivity of the sites, indication of any areas to be avoided, including buffers, mitigation measures for inclusion in the Basic Assessment Report and Environmental Management Programme (EMPr). The report sets out the aims and objectives of the research, the terms of reference (ToR) for the CHIA and all the elements noted in the EIA Regulations, 2014 (Appendix 6), which sets out specific requirements for specialist reports.

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<sup>12</sup> United Nations Convention on Biological Diversity 1992. <https://www.cbd.int/doc/legal/cbd-en.pdf> accessed 14/04/2022

## 2 LEGISLATIVE CONTEXT

The information regarding the legislative context for culture and cultural heritage is sustained across various CHIA completed by the specialist in 2022 and 2023, this is because the legislative context has not changed and the notes regarding the form and substance of the legislation also remains. Thus,

- The United Nations treats culture, a socio-psychological product and process, as a human right and essential element for human wellbeing. The UN Office of the High Commissioner for Human Rights (OHCHR), defends cultural diversity, stating that, ‘Culture takes diverse forms across time and space. This diversity is embodied in the uniqueness and plurality of the identities of the groups and societies making up humankind’.<sup>13</sup>
- As a source of exchange, innovation and creativity, cultural diversity is as necessary for humankind as biodiversity is for nature. In this sense, it is the common heritage of humanity and should be recognized and affirmed for the benefit of present and future generations.’<sup>14</sup> The UN CBD specifically recognises the intrinsic value of biological diversity, the role of culture in sustaining diversity and the role of state parties in sustainably managing their biological resources. This emphasises the interdependence of natural and cultural (tangible and intangible) heritages.
- Furthermore, the United Nations Education and Science Council (UNESCO) advances the protection of indigenous and cultural rights via the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) and the recognition and protection of World Heritage, both tangible and intangible, cultural and natural.
- South Africa is party to the World Heritage Convention (1972) but not the Convention for the Safeguarding of the Intangible Cultural Heritage (ICH) (2003). In 1999, the South African government promulgated the country’s World Heritage Convention Act (49 of 1999), a law to guide the identification and nomination process for World Heritage Sites. The World Heritage Convention Act suggests that the South African government has pledged to conserve both tangible and intangible heritage.
- In South Africa, the expression of cultural diversity is also protected. Not only is South Africa a member of the UN, it has also ratified UNDRIP, the World Heritage Convention 1972 and the Convention on Elimination of all Forms of Discrimination against Women (CEDAW). And, as noted:<sup>15</sup>

The Constitution accords both culture and religion equal recognition and protection.

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<sup>13</sup> OHCHR. N.d. Universal Declaration on Cultural Diversity. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://adsdatabase.ohchr.org/IssueLibrary/UNESCO%20Universal%20Declaration%20on%20Cultural%20Diversity.pdf accessed 21/05/2022

<sup>14</sup> OHCHR, 2001. Universal Declaration on Cultural Diversity. <https://www.ohchr.org/en/instruments-mechanisms/instruments/universal-declaration-cultural-diversity#:~:text=As%20a%20source%20of%20exchange,of%20present%20and%20future%20generations>. Accessed 11/04/2022.

<sup>15</sup> Moleya, N.I. 2018. ‘Equality for all religions and cultures in the South African legal system’, [https://www.derebus.org.za/equality-for-all-religions-and-cultures-in-the-south-african-legal-system/#:~:text=The%20Constitution%20accords%20both%20culture,culture'%20\(my%20italics\)](https://www.derebus.org.za/equality-for-all-religions-and-cultures-in-the-south-african-legal-system/#:~:text=The%20Constitution%20accords%20both%20culture,culture'%20(my%20italics)). Accessed 11/04/2022.

Section 9(3) of the Constitution prohibits the state from unfairly discriminating against anyone on one or more grounds, including, among others, ‘*religion*, conscience, belief, [and] *culture*’ (my italics).

Section 15(1) bestows everyone the right to ‘freedom of conscience, *religion*, thought, belief and opinion’ (my italics) but excludes culture.

Section 30 confers every person the right to ‘use the language and to participate in the cultural life of their choice’ but only to the extent consistent with the Bill of Rights. The provision excludes religion.

Section 31 entitles persons belonging to a cultural, religious or linguistic community –

(a) to enjoy their *culture*, practise their *religion* and use their language; and  
 (b) to form, join and maintain *cultural*, *religious* and linguistic associations and other organs of civil society’ (my italics).

Culture also enjoys special constitutional recognition and protection by virtue of ss 211 and 212 and 181(1)(c) of the Constitution.

- In South Africa, the recognition and protection of cultural heritage flows from the broader concern to safeguard cultural diversity, cultural expression and the natural environment.
- In this regard, the government has promulgated the National Environment Management Act (NEMA) and the related Protected Areas Act 57 of 2003 (NEMA: PAA) and National Environmental Management: Integrated Coastal Management Act of 2008 (ICM). These Acts seek both to safeguard the country’s marine ecological assets and to ensure democratic and public participation in the management of national, natural resources.
- Heritage is equally deemed worthy of protection. In this regard, the South African government has the National Heritage Resources Act 25 of 1999 (NHRA), via which it regularly nominates, inscribes, seeks to protect and safeguard national, regional and provincial heritages.
- While NHRA attends mostly to the management of tangible heritage (TH) (monuments, sites and artefacts), it also seeks to protect Intangible Cultural Heritage (ICH), via the provisions set for Living Heritage.
- NEMA, NEMA: PAA, ICM and NHRA collectively seek to safeguard the integrated coastal cultural and natural heritage of South Africa, as well as local, democratic participation in processes of coastal management.
- The Act recognises that ordinary South Africans are also custodians of heritage, and that heritage management should occur in tandem with local communities and traditional leaders.

Specifically, and in the section considering heritage resources, NHRA notes that,

5(1) (a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival; (b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans; (c) heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a

unifying South African identity; and (d) heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

And,

(7) The identification, assessment and management of the heritage resources of South Africa must— (a) take account of all relevant cultural values and indigenous knowledge systems; (b) take account of material or cultural heritage value and involve the least possible alteration or loss of it; (c) promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs; (d) contribute to social and economic development; (e) safeguard the options of present and future generations; and (f) be fully researched, documented and recorded.

- The principles and goals of NHRA are further supported in the Protection, Promotion, Development and Management of Indigenous Knowledge Act 6 of 2019. The Indigenous Knowledge Act serves to assert the human dignity of South Africans, the restoration of indigenous knowledge forms and to educate the public about indigenous knowledge.
- Via the National Indigenous Knowledge Systems Office (NIKSO), government seeks to identify skilled indigenous knowledge practitioners, as well as indigenous knowledge forms to conserve, promote and develop. IKS (Indigenous Knowledge Systems) and IK (Indigenous Knowledge) form a key part of cultural heritage in South Africa, since both were suppressed and marginalised under colonial and apartheid rule.
- A further consideration in this report is that South Africa is party to the UNESCO Convention on the Protection of Underwater Cultural Heritage promulgated in 2001 (UCH Convention). In this regard, the government is tasked to identify, conserve, nominate and safeguard both TH and ICH that is underwater.
- And, as noted in this report, ancestral veneration is important to both First Peoples and indigenes in South Africa. Ancestral veneration forms part of both the tangible and intangible underwater cultural heritage in South Africa's EEZ. Furthermore, the remnants of TH in the form of shipwrecks and other tangible artefacts associated with shipping vessels older than 60 years, also form part of South Africa's TH.
- UCH, ICH and TH are managed and conserved by the South African Heritage Resources Agency (SAHRA), and it is only SAHRA that can issue the necessary permits for the removal, alteration and modification of heritages in the national sphere. SAHRA's mandate is to *coordinate* heritage identification efforts.
- Beyond the EEZ, the UN Convention on the Law of the Sea (UNCLOS) applies. Areas Beyond National Jurisdiction (ABNJ) (i.e., areas beyond the 200 nautical mile mark) form part of the Common Heritage of Humankind. In March 2022, the UN High Seas Treaty was agreed upon by state parties. The Treaty concerns the further protection of ABNJ and may impact offshore exploration and surveys, as a primary concern is marine and biodiversity protection, 'resources' potentially affected by offshore operations. As noted earlier, according to the CBD, marine biodiversity and cultural diversity are said to be symbiotic and therefore, any impacts on marine biodiversity may potentially impact cultural diversity and heritage.
- Last, heritage is not merely in the past. It is also in the future. That is, where one finds areas of potential heritage interest (such as in the Western Cape Province with its long history of slave and indentured maritime history), there is possibility of discoverable cultural heritage. Developers on land are often required to ensure the presence of archaeologists when land is being excavated for development purposes. At sea, a similar arrangement may be necessary, since it is not clear yet, what might be found that is of archaeological, maritime or cultural heritage interest and value, either within the EEZ or in the ABNJ.

- The report acknowledges the cultural diversity of South African society, the geographical mobility of the population, current and potential future considerations of the oceans and coasts in cultural terms as well as legislation that guides and informs heritage management in the country.
- The report also acknowledges and accepts the legislation of cultural heritage in South Africa and the protection of South Africans' cultural rights, as per the Constitution of the country. The international conventions and national legislations concerning and affecting cultural heritage are further summarized and elaborated upon in Tables noted below.



INTERNATIONAL TREATIES	RELEVANT SECTION OF NOTED TREATY ETCETRA.	APPLICATION TO CULTURE AND CULTURAL HERITAGE
<p><b>UN Convention on Biological Diversity 1992 (CBD)</b>, amended 2022.</p> <p>At the 2022 United Nations Biodiversity Conference of the Parties to the UN Convention on Biological Diversity there was international agreement to protect 30% of land and oceans by 2030 and the adoption of the Kunming-Montreal Global Biodiversity Framework, which supersedes the Strategic Plan for Biodiversity 2011-2020, including the AICHI Targets for the protection of biodiversity.</p>	<p><b>The Kunming-Montreal Global Target 11</b></p>	<p><b>Target 11</b> applies, recognizing the services that nature (and by implication the protection of biodiversity) provides to human beings, including indigenous peoples. Target 11 enhances and calls for protection of nature for culture.</p>
	<p><b>National Biodiversity Strategy and Action Plan (NBSAP)</b> necessary for contracting parties to CBD. Strategic Objective 2 of NBSAP 2015-2025</p>	<p><b>NBSAP Strategic Objective 2</b> calls for Investments in ecological infrastructure (to which cultural and traditional communities contribute) to enhance resilience and ensure biodiversity benefits to society.</p>
<p><b>High Ambition Coalition on Biodiversity beyond National Jurisdiction (BBNJ)</b></p>	<p><b>UN Convention on the Law of the Sea (UNCLOS), High Seas Treaty</b></p>	<p>Protection of 30 percent of the Ocean allowing for the Creation of Marine Protected Areas (MPAs) on the High Seas and regulation of mining and other activities in this domain. ABNJ (Areas Beyond National Jurisdiction) were previously beyond the reach of national EEZ. The impact on Cultural Heritage is that ABNJ/High Seas is now also part of the consideration of protected areas. Implementation of the Treaty is not clear yet.</p>
<p><b>United Nations Covenant on Economic, Social and Cultural Rights (ICESCR) 1976 (ratified by South Africa 2015)</b></p>	<p>Preamble to ICESCR which states that, ‘Recognizing that, in accordance with the Universal Declaration of Human Rights, the ideal of free human beings enjoying freedom from fear and want can only be achieved if conditions are created whereby <b>everyone may enjoy his economic, social and cultural rights</b>, as well as his civil and political rights.’</p> <p>Once South Africa ratified this agreement/covenant in 2015, it had 3 months in which to commence implementation.</p>	<p><b>The Constitution of South Africa 1996</b>, indicates the cultural rights of South Africans, see <b>Section 31</b>, which states: "<b>Persons belonging to a cultural, religious or linguistic community may not be denied the right, with other members of that community to enjoy their culture, practice their religion</b> and use their language; and to form, join and maintain cultural, religious and linguistic associations and other organs of civil society".</p> <p>But see <b>Article 25 of ICESCR</b>, which states, ‘Nothing in the present Covenant shall be interpreted as impairing the inherent right of all peoples to enjoy and <i>utilize fully</i> and freely their natural wealth and resources.’ This suggests that the rights of those interested in pursuing the use of natural resources for economic gain also needs to be considered.</p>
<p><b>Convention Concerning the Protection of the World Cultural and Natural Heritage 1972</b></p>	<p><b>Article 4 and Article 5</b> set out the obligations, as well as the means to realise the obligations to identify, protect and advance both cultural and natural heritage protection.</p>	<p>South Africa has ratified the <b>World Heritage Convention Act 49 of 1999</b> but not the <b>Convention for the Safeguarding of the Intangible Cultural Heritage (ICH) 2003</b>. This means that ICH is not provided for, except in the general context of provisions made for Living Heritage in the National Heritage Resources Act 25 of 1999.</p>

INTERNATIONAL TREATIES	RELEVANT SECTION OF NOTED TREATY ETCETRA.	APPLICATION TO CULTURE AND CULTURAL HERITAGE
UN Declaration on the Rights of Indigenous Peoples (UNDRIP)		The South African government has ratified the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (2007). In April 2021 and at the <b>United Nations Permanent Forum on Indigenous Issues</b> , the state further affirmed its commitment to protecting the rights of indigenous peoples. Equally and to conserve the access of future generations to environmental benefits, South Africa has also sought, post 1994, to realise through various laws, the aims of the Convention on Biological Diversity (CBD). This means that it has also pledged to protect biodiversity for the benefit of present and future generations.
UN Convention on Elimination of all Forms of Discrimination against Women (CEDAW)	<b>Foundational Principles</b> which rest on non-discrimination, state obligation to pursue equality and the pursuit of substantive equality	State parties to the UN World Heritage Convention 1972, are required to pay attention to, and note gender dimensions of ICH. Relevant to this Impact Assessment Study is the fact that there are women Small Scale Fishers (SSF) for whom oceanic ICH matter.

Table 1 International Conventions and Treaties relevant to cultural heritage protection.



<p><b>World Heritage Convention Act 49 of 1999</b></p>		<p>‘The Act makes provision for: the enforcement and implementation of the World Heritage Convention in South Africa; the recognition and establishment of World Heritage Sites; the establishment of authorities and the granting of additional powers to existing organs of State, among other provisions.’ (Cheadle et al)</p> <p>South Africa has not ratified the Underwater Cultural Heritage Convention 2001 and it has not ratified the Convention for the Safeguarding of the Intangible Cultural Heritage 2003. NAHRA (National Heritage Resources Act 25 of 1999, provides limited protection of both these forms of heritage).</p>
<p><b>The National Environment Act no 107 of 1998</b></p>	<p><b>National Environmental Management: Protected Areas Act 57 of 2003. Chapter 4, Management of Protected Areas.</b></p>	<p><b>42(2)(a)</b> provide for the harmonisation and integration of the management of cultural heritage resources in the protected area by the management authority.</p> <p>This would apply to the MPAs identified in the area of indirect influence.</p>
	<p><b>National Environmental Management: Integrated Coastal Management Act of 2008. References to Coastal Resources which includes cultural heritage.</b></p>	<p><b>Definitions.</b> “coastal resources” means any part of (a) the cultural heritage of the Republic within the coastal zone, including shell middens and traditional fish traps; or (b) the coastal environment that is of actual or potential benefit to humans;</p> <p><b>Special Management Areas:</b> (3) An area may be declared as a special management area only if environmental, cultural or socio-economic conditions in that area require the introduction of measures which are necessary in order to more effectively - (a) attain the objectives of any coastal management programme in the area; (b) facilitate the management of <i>coastal resources</i> by a local community; (c) promote sustainable livelihoods for a local community; or (d) conserve, protect or enhance coastal ecosystems and biodiversity in the area.</p>

Table 2 National Legislative Context relevant to cultural heritage protection

### 3 APPROACH TO THE STUDY

#### 3.1 Aim and Objectives

Considering the legislative and sociocultural context, the aims of the Cultural Heritage Assessment (CHIA) are to:

- Engage with the key stakeholder communities within the indirect area of influence to establish the cultural, spiritual and/or religious significance of the ocean and coast to local communities.
- Assess the potential impacts of normal operations and unplanned events on cultural, spiritual, or religious practices – especially as these pertain to tangible and intangible cultural heritage.
- Identify practicable mitigation measures to reduce any negative impacts on tangible/intangible cultural heritage.
- Produce a CHIA that includes information regarding the potential cumulative impacts.

The above-noted objectives are selected so that the research team can show how the proposed project could affect or hinder communities' cultural and intangible cultural heritage or users of the ocean. Relatedly, the objectives of the CHIA are to:

- Conduct primary anthropological research in the stated communities within the indirect area of influence<sup>16</sup> to describe, discuss and analyse the receiving environment, specifically key stakeholders' intangible cultural heritage and the prevalence/frequency/commonality of cultural and spiritual reliance on the sea. The cultural heritage to be assessed includes the heritages of indigenous, autochthonous and recently settled peoples, their spiritual and religious uses of/connections to the sea and coast and their cultural valuation of these assets.
- Utilise both primary and secondary data collected to assess the potential impacts of both normal operations and unplanned events on the stated variables (culture, spiritual aspects and religion).
- Utilise both primary and secondary data collected as well as the mitigation measures recommended by other specialists, to identify mitigation measures to reduce potential negative impacts on aspects of culture and spiritual/religious uses of the sea and coast.
- Assess Xhosa and/or indigenous, aboriginal and autochthonous ancestral beliefs and ritual practices regarding coastal and deep ocean significance. This includes Khoisan (First Peoples) cultural relations with the sea and coast.
- ICH of settler groups (English/Portuguese/other European descendants) and coastal ICH indicated by Afrikaans speaking peoples.
- Gender and generational dimensions of ICH at the coast in the selected sites.

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<sup>16</sup> It is important to note that these areas are also the prime research sites for the PI's NRF funded research in South Africa and therefore, only a few additional questions were asked relating to the impact of offshore exploration and drilling in these areas. The bulk of the interviews remained focus on the NRF project objectives which are to understand human cultural and heritage connections with the sea and coast in South Africa.

### 3.2 Terms of Reference:

Terms of Reference for the ESIA identified:

- Describe the receiving environment and baseline conditions that exist in the study area and identify any sensitive areas that will need special consideration.
- Review the Scoping Comments and Responses Report to ensure that all relevant issues and concerns relevant to fields of expertise are addressed.
- Where applicable, identify and assess potential impacts of the proposed project activities and infrastructure following the impact assessment methodology, including describing any associated cumulative impacts (qualitative assessment, to the extent that this is feasible).
- Describe the legal, permit, policy, and planning requirements.
- Identify areas where issues could combine or interact with issues likely to be covered by other specialists, resulting in aggravated or enhanced impacts.
- Indicate the reliability of information utilised in the assessment of impacts as well as any constraints to which the assessment is subject (e.g., any areas of insufficient information or uncertainty).
- Where necessary consider the precautionary principle in the assessment of impacts.
- Identify management and mitigation actions using the Mitigation Hierarchy by recommending actions in order of sequential priority. Avoid first, then reduce/minimise, then rectify and then lastly offset.
- Identify alternatives that could avoid or minimise impacts.
- Determine significance thresholds for limits of acceptable change, where applicable.
- Comply with the prescribed screening assessment protocols in terms of Government Notice (GN) 320 of 20 March 2020 or, where no protocol exists, with Appendix 6 of the EIA Regulations 2014 (GN R982 of 2014), as amended.

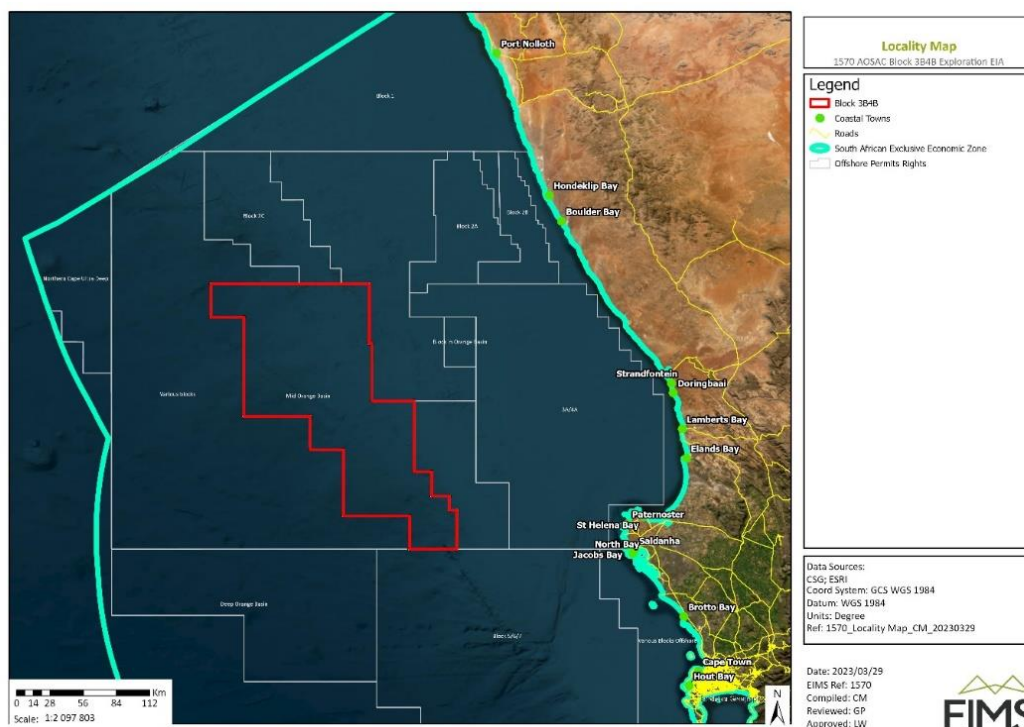


Figure 1 Proposed Area of Interest in Block 3B/4B

Source: EIMS Background Information 2023

## **4 DESCRIPTION OF THE PROPOSED PROJECT**

Hydrocarbon deposits occur in reservoirs in sedimentary rock layers. Being lighter than water they accumulate in traps where the sedimentary layers are arched or tilted by folding or faulting of the geological layers. Exploration drilling activities are one of the primary geophysical methods for locating such deposits. The below activities are expected to be undertaken as part of the proposed exploration for oil and gas. It should be noted that the project described in this EIA Report, relates to exploration activities only. No production activities have been assessed as part of this Scoping and EIA Process – any production related activities would be subject to a separate production right application, including a new Scoping and EIA Process.

### **4.1 Pre-Drilling Surveys**

Pre-drilling surveys may be undertaken prior to drilling in order to confirm baseline conditions at the drill site and to identify and delineate any seabed and sub-seabed geo-hazards that may impact the proposed exploration drilling operations. Pre-drilling surveys may involve a combination of sonar surveys, sediment sampling, water sampling and ROV activities.

#### **4.1.1 Sonar Surveys**

Pre-drilling sonar surveys may involve multi- and single beam echo sounding and sub-bottom profiling. These surveys would not be limited to a specific time of the year but would be of short duration (around 10 days per survey) and focused on selected areas of interest within the block. The interpretation of the survey would take up to four weeks to complete.

#### **4.1.2 Echo Sounders**

The majority of hydrographic depth/echo sounders are dual frequency, transmitting a low frequency pulse at the same time as a high frequency pulse. Dual frequency depth/echo sounding has the ability to identify a vegetation layer or a layer of soft mud on top of a layer of rock. It is proposed to utilise a single beam echo-sounder with a frequency range of 38 to 200 kHz. In addition, it is proposed to also utilise multibeam echo sounders (70 - 100 kHz range and 200 dB re 1 $\mu$ Pa at 1m source level) that are capable of receiving many return “pings”. This system produces a digital terrain model of the seafloor.

#### **4.1.3 Sub-bottom Profilers**

Sub-bottom profilers are powerful low frequency echo-sounders that provide a profile of the upper layers of the ocean floor. Bottom profilers emit an acoustic pulse at frequencies ranging between 2 and 16 kHz, typically producing sound levels in the order of 200-230 db re 1 $\mu$ Pa at 1m.

#### **4.1.4 Seabed Sediment Coring**

Seabed sediment sampling may involve the collection of sediment samples in order to characterise the seafloor and for laboratory geochemical analyses in order to determine if there is any naturally occurring hydrocarbon seepage at the seabed or any other type of contamination prior to the commencement of drilling.

No specific target area has as yet been identified for the sediment sampling. It is currently anticipated that up to 20 samples could be taken across the entire area of interest (AOI) potentially removing a cumulative volume of ~ 35 m<sup>3</sup>. The sediment sampling process would take between three to five weeks to complete, depending on weather conditions.

Piston and box coring (or grab samples) techniques may be used to collect the seabed sediment samples. These techniques are further described below.

#### **4.1.5 Piston Coring**

Piston coring (or drop coring) is one of the more common methods used to collect seabed geochemical samples. The piston coring rig is comprised of a trigger assembly, the coring weight assembly, core barrels, tip assembly and piston. The core barrels are 6 - 9 m in lengths with a diameter of 10 cm.

The recovered cores are visually examined at the surface for indications of hydrocarbons (gas hydrate, gas parting or oil staining) and sub-samples retained for further geochemical analysis in an onshore laboratory.

#### **4.1.6 Box Coring**

Box corers are lowered vertically to the seabed from a survey vessel by. At the seabed the instrument is triggered to collect a sample of seabed sediment. The recovered sample is completely enclosed thereby reducing the loss of finer materials during recovery. On recovery, the sample can be processed directly through the large access doors or via complete removal of the box and its associated cutting blade. The Applicant is proposing to take box core samples (50 cm x 50 cm) at a depth of less than 60 cm.

### **4.2 Well Location and Drilling Programme**

The Applicant is proposing to drill up to five exploration wells within an AOI within Block 3B/4B. The expected target drilling depth is not confirmed yet and a notional well depth of 3 500 m below sea floor (Water depth range 500 -1700m) is assumed at this stage. It is expected that it would take approximately three to four months to complete the physical drilling and testing of each well (excluding mobilisation and demobilisation). The applicant's strategy for future drilling is that drilling could be undertaken throughout the year (i.e. not limited to a specific seasonal window period).

The schedule for drilling the wells is not confirmed yet; however, the earliest anticipated date for commencement of drilling is third quarter of 2024 (Q3 2024).<sup>17</sup>

## **5 SITES, RESEARCH METHODS, LIMITATIONS AND INFORMATION GAPS**

### **5.1 Research Sites and Methods**

- The CHIA considers and respects the principles noted in both the NHRA and the Indigenous Knowledge Act as noted in the section on the Legislative Context. It offers an as comprehensive as possible overview of key research findings on human cultural connection with the ocean and coasts in the area of indirect influence. Drawing on selected sites (noted in the maps supplied in this CHIA), a multidisciplinary team of qualitative researchers collected qualitative data on coastal cultural heritage from March 2022 to May 2023. The findings also draw on secondary data, regarding the spiritual/cultural/religious uses of the sea and coast, secondary data concerning TH and UCH in the Northern and Western Cape coastal areas, as well as indigenous and First Nations' cultural identity. In this regard the research conducted and analysed is holistic and inclusive.

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<sup>17</sup> The remainder of the Project Description is located at the Annexure of this report.



- In each site, an attempt was made to interview an equal number of women and men. The majority of those interviewed are between the ages of 20 to 60. That is, the majority of those interviewed could be classified as either economically active (formally or self-employed), or, that they have the potential to be economically active. Between March 2022 and May 2023, Two Hundred and Twenty-Two (222) people were interviewed in South Africa and in the area of indirect influence. The communities up to George are included in this study, since community members engaged there had cultural linkages in the Western Cape.
- The research team interviewed a wide cross-section of South Africans and some immigrants. South Africans interviewed included the descendants of First Peoples (i.e., Khoisan descendants), as well as Nguni descended peoples, European descendants and those who still classified themselves in racial terms (i.e., white, black African, coloured or Indian).
- The research was also generationally diverse. The team interviewed those who consider themselves to be part of a younger generation of South Africans.
- Interviewers were multilingual or, where a researcher did not speak the language spoken by the interviewee, a fellow team member would accompany the key researcher to conduct the interview.
- The research team itself was generationally and ethnically diverse. The team comprised of foreign nationals, a Khoisan descendant, Sotho, Xhosa, Afrikaans as well as European descendants.
- All team members are trained in social sciences research, specifically anthropology and/or sociology. The lead researcher is an anthropologist with more than 20 years of field research experience in national and international coastal contexts.
- The duration of the field research undertaken in the area of indirect influence prior to this CHIA is more than 10 months. Intermittent fieldwork has been conducted in South Africa and along the northern cape and Western Cape coasts in 2022 and 2023. The reason for the fieldwork being conducted over this period of time is because the researchers are continuing with field research for the primary purpose of understanding coastal cultural heritage, beyond the study conducted for Block 3B/4B.
- The research team stayed overnight in, or near the sites where field research was conducted. The aim was to ensure possibility for deep and meaningful observation of social and cultural dynamics in the selected locales. Each research day compromised of between 6 to 8 hours of community consultation and interviews. Community consultation involved selecting, accessing and confirming interviewees, the written formal consent communication, the interview and social engagement accompanying each interview.
- The present and accepted approach in anthropological fieldwork is that all engagement with local communities is respectful, culturally aware, ethically informed, politically conscious and seeks to do no harm to local communities. The research approach is also self-reflexive, meaning that researchers must reflect and debrief with research partners, their impact on the research process and how they might improve their research praxis in the future.
- The research included a diversity of stakeholders, from the descendants of indigenes, specifically Khoisan peoples, as well as those who still define themselves in racial terms in South Africa (Coloureds, whites, Black African and Indian). The research also included interviews with participants and observations in coastal locales, where relevant activities are taking place, such as swimming, surfing, kite surfing, sailing and beach walking; and where there were local businesses and effort to leverage subsistence from the sea (i.e., fishing). The research conducted was also generational and gender defined, and it included immigrants. The reason for including a diversity of coastal peoples (and not only those who

strictly self-define as small scale fishers (SSF), or to provide a strict focus on SSF cultural identity, is so that the consultation process can be democratic and include all South Africans who are potentially affected by the proposed operations.

- Analysis of the data involved consultation of a wide range of secondary sources, such as: archaeological studies and publications detailing tangible heritage at the coast, historical and research studies on Khoisan and Nguni beliefs and ritual practices, research dissertations on the sociocultural and ecological aspects of the sites where fieldwork was conducted, State of the Bay reports, reports regarding national government issuance of fishing quotas and licences, as well as the impacts of these on small-scale fishers (SSF) livelihood and engagement with the sea, multi-use (municipal, tourism, business) plans for the research sites, legislation and international Conventions regarding heritage and indigenous knowledge management, reports and news articles on the impacts of existing industries on the research sites, the recently produced National Coastal and Marine Spatial Biodiversity Plan (2022), MARPOL 73/78, MARPOL Annexes related to mitigation of oil pollution and recent news regarding the mobilisation of SSF. The secondary data analysis is further supported by an impact assessment report on shipwrecks potentially affected by the proposed operations, as well as a report on the tangible heritage, specifically the archaeological heritages that may be impacted by the project.
- In 2021, the South African Cooperative Governance and Traditional Affairs (COGTA) established the Commission on Khoi-San Matters as per the Traditional and Khoi-San Leadership Act, 2019 (Act 3 of 2019) (TKLA).<sup>18</sup> A purpose of the Commission is to receive applications for the national recognition of Khoi-San communities and leaders and to investigate such applications and make recommendations to the Minister on possible recognition of Khoi-San communities and groups. Notice 802 of 2022, of the TKLA, indicates that application for such recognition only commenced on 30 March 2022. During the 2022 research process for this CHIA, there were still some individuals recognized as chiefs and *bona fide* leaders in their community, that had yet to be recognized by COGTA. It is noted that the legitimacy of COGTA's request for registration of Khoi-San communities and leaders was contested in 2022 (i.e., by some Khoisan people who recognize that cultural heritage and identity are political, rather than genetic or biologically determined). In June 2023, it is noted that the TKLA has, for various reasons, been declared unconstitutional. Consultation with the aforementioned groups, were implemented considering the contentiousness of TKLA and the fact that it has recently been declared unconstitutional.
- The UNDRIP principle of Free, Prior, Informed Consent (FPIC), as well as the Ethics Clearance requirements for human related research at Nelson Mandela University are key to the research conducted for this CHIA. The latter specifically and expressly requires written informed consent for each participant involved in the research investigation, the protection of participants from undue stress during the research process and the protection of participant privacy by not divulging personal information about their precise residential/work locations or any other information which may compromise participant safety and anonymity. Furthermore, and beyond the university ethics requirements, the practice of contemporary anthropology is that all engagement with local communities is

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<sup>18</sup> It is acknowledged that the TKLA has, in February 2023, been declared unconstitutional on the grounds that it affords too much power to the Traditional Councils and risks eroding the land rights of rural and other communities. The response to the TKLA also indicates concerns regarding the authority, authenticity and reliability of traditional leaders in meeting the needs of their constituencies. See: Duda, T. February 2023, 'Traditional and Khoi-San Leadership Act that 'recreates the Bantustans' heads to ConCourt', <https://landportal.org/node/113554> accessed 07/06/23.

respectful, culturally aware, ethically informed, politically conscious and seeks to do no harm to local communities. The research process adhered to both the Nelson Mandela University and disciplinary approach. The latter is also self-reflexive, meaning that researchers must reflect and debrief with research partners, their impact on the research process and how they might improve their research praxis in the future.

- Regarding the national and legal status of leaders of the Khoi-San communities, it is noted that due to COGTA efforts to register/publicly recognize locally elected traditional leaders, more communities and traditional leaders may come forth to request consultation once they are registered with the Commission and their national status is established. Engagement with communities and leaders has therefore (and during this time of traditional leadership recognition) been done in good faith. Uppermost in the minds and approach of the research team, has been the importance of consultation and inclusion in the research process. But as noted in this report, set time frames for the completion of the CHIA has meant that only some traditional leaders were reached and that subsequently COGTA registered leaders are not consulted. Failure to consult all COGTA registered leaders does not constitute a failure of the CHIA tout court, since reasonable effort has been made to reach as many traditional and Khoisan leaders as possible.
- Furthermore, the report presented here considers and accepts that there may be Biocultural Community Protocol (BCP) emerging from indigenous communities at this time. The historical (Nineteenth Century/precolonial) distribution of Khoisan peoples is noted in the Figure noted below. This provides a sense of early and general settlement patterns of First Nation peoples in South Africa.

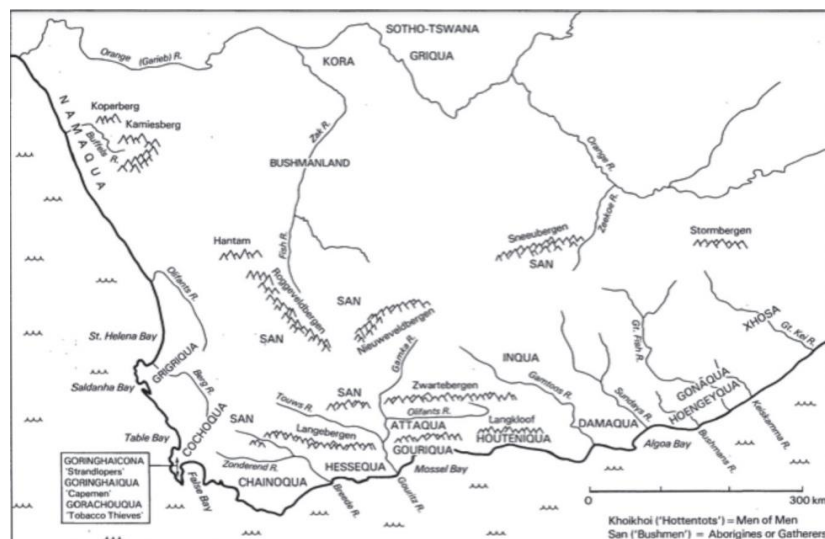


Figure 2 Historical Map (17th- 18th Centuries) of the Cape indicating distribution of Khoi and San descended groups, such as the Namaqua, Chochoqua, Gouriqwa, Gonaqua and Damaqua peoples.

- The 2022 field research covered selected field sites where there are line fishermen, crab hunters, chokka fishermen as well as secondary users of these catches: ordinary community members, restaurants and hotels. The time spent in the sites enabled the team to perceive how SSF work with established fishing companies, how SSF and their families support subsistence in local communities and how the coastal context contributes to varied cultural and leisure uses of the coast and sea.
- In part, this permitted an understanding of SSF cultural identity, and as noted in this report, it is indicated in by the research findings and it is understood, that SSF cultural identity spans across a diverse set of identifications. These include (and are therefore

not limited to), religious cultural identity, ‘Coloured’ identity as formed under apartheid and indigenous, First Nations identity. And thus, specific claims to an SSF cultural identity, although understood, is limited, as it fails to consider the multiplicity of human identities and the situatedness of cultural heritage and its expression.

- Analysis of the data involved consultation of a wide range of secondary sources, such as: archaeological studies and publications detailing tangible heritage at the coast, historical and research studies on Khoisan and Nguni beliefs and ritual practices, research dissertations on the sociocultural and ecological aspects of the sites where fieldwork was conducted. The PI read reports regarding national government issuance of fishing quotas and licences, customary law and ocean governance (i.e., Sunde PhD thesis produced in 2014, which provides a partial understanding of SSF culture), as well as the impacts of these on SSF livelihood and engagement with the sea, multi-use (municipal, tourism, business) plans for the research sites, legislation and international Conventions regarding heritage and indigenous knowledge management, reports and news articles on the impacts of existing industries on the research sites, the recently produced National Coastal and Marine Spatial Biodiversity Plan (2022), MARPOL 73/78, MARPOL Annexes related to mitigation of oil pollution and recent news regarding the mobilisation of SSF. Finally, and as noted in this section of the report, it is acknowledged that the Northern Cape Coast and the Western Cape coast contain not only sites of ICH value, but also sites of natural and underwater cultural heritage value. These sites are noted in Figure 3, 4 and 5.

Provinces	Sites for Primary data collection	Number and gender of interviewees	Secondary data analysis only	Ethnicity/Racial Percentage of Interviewees
Northern Cape	Port Nolloth	21 individuals (14 males & 7 females)	Alexander Bay McDougall Bay Hondeklipbai	10% African 80% Coloured 10% White
Western Cape	Paternoster, Langebaan, Lambert’s Bay, Camps Bay Pringle Bay, Kalk Bay, Hout Bay, St Helena’s Bay, Steenberg Cove, Cape Town Waterfront, Three Anchors Bay, Hermanus, Betty’s Bay, Mitchell’s Plain, Gansbaai, Mosselbay, Covie, Struisbay, Stillbaai, George, Sedgefield, Hoekwil, Knysna.	99 individuals  (51 males & 48 female) (March 2022 to July 2022)  102 individuals April and May 2023 (54 males and 48 females)	Velddrif	70% Coloured  20% African  10% White

Figure 3 Table Indicating Field Research Sites for Block 3B/4B in 2022 and 2023

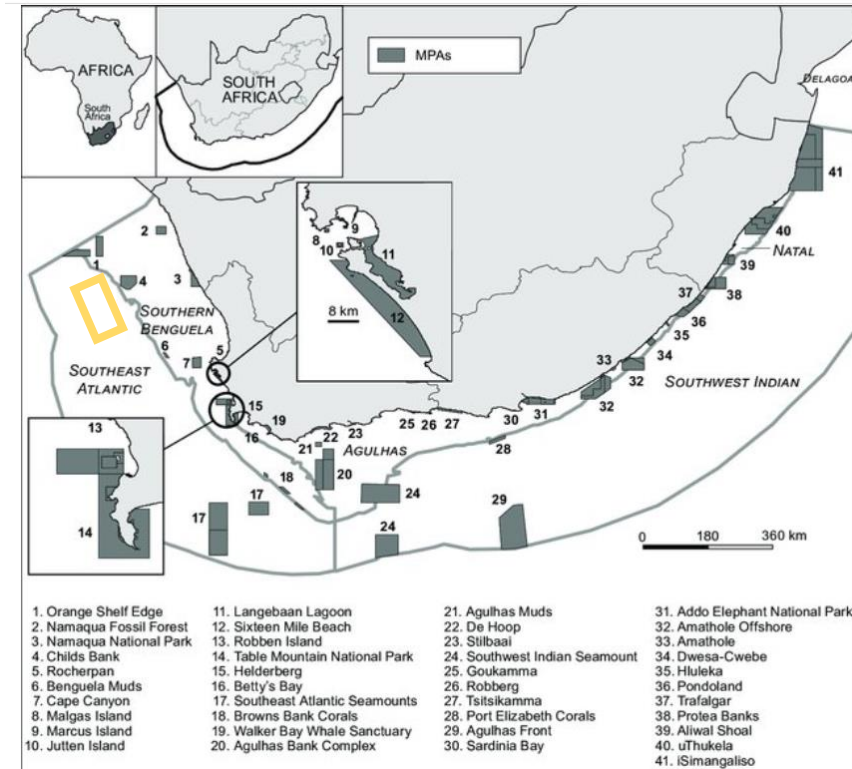


Figure 4 Map of Marine Protected Areas and Sites of Biodiversity/Natural Heritage in South Africa, Including the West Coast of South Africa. The location of 3B/4B is approximately where the yellow block is indicated.

Source of Map: Map of South Africa's mainland marine protected areas (MPAs). MPAs are numbered from west to east. Map by Stephan Kirkman in Mann-Lang, J., Branch, G., Mann, B.Q., Sink, K., Kirkman, S., and Adams, R. 2021. 'Social and economic effects of marine protected areas in South Africa, with recommendations for future assessments', *African J. of Marine Science* 43(3), 367-87.

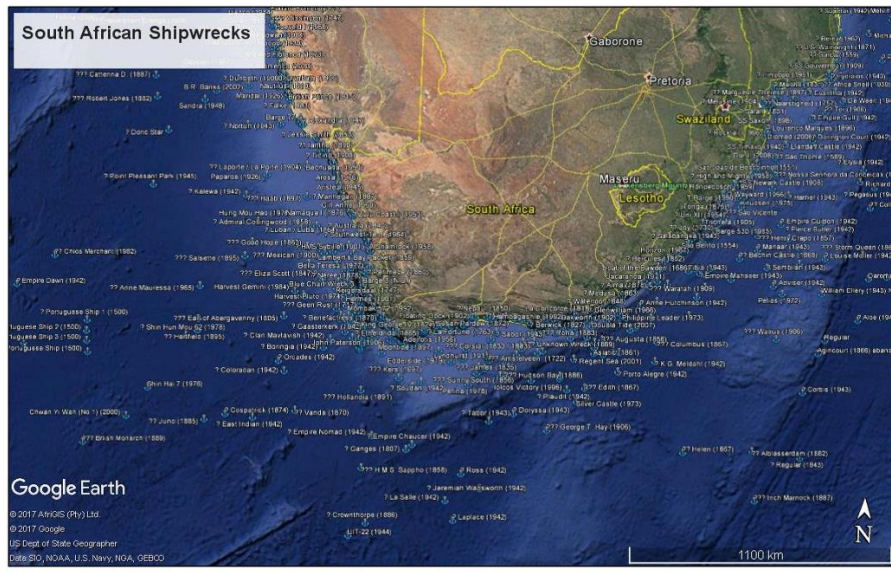


Figure 5 Map of South African Shipwrecks

Source: Maitland, V. 2017. 'Underwater Heritage Impact Assessment for Marine Prospecting Areas off the West Coast of South Africa'

[https://sahris.sahra.org.za/sites/default/files/additionaldocs/DB07\\_AppD3\\_Heritage\\_0.pdf](https://sahris.sahra.org.za/sites/default/files/additionaldocs/DB07_AppD3_Heritage_0.pdf) accessed 07/06/2023

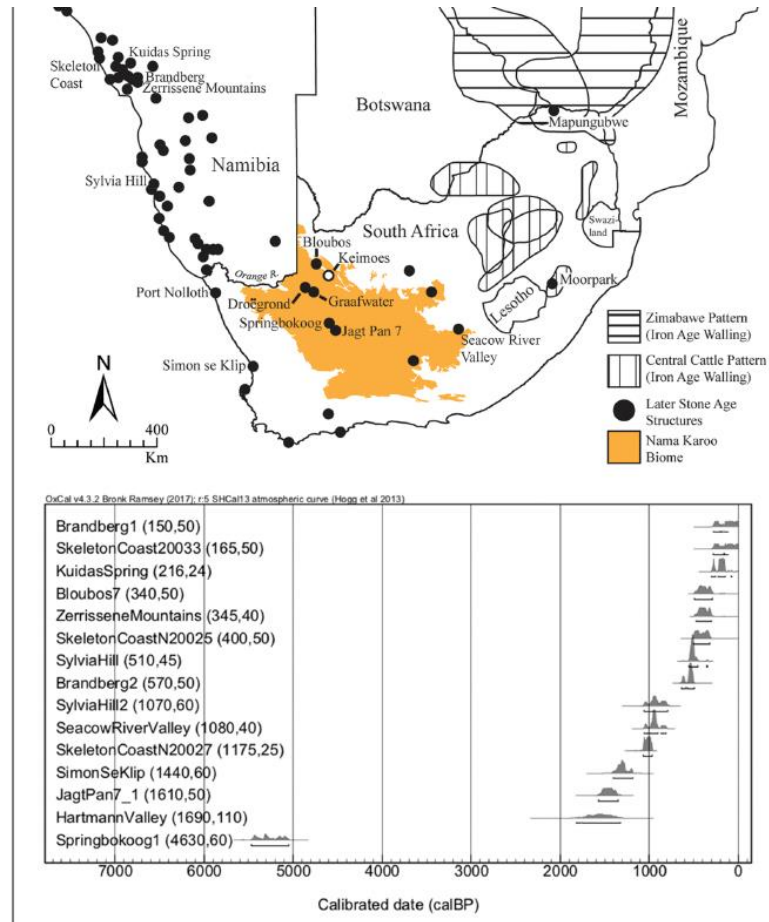


Figure 6 Map showing Later Stone Age Structures in South Africa and Namibia

Source: Lombard et al (2019) ‘The Keimoes 3 desert kite site, South Africa: an aerial lidar and micro-topographic exploration’ *Antiquity*, 1-15

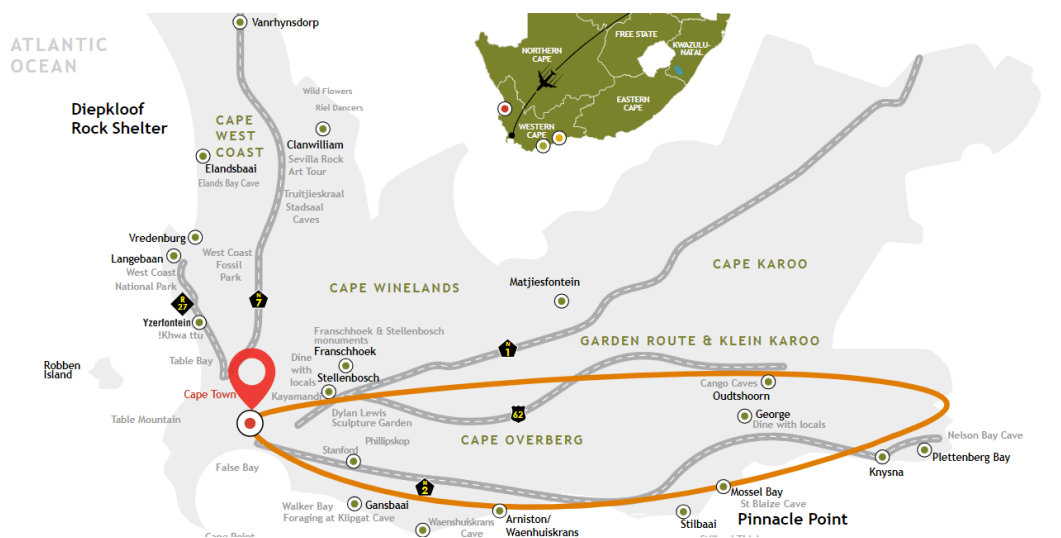


Figure 7 'Cradle of Humankind' identified by the Western Cape Government

Source: Western Cape government (n.d.). ‘Welcome to the Western Cape’s Cradle of Human Culture’, <https://www.cradleofhumanculture.co.za/routes/southern-cape/cape-town-south> accessed 07/06/23.

## 5.2 Limitations

- More time could have been given to interviews with emerging and currently accepted traditional and Khoi leaders in the Northern and Western Cape. Greater access to fisher cooperatives and commercial fisher companies would also have enriched the study further. However, and as acknowledged, it was challenging to reach SSF cooperative leaders in the Western Cape, as initial effort to communicate with researchers working on issues of SSF culture and the networks of which they are part, did not proceed. Contact was established and interviews conducted with individual fishers in the various locations indicated in the maps and interviews were also conducted with stakeholders beyond the SSF groupings/individuals – i.e., Khoi descendants and leaders, other traditional leaders, business owners, coastal dwellers, environmentalists, civil servants and healer-diviners.

## 5.3 Information Gaps

- Knowledge gaps in the research are considered to be of low to negligible significance, since the fieldwork canvassed a wide variety of stakeholders and pursued deep ethnography on the cultural valuation of the ocean and coast, as well as ritual activity at the coast. There is also a reasonable set of secondary data on multiple forms and layering of cultural heritage noted in the figures provided in the CHIA report.
- The significance of the representation gap is therefore considered to be low, given the wide consultation effected during fieldwork and the secondary/desktop data provided.
- Desktop studies are undertaken to provide reasonable coverage of heritage considerations beyond ICH, such as Tangible heritages in the form of sites offshore that may be affected by the consequences of drilling, sites such as UCH in the form of shipwrecks (see Maitland 2017).
- The significance of the time for research is low to very low since detailed information was obtained from the highly qualitative interviews conducted. The gain was in depth, rather than breadth and for the purposes of this research endeavour, the gain was satisfactory.
- The methodology and method for the CHIA draws on several sources: Appendix 6 of EIA Regulations 2014 (as amended) promulgated in terms of Chapter 5 of NEMA and published in Government Notice (GN) No. 982 (as amended); project description and EIA Methodology (which defines the criteria for assessment, as well as descriptors for the sensitivity and magnitude of impact ratings) provided by EIMS and the national government documents on assessment of impact significance, cumulative effects and limits of acceptable change.<sup>19</sup> The assessment protocol uses the ‘balanced’ weighting approach, which considers the cost of the impact to society, bearing in mind the values of local communities and the goals of AOSAC. The aim is to anticipate future conditions arising from normal operations and unplanned offshore events, as well the sociocultural results arising from such conditions.
- Regarding indigenous coastal cultural heritage, there is complex and holistic consideration and valuation of the sea and coast. For the Khoisan (First Nations) descendants, there is a

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<sup>19</sup> Department of Environmental Affairs and Tourism. 2002. *Impact Significance* (Information Series 5). [https://www.dffe.gov.za/sites/default/files/docs/series5\\_impact\\_significance.pdf](https://www.dffe.gov.za/sites/default/files/docs/series5_impact_significance.pdf) accessed 11/04/2022; Department of Environmental Affairs and Tourism. 2004. *Cumulative Effects Assessment* (Information Series 7), [https://www.dffe.gov.za/sites/default/files/docs/series7\\_cumulative\\_effects\\_assessment.pdf](https://www.dffe.gov.za/sites/default/files/docs/series7_cumulative_effects_assessment.pdf) accessed 11/04/2022.

deep connection with the coast and sea.<sup>20</sup> The Khoisan ancestors were among the first strandloppers (beach walkers), and as the DSI- NRF A Rated scientist Dr Curtis Marean describes them, they were the first aquatic hunter gatherers to have established a sustainable livelihood and potential cultural relation with the sea. The issue of both tangible (archaeological cultural heritage) and intangible cultural heritage is especially significant for this block of interest.

## **6 DESCRIPTION OF THE BASELINE: CULTURAL HERITAGE ENVIRONMENT**

The following description of the baseline data for the cultural heritage environment remains the same, as per the description of the baseline data prior to the exploration phase of the project.

### **6.1 Definition of Cultural Heritage**

- ICH (Intangible Cultural Heritage) consists of the folklore, ritual practice, beliefs, symbolism, social attachment, as well as associated human sensory engagement with the coast and sea.
- ICH is also found underwater, as part of the tangible heritage associated with maritime artefacts that remain on the sea floor after a shipwreck for example. This fact is noted in the scope of the work noted at the start of the report.
- In this regard to Block 3B/4B, there is need to consider the potential impacts on Areas Beyond National Jurisdiction (ABNJ), which 3B/4B will ‘touch’ on as its potential impacts can go beyond the South African EEZ.
- South Africa has several World Heritage Sites (WHS) in which the tangible natural and intangible cultural elements are recognised and valued. The government also recognises ICH in its reference to living heritage in the National Heritage Resources Act 25 of 1999.
- The recognition of ICH is also evident in the SA Constitution.
- ICH is diversely considered by stakeholder groups situated at the coast, in the different provinces of South Africa. The ICH maintained reflects the cultural diversity of South Africa.
- ICH and TH (tangible heritage) are contested by stakeholder groups because the practices associated with both reflect the specific cultural interests and values of each group. Despite contestation however, the anthropological research (henceforth referred to as the ‘research’) revealed that there are shared and often converging values regarding the conservation of the ocean and coasts.
- ICH is recognized by the First Peoples of South Africa, the various groups defined within the Khoisan collective. This includes the Nama, Griqua/Guriqua, Gamtkwa, Korana and other Khoisan peoples. It is also expressed by Nguni descendants the majority population in South Africa, as well as the descendant groups of Europeans and Asians in the country.

### **6.2 Location of Coastal Tangible and Intangible Cultural Heritages**

- The research found that ICH related to the coast and sea overlaps with immigrant (specifically southern African and Central African) beliefs and ritual practices at the coast.
- The research also revealed that coastal and oceanic ICH is *holistic*. It includes a variety of waterways that ultimately lead to the sea, these include streams, rivers, pools, lakes and

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<sup>20</sup> Boswell, R. and Thornton, J.L. (2021a). ‘Including the Khoisan for a more Inclusive Blue Economy’, *Journal of the Indian Ocean Region* 17 (2) 141-60.



estuaries. These waterways are described as ‘living’ waters and are believed to play a critical role in spiritual and health management in indigenous (First Nations and Nguni) groups specifically.

- The specific beliefs concerning these ‘living’ waters can be summarized as follows:
- That the waters contain the ancestral spirits of the cultural communities noted
- That the waters offer a spiritual domain to which people in the present realm can travel to (intentionally or otherwise) and from which they can return if the correct ritual activities are performed to ensure safe return.
- That while the lesser waterways such as streams, rivers and pools may contain a community’s specific ancestral spirits, the ocean itself contains the ancestral spirits of the African continent and arguably the ancestral spirits of all humanity.
- That the ancestral spirits in the ocean reside on the seabed or seafloor
- That indigenous peoples should always approach the sea and coast, as well as lesser waterways with reverence and sometimes, fear.
- That belief in the ancestral world and the place of ancestors in waterways and other ecologically sacred places does not require a relinquishing of belief in an omnipresent God. The ancestors form part of a complex genealogy of which God is the head.
- That regular, consistent and frequent interaction take place with the coast and sea in order to secure the guidance and benevolence of living communities, ancestors, as well as spirits that reside in such living waters.
- That for First Nation peoples there is belief in the natural connection (i.e., no division) between humans and nature and that all alterations (including development) in natural settings must be preceded by rituals of respect and recognition of the divine creation and its contribution to human survival. The location of ICH for First Nations appears to exist across the territorial and aqueous domains, for example, across mountains and sea.

### 6.3 Summary of Research Findings

- The coastline considered part of the area of indirect influence, is from Port Nolloth in the Northern Cape and down the West Coast of the Western Cape Province to False Bay. These are areas with rich intangible cultural heritage. These heritages were noted and discussed by participants during fieldwork from March 2022 to May 2023. SSF and SSF families displayed high regard of the sea as well their spiritual and cultural connection with the ocean. Third, SSF cultural heritage is more diverse and less primordial than articulated in consulted reports of SSF culture<sup>21</sup> because the identity includes expressions of religious identity and other associated cultural heritages, beyond attachment expressed with the sea and coast.
- The communities were concerned about the impact of offshore exploration including drilling in the ocean on fish stocks and on the natural environment but there were also those who desired the development that may come to South Africa as a result of the proposed operations. Of the SSF interviewed, more than 50 percent indicated their worry about the effects of offshore oil and gas operations on fish stocks.
- The team also found First Peoples’ revivals of identity and *re-membering* of coastal ICH. The word re-membering indicates not only a recollection of the past and the ways in which cultural identity has been formed, but also a replenishing the Khoi community, in the form of new members. The stories and processes of member replenishment revealed interest in, and concern for the cultural and ecological sustainability of these coastlines, as well as their cultural value. MPA studies, the reliance of SSF families on these coastlines for

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<sup>21</sup> See for example the J. Sunde (2014) thesis on SSF culture.

subsistence, the role of the coastline in fish spawning, as well as studies of aquatic biodiversity further reveal socioeconomic reliance on, and concern for coastal sites.<sup>22</sup>

- Secondary data to ascertain the archaeological and tangible cultural heritage at the coast indicates that, in Namaqualand (and therefore some of the Northern Cape towns selected for the fieldwork presented here), there are rich coastal and inland archaeological sites, which may be both of regional and national value (see Demset 1996, 13-14 and also the archaeological study prepared for the environmental impact assessment).<sup>23</sup>
- Secondary data analysis also revealed a similarly rich tangible (and archaeological) coastal heritage along the West Coast of the country and in the south Cape Coast. These are mainly inland sites.
- Indigenous' complex and holistic consideration and valuation of the sea and coast presents a different 'use' metric and valuation of the sea and coast. The ocean is not merely an asset, it is a living organism and integral part of the global ecological system. For these communities, the whole ocean forms part of a cultural complex in which local, living communities must be consulted and ancestral blessing must be obtained for development to take place. In this regard, the people interviewed consider the whole ocean to be highly sensitive regardless of industrial or other activities happening inshore.
- A further finding of the May 2023 research was that for aboriginal peoples, otherwise self-describing as Khoisan, nature itself (including the ocean) is believed to have agency and is therefore deserving of specialized ritual request to the ocean itself, prior to offshore operations that involve extraction of natural resources from the sea.
- In our research and engaging with people of Khoisan ancestry, we found that, regarding ICH specifically, the are deep First Peoples' relations with the sea and nature. For the First Peoples or Khoisan, humans live in a symbiotic and holistic relationship with the sea. This is a relationship that must be conserved, and it is key to the full development of persons who are part of a larger, critically balanced ecosystem. Khoisan and Nguni peoples regularly and consistently engage with the ocean and nature, drawing on fynbos and coastal plants for healing and using the sea to commune with the ancestral world. For the Xhosa in particular, the ocean seabed is the final resting place of ancient ancestors and there is belief (even among Zimbabwean immigrants) that the sea is living water and has the possibility of healing many physical and spiritual ailments.
- Under apartheid many people of mixed 'racial' descent were categorised as Coloured. This denied them expression of their Khoisan ancestry or, of any ancestry (including European ancestry) which they may have wished to publicly articulate. Since 1994, the Khoisan revival has seen many people, categorised<sup>24</sup> as Coloured, taking the 'liberation walk', to reconnect with their Khoi ancestry and the spirit world denied to them in Christianity and under apartheid. The majority population of colour in the Northern Cape and Western Cape are Coloured and African Black (Nguni descendants), meaning that a majority believe in, and or engage in ritual activity that expresses a deep relationship with the ancestral world.

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<sup>22</sup> Muhl, E-K. and Sowman, M. 2020. 'Rights, Resources, Rezoning and the Challenges of Governance in South Africa's Oldest Marine Protected Area', *Conservation & Society* 18(4): 366-77. Muhl, E-K. nd. 'Tsitsikamma, South Africa: Food security and livelihood threats to fishers bordering the Tsitsikamma Marine Protected Area', <https://www.communityconservation.net/tsitsikamma-south-africa/> accessed 22/02/2021.

<sup>23</sup> Desmet, P.G. 1996. 'The vegetation and restoration potential of the coastal belt between Port Nolloth and Alexander Bay, Namaqualand, South Africa', MSc Botany, University of Cape Town. Accessed 02/03/2022.

<sup>24</sup> Anthropologists make a clear distinction between categories and groups. The former are externally and 'objectively' identified and the latter involve self-definition.

Ancestors reside on the seabed, in flowing rivers, waterfalls, streams and estuaries. Hence the environmental conservation of all these flowing waters is perceived to be critical for the maintenance of beliefs and ritual practice. There is a substantive and valuable literature on the dynamics of Coloured and Khoisan identity in South Africa and this is succinctly assessed and presented in an annotated bibliography that clearly shows the dynamic and constructed nature of all cultural identities (Verbuyst 2022a and 2022b).

- A further finding regards the twinning of diverse ecological niches in the coastal biome (sea and desert for example in the Northern Cape) and the consequent expression of dual cultural heritages that showcase the holistic nature of coastal cultural heritage. These contribute to biocultural heritage (Boswell 2022b), since they intertwine floral/faunal expressions of marine biodiversity, geological markers and human engagement with such diversity.
- It is also found that in Port Nolloth, an atmospheric cultural heritage was identified in relation to the desert and coast, namely that the sea air turned to fog and mist at the coast and that this produced ideal conditions for the sustenance of coastal natural flora, as well as the requisite atmosphere for coastal leisure and sporting activity in an otherwise hot coastal setting. Although culturally interesting, it is unlikely that this aspect will be affected by drilling of the Earth's crust.
- In Paternoster, Kalk Bay, Langebaan and St James, board and kite surfers, as well as SSF and swimmers spoke of the interplay of Earth/moon gravity and the tides, their impacts on surf swells and winds, as well as the abundance of fish. These comments emphasised the holistic and rhythmic/cyclical nature of cultural heritage expression and experience at the coast, as well as the physics of water, which was indicated to offer balance and wellbeing to humans.
- In our interviews, we also came across SSF and other community members who identify as Xhosa but do not use the ocean for cultural purposes. This finding tells that it is important to consider that not all who are able to, will necessarily find cultural heritage important or more important than socioeconomic survival.
- Secondary data analysis reveals ancient shell middens and caves with ancient rock art (produced by the First Peoples) in the Northern Cape coast and the Western Cape of South Africa, specifically in the area of Paternoster and St-Helena Bay. These are inshore sites of archaeological and tangible heritage significance, recently (February 2022) nominated by the South African government for World Heritage consideration. Even those sites not nominated for either national or World Heritage status are considered valuable and worthy of conservation, as noted in the principles set out in Section 5 of NHRA.
- Our secondary data analysis revealed the archaeological significance of the northern cape coast and the West Coast of the country. Orton, Hart and Halkett (2005) discuss the proliferation of shell middens in the areas of Kleinsee, Hondeklipbaai and further down the West Coast to Langebaan (please see the further report on tangible heritage) The middens offer evidence of early coastal human occupation and thus, the earliest tangible cultural heritage of South Africa. As yet, early human history/archaeological prehistory is not fully attended to/considered for conservation by the South African National Heritage Council (NHC) or the South African Heritage Resources Agency (SAHRA), the implementation body of the NHC. There is expressed interest however, from the Western Cape provincial government to nominate large parts of the West Coast as a site expressive of prehistorical human heritage. A close look at the 5 June Heritage Western Cape Council Committee meeting Agenda, however, reveals that more than 60 percent of this Agenda concerns inshore and tangible heritages (sites, monuments and buildings) alterations. Thus, despite the call for recognition of ICH in local communities, more attention is still being given to TH and inshore heritage conservation in South Africa.

- 2..1 Inshore and archaeologically significant sites are also connected to coastal cultural heritages, since some rock art in these sites express the coastal activity of aquatic hunter gatherers, showing that historically, Khoisan peoples moved between inland sites and coastal sites. The sites are directly on the shore and experience to varying degrees, various existing impacts (property development, urban regeneration). The archaeological sites cannot be dismissed as mere expression of past relationships in specific ecological niches. For, the research found that present day Khoisan descendants are recently and currently *re-membering* and re-establishing connection with this history and are reviving pilgrimages to the sea to reconnect with histories suppressed under colonial and apartheid rule. Archaeological sites are noted in Figure 7 and are worth considering for the CHIA.
- Relatedly, the indigenous peoples of South Africa, who are considered Nguni descendants (i.e., Xhosa peoples), have both historical and contemporary coastal cultural heritage. As explained next, they believe that living waterways house ancestral spirits and that regular and sustained communion with such spirits and the ecological spaces noted, nourish and support benevolent relationships with the ancestral world. The ancestors are consulted for a diversity of reasons, such as explanation of ill health, a venture to be undertaken, for significant life cycle rituals (birth, marriage and circumcision for instance).
  - Thus, living waters (rivers, streams, pools, lakes, estuaries and seas) should be kept pristine for ease of and successful communication with the ancestors. Indigenous peoples (and some of those defined as Coloured under the apartheid regime), also imbibe sea water, as part of a complex set of ritual practices that facilitate contact with the ancestral world. Thus estuaries, rivers and streams fed by oceanic waters are sites as well. These are cultural and sacred landscapes, and their waters (as well as seawater) are used for ritual purposes.
  - European descendants in the research sites also cultivate a cultural relationship with ocean and coast. While the majority of responses focused on leisure pursuits at the coast, interviews on these subjects revealed that coastal sporting/leisure activities had become ICH for these communities, since the activities contained strong cultural elements (i.e., social grouping, ritual practices, commensality, unique identity, shared histories) and that these were practiced on a regular and continuing basis.
  - The research also revealed the role of other stakeholder groups in recognising and protecting coastal cultural heritage. These groups included municipalities and property developers who focus on the unique features of coastal towns (Tangible and Intangible cultural heritage) and leverage these features for infrastructure development and investment respectively. For instance, we found that, the Western Cape government has produced a series of feasibility studies in 2021, 25 including a World Heritage Site (WHS) socioeconomic study. The study has been commissioned:
  - ... under part 3(h) of schedule 1033 of the South African World Heritage Convention Act No. 49 of 1999 (SAWHCA) Format and Procedure for The Nomination of World Heritage Sites in The Republic of South Africa. The general purpose of the Study is to identify the possible socio-economic and tourism benefits to the local community derived from the declaration of the serial nomination as World Heritage Site. More specifically, the Study should determine the potential community benefits to be derived from the serial nomination; the projected jobs to be created, as a direct and indirect result of the nomination; potential funding sources, present and future, to support the programmes at the World Heritage Site and the sustainability thereof.

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<sup>25</sup> Western Cape Government, 2021. *Socio-Economic Study for The Proposed World Heritage Site Nomination: The Emergence Of Modern Humans: The Pleistocene Occupation Sites Of South Africa*, personal copy.

- In the Socioeconomic study, the Diepkloof Rock Shelter in Langebaan and the Pinnacle Point Site Complex in the Southern Cape are noted as archaeologically significant sites (and therefore mixed tangible/intangible cultural heritage sites) worthy of world heritage status. While the Pinnacle Point site complex in the southern Cape is far from the proposed site of operations, the Diepkloof Rock Shelter is in the site of indirect influence to the proposed operations. The Diepkloof site is described thus on the UNESCO website, and it forms part of a series of cave dwellings on UNESCO's tentative list of tangible heritages to be conserved:
  - Diepkloof Rock Shelter in the Western Cape, is situated about 17 km from the shoreline of the Atlantic in a semi-arid area, near Elands Bay about 150 km north of Cape Town. It occurs in quartzitic sandstone in a ridge overlooking and about 100 m above the Verlorenvlei River. It contains one of most complete and continuous later Middle Stone Age sequences in southern Africa stretching from before 130,000 BP to about 45,000 BP and encompassing pre-Stillbay, Stillbay, Howiesons Poort, and post-Howiesons Poort periods. Research is based upon finds discovered in a trench that is 16 m across and 3.6 m in depth. The deposits consist of burnt and nonburnt organic residues and ash from hearths, ash dumps and burnt bedding. 270 fragments of ostrich eggshell containers have been found covered with engraved geometric patterns. The fragments have a maximum size of 20–30 mm, though a number have been fitted into larger 80 × 40 mm fragments. It is estimated that fragments from 25 containers have been found. Eggshell fragments have been found throughout the period of occupation of the cave but those with engraving are found only in several layers within the Howiesons Poort period.
  - The findings noted above express the natural and archaeological (i.e., tangible heritage) value of the site, however and as found during the research for this cultural heritage impact assessment, sites such as Diepkloof are integral to present day expression of intangible cultural heritage, since IPLCs use such sites for ritual cultural activities, such as the !Nau ceremonies.
- In February 2022, the South African government approved the nomination of a series of cave dwellings for World Heritage consideration, as well as four other sites (including sites in the southern cape coast and in Kwazulu-Natal). The sites are already declared as national heritage sites. The South African cabinet noted that the nominated sites 'collectively contribute to the understanding of the evolution of humankind and they showcase the long sequences of human occupation over tens of thousands of years with evidence dating the period of the emergence of modern humans.'<sup>26</sup> In May 2023, research in the Mossel Bay area revealed the establishment of an educational and 'identity restoration' center, the Point Discovery Centre. It is envisaged that the area behind the Centre will contain areas for activities that will enhance remembrance of Khoisan identity and cultural heritage. Interviews at the site indicated the potential for discovery of further inshore tangible cultural sites. Mossel Bay and the Pinnacle Point site complex, important to Khoi and the broader South African cultural history, are however, far from potential impacts from Block 3B/4B.
- Some of the groups encountered in the area of indirect influence noted in this report, such as Small-scale Fishers (SSF), demonstrated greater cultural proximity to the ocean and

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<sup>26</sup> Government of South Africa, 9 February 2022. 'Statement of the Virtual Cabinet Meeting of 9 February 2022', <https://www.gov.za/speeches/statement-cabinet-meeting-9-february-2022-11-feb-2022-0000> accessed 02/04/2022.

coast. Thus, they personalised the ocean and coasts more, recognised the agency of the sea itself and the social personalities of marine life. This is also noted in Sunde's (2014) PhD Thesis. However, and as laid out in the Baseline report for Block 3B/4B, one needs to consider the dynamism of culture and the situational nature of cultural identity, as well as consider coastal cultural heritage collectively and along with other desires and needs for South Africa's coastal areas. There are diverse values and plans for the advancement of the South African nation. Thus, even though the CHIA research finds the twinning of diverse ecological niches in the coastal biome and the consequent expression of dual cultural heritages that showcase the holistic nature of coastal cultural heritage – it still needs to be asked, do all coastal South Africans share this perspective and does this valuation of the coast supersede other forms of cultural valuation and cultural diversity found along the coast? There are diverse forms of biocultural heritage, since they intertwine floral/faunal expressions of marine biodiversity, geological markers and human engagement with such diversity.

- In Pringle Bay, Hangklip and broader Cape Town, residents twinned the cultural heritage of the mountain with that of the sea. They spoke of the invigorating atmospheric natural heritage engendered by sea air in the coastal areas and how the mountain-sea climatic system was a holistic one leading to specific fauna and flora that formed part of the natural-cultural heritage of the coast.
- In Cape Town CBD we learned of the integral part of seafood in culture and heritage. Interviewing a Malay woman from the city, she told us that, at Eid every year, families who can afford it will make a crayfish curry, this signals both the importance of Eid itself, as well as the high cultural value of crayfish in the community.
- The team learned that all fish or seafood are not equal, abalone and crayfish are of much higher value and have the potential to improve the lives of those who fish for it. Interviews with SSF in Port Nolloth and St Helena Bay revealed that SSF have to now travel much further than before, because fish commonly pursued, such as sardines, are no longer readily available in the waters near these towns. The dangerous nature of fishing in open waters was also shared with the team, including beliefs that local communities have cultivated to explain miraculous situations where they were saved by mythical creatures, such as mermaids, at sea. These stories are complemented by many stories of cultural attachments to particular seafoods, of recipes passed from one generation to the next, as well as stories regarding understanding the geolocation of marine life and of community discernment of weather conditions for fishing, without the use of new technologies to that end. These stories and reference to these stories in this report, confirm, in part, the engagement of the researchers and acknowledgement of the rich oceanic and coastal cultural heritage of SSF in South Africa.
- In Lambert's bay and in Port Nolloth for example, the team came across people who affirmed the existence of mermaids that saved them from drowning. These experiences strengthened belief in the other worldly nature of the sea, and of its intrinsic agency. In other words, the sea is not merely a resource, it is a living entity, containing species that are not yet known by humans.
- These comments also confirmed the holistic and rhythmic/cyclical nature of cultural heritage expression and experience at the coast, as well as the physics of water, which refers to the viscosity of the sea, the regularity and shape of waves as well the regularity of marine species' shapes – which are perceived as evidence of intelligent design – of the *raison d'être* of the sea – being an integral element in a symbiotic ecologically-sound whole. The sea, to put it simply, offers physical and psychosocial balance and wellbeing to humans.
- The research also found that ICH was gendered and that it had a generational dimension. Women had their own ICH with the sea and coast. For women the sea was a provider of

health and healing, both physical and emotional. Women routinely and ritually took to the sea for both physical and psychological healing, engaging for example, in moon-baths at high tide. Secondly, the oceans and coasts formed part of the early socialisation of boys and young men, drawing them into the coastal ecological niche as part of a locally embedded, masculine socialisation. There are gendered cultural heritage with the oceans and coast.

- Finally, the research found that coastal cultural heritages are similarly considered by indigenous South Africans and some southern African immigrant groups. An interview with a Zimbabwean woman, as well as secondary data on southern African water rituals, revealed that southern Africans share in their veneration of the ancestors and in belief regarding ancestral worlds. They also share in belief regarding living water ‘housing’ ancestral spirits and realms. Specifically, the secondary data analysis tells of Mami Wata – a feminine goddess, who resides in rivers and at the bottom of the ocean. Belief in Mami Wata is apparent across many African countries, not just southern Africa.<sup>27</sup> An incarnation of Mami Wata is also said to be apparent in Yemanjá/Lemanjá, the goddess of the sea, who is revered in the African-American diaspora of Brazil, the Caribbean and the United States. Thus, heritages are not merely national or global, they are also continental and regional. Conservation of heritage therefore, may have positive implications for the restoration of African and diaspora human dignity, history and indigenous knowledge forms.
- Photographs noted in Figures below, show the relationship of South Africa’s coastal peoples with the sea. The images also visually represent a brief selection of the consultation and interviews conducted.



*Figure 8 A woman from Paternoster tells us about the cultural and health contributions of the sea, the role of the sea in her physical wellbeing*

Source: Laetitia Bosch.

<sup>27</sup> Drewal, H.J., ‘Mami Wata: Arts for Water Spirits in Africa and its Diasporas’, [https://static1.squarespace.com/static/5afcdd6675f9ee58a6be4a2c/t/5b08813d0e2e72c75242443b/1527284037283/28\\_Mama+Wata\\_Selected.pdf](https://static1.squarespace.com/static/5afcdd6675f9ee58a6be4a2c/t/5b08813d0e2e72c75242443b/1527284037283/28_Mama+Wata_Selected.pdf) accessed 12/04/2022.



*Figure 9 A woman explains SSF reliance on the sea for survival in Steenberg Cove*

Source: Laetitia Bosch



*Figure 10 Net-mender, a critical member of the SSF group in Steenberg Cove*

Source: Laetitia Bosch





*Figure 11 Restaurant owners interviewed in St Helena Bay*

Source: Laetitia Bosch



*Figure 12 Kelp Harvesters in Port Nolloth*

Source: Laetitia Bosch



*Figure 13 Explaining the Khoisan ritual and cultural connection with the ocean and coasts and the role of the re-remembering the indigenous past*

Source: Laetitia Bosch

## 7 ASSESSMENT FOR BLOCK 3B/4B

The following provides an overview of the impact of normal operations, unplanned events and the potential cumulative impacts for drilling in the specified. Areas of indirect influence for this block stretches from Alexander Bay in the Northern Cape Province to the Western Cape Province. The sections below provide an overview of the receptors, the sensitivity of the receptors, an assessment of normal operations, unplanned events and cumulative impacts for intangible cultural heritage.

### 7.1 Overview of the Specific Receptors

- **Ancestry/Spiritual:** The sea is described as ‘living’ waters and is believed to play a critical role in spiritual and health management in indigenous groups specifically (First Peoples and Nguni). The sea is also believed to be sentient/conscious. That is, it is living organism that forms part of and sustains a balanced global ecosystem. Any impact on these ‘living’ waters may therefore impact communication with the ancestors, who are consulted for a diversity of reasons, e.g., explanation of ill health, a venture to be undertaken, for significant life cycle rituals (birth, marriage and circumcision for instance). Impact on the ‘living’ waters is also considered to be a violation of the ocean (since the ocean is alive). Thus, any potentially negative impact requires specific mitigation, i.e., cultural measures to lessen future negative consequences both in the natural and cultural world. In addition, activities can disturb the seabed where ancestral spirits are believed to reside, and polluted water may impact seawater use either as an emetic or in other ritual practice. In South Africa, cultural heritage and spiritual uses of the sea are also gendered. Women and men have different engagements with the sea. Men are more likely to use the sea for subsistence and leisure purposes (such as sailing, surfing, kite surfing, swimming, canoeing and paddling), whereas women are more likely to use the sea for cultural and for health

purposes, such as ritual emetics, body healing, rituals involving seawater ingestion to obtain the blessing of ancestors or banish reproductive illness. Women may bathe in tidal pools and sea at specific times of the month to reconstitute physical and reproductive health. Operations at the block may also affect another receptor, the Areas Beyond National Jurisdiction (ABNJ). In heritage management, these areas, beyond South Africa's EEZ are defined as the Common Heritage of Humankind. Impacts on ABNJ may therefore attract global sanction.

- **Archaeology/Tangible Heritage:** The sea is part of the South African coastline, a coastline shaped by human cultural relations and beliefs. The Northern Belt Coast (NBC) and West Coast have archaeologically and culturally significant coastal sites. These sites form part of the belief and ritual complex of the First Peoples and Nguni. Impacts on the sea may affect the coastal caves and archaeological heritage in these sites (i.e., Diepkloof Rock Shelter in Langebaan). There are also, as Maitland's report on UCH and shipwrecks is concerned, many shipwreck remains along the Northern Cape and Western Cape shores. A more detailed archaeological impact assessment is provided, as part of the ESIA process for block 3B/4B.
- **Sense of Place:** The sea also provides and enhances unique 'senses of place'. This is the unique, social, aesthetic and cultural value of the place in the sea or next to the sea which may include intangible cultural heritage practices and beliefs. There are also naturally valuable sites, such as the MPAs along the West Coast of Western Cape, the Langebaan Lagoon and the fishing sites along Hondeklipbay. The sense of place is determined by various groups as already noted.
- **Livelihoods:** SSF communities from NBC to the West Coast of the Western Cape Province are directly reliant on the sea for subsistence and livelihood. And as the research shows, livelihoods are also influenced by cultural valuations of nature and of place. Secondary livelihood activities, such as seafood restaurants, seaside hotel establishments and entrepreneurs who rely on tourism generated by unique coastal areas are also reliant on the sea. Effluents/pollutants arising from operations may affect marine species health and the movement of vessels to the platform may impact SSF mobility coastal waters. . Drilling impacts can affect the mobility of both key West Coast species (snoek, hake) and their prey in the affected areas. In this regard, it is not only the livelihoods per se that is being affected but potentially also the cultural attachments that people have with these forms of livelihood. Furthermore, coastal sites accrue not only economic value but also cultural heritage value. Property valuations are higher in pristine coastal areas and in areas deemed culturally valuable such as Paternoster and Langebaan. The West Coast is especially known for its coastal sporting sites and coastal tourism. Impacts on the sea may affect property valuations, heritage valuations and SSF livelihoods in these towns and thereby income for the local economy.
- **Natural heritage:** People have a cultural relationship with the ocean and coast (i.e., nature) and this results in a higher cultural valuation of nature. Coastal sporting / leisure / tourism activities have become intangible cultural heritage for these communities, since the activities contain strong cultural elements (i.e., social grouping, ritual practices, commensality, unique identity, shared histories, etc.).
- **Health:** People use the sea in cultural ways to improve, sustain and restore physical and mental health. Access to a healthy ocean is critical in this regard. Any impact on the ocean, such as pollution or increased use of helicopters and operational vessels in the area of indirect influence, may affect the health of coastal communities who regularly access the sea to sustain physical and psychological health. Health is also part of cultural heritage as some indigenous peoples seek health remedies on the basis of the cultural values and

attachments. For example people may drink sea water believing it to have physiological and psychospiritual emetic capacities.

## 7.2 Overview of Impacts

The area stretching from Alexander Bay in the Northern Cape Province to the Western Cape Province is an enormously varied landscape. Coastal anthropological fieldwork in South Africa reveals a rich and diverse intangible and tangible cultural heritage, as well as rich human cultural relations with the sea. The varied socioeconomic situation of coastal towns and cities along this coast, as well as the varied populations inhabiting this vast swathe of the South African coastline, produce varied impacts.

- **Northern Belt Coast (NBC)** (Alexander Bay to Hondeklipbay). While SSF communities in these areas are potentially sensitive to operations at Block 3B/4B, it must be noted that these coastal areas are already experiencing cumulative effects on the ocean and sea that, as we observed, are presently unmitigated. However, awareness of the potential negative impacts of further pollution in the sea (i.e., from unplanned events), as well as increased cultural sensitisation to the importance of the sea for cultural and ecological balance, now mean that communities are more sensitive to the potential negative impacts of drilling on the sea.
- **Western Cape Coast** (i.e., Doringbay to Langebaan). It is assessed that normal operations at block 3B/4B may produce negative impacts for the Western Cape coast as there are multiple livelihoods and cultural uses of this coastline. These coastal towns are used for leisure, tourism, subsistence fishing and spiritual/ancestral rituals. The residents encountered expressed a rich intangible cultural heritage, including ancestral veneration rites that include the sea, as well as deep beliefs regarding the ocean as a living thing, with whom humans must develop a symbiotic and sustainable relationship.

## 7.3 Normal Operations Impacts

### 7.3.1 Source of Impact

The normal operation of vessels may result in various discharge to sea, including galley waste, grey water, sewage, deck drainage, etc. This is, however, not unique to offshore vessel transitions, but similar to any other vessel traveling along the South African coast. Thus, while such transitions may result in the potential disturbance of ancestors who are believed to be situated on the seafloor as soundwaves penetrate soil layers and reflect off the seafloor, one must also consider that there is already disturbance of the seafloor by commercial trawlers and other commercial vessels traversing the sea.

### 7.3.2 Potential Impact Description

Any impact on the integrity of the coastal and marine ecosystem through disturbance, pollution, noise, etc. could impact various aspects which makes up people's intangible cultural heritage (**indirect negative** impact). Groups may also contest the importance of specific cultural heritages. Because of South Africa's cultural diversity there are a diversity of beliefs and religious symbolism associated with the coast. The right to culture and to cultural expression is also enshrined in the South African Constitution. Therefore, TH and ICH should be jointly and widely considered when analysing the significance of cultural heritage in a coastal context. A further consideration is that cultural heritage conservation and management occurs in a dynamic socioeconomic context, where there are competing needs, such as the need for socioeconomic growth and sustainability. These needs should be considered together.

### 7.3.3 Receptors/Heritages at the coast

- Ancestry/Spiritual:** The sea is described as ‘living’ waters and is believed to play a critical role in spiritual and health management in indigenous groups specifically (First Peoples and Nguni). The sea is also believed to be sentient/conscious. That is, it is believed that the ocean is a living organism which forms part of and sustains a balanced globalized ecosystem. Any impact on these ‘living’ waters may therefore impact communication with the ancestors, who are consulted for a diversity of reasons, e.g., explanation of ill health, a venture to be undertaken, for significant life cycle rituals (birth, marriage and circumcision for instance). Impact on the ‘living’ waters is also considered to be a violation of the ocean (since the ocean is alive). Human connection with the ocean is through embodied experience, as well as culture. Presently, cultural measures are ‘possible’ means to lessen future negative consequences both in the natural and cultural world. Thus, to mitigate the impacts of drilling in the seabed, which are likely to disturb the seabed (in physical and cultural terms), there is a real need to engage ancestral spirits that are believed to reside on the seabed/in the ocean, as well as those people presently living along the potentially affected coast. Engagement with the ancestors is also important because polluted water may impact ocean/sea use for use as an emetic or in other ritual practice. While there is some modernist skepticism regarding the possibility of contacting with and consulting ancestors, it is to be noted that logics beyond one’s own do not necessarily mean that such logics and worldviews do not exist and are not real to persons who hold such views. In South Africa, cultural heritage and spiritual uses of the sea is also gendered. Women and men have different engagements with the sea. Men are more likely to use the sea for subsistence and leisure purposes (such as sailing, surfing, kite surfing, swimming, canoeing and paddling), whereas women are more likely to use the sea for cultural and for health purposes, such as ritual emetics, body healing, rituals involving seawater ingestion to obtain the blessing of ancestors or banish reproductive illness.
- Archaeology/Tangible Heritage:** The sea is part of the South African coastline, a coastline shaped by human cultural relations and beliefs. As noted, impacts on the sea may affect the coastal caves and archaeological heritage in these sites, as well as fish traps and shipwreck remains that are yet to be researched.
- Sense of Place:** The sea also provides and enhances unique ‘senses of place’. These are the unique, social, aesthetic and cultural values of the place in the sea or next to the sea which may include intangible cultural heritage practices and beliefs.
- Livelihoods:** SSF, restaurant and other coastal business owners and real estate developers depend on proximity to the ocean for their livelihoods. In some instances, these livelihoods are culturally influenced and articulate cultural heritage.
- Natural heritage:** People have a cultural relationship with the ocean and coast (i.e., nature) and this results in high cultural valuation of nature. Coastal sporting / leisure / tourism activities in nature have become intangible cultural heritage for these communities, since the activities contain strong cultural elements (i.e., social grouping, ritual practices, commensality, unique identity, shared histories, etc.). Natural heritage is interdependent with intangible cultural heritage.
- Health:** People use the sea in cultural ways to improve, sustain and restore physical and mental health. Access to a healthy ocean is critical in this regard. Any impact on the ocean, such as pollution, may affect the health of coastal communities who regularly access the sea to sustain physical and psychological health. For example, people at the coast walk by the sea, they admire marine life in the sea and these activities positively improve both physical and mental health.

### 7.3.4 Project Controls

The contractor must ensure that the proposed project is undertaken in a manner consistent with good international industry practice and Best Available Techniques (BAT). In addition, contractors will ensure that the proposed activities are undertaken in compliance with the applicable requirements in MARPOL 73/78,

### 7.3.5 Sensitivity of Receptors

The sensitivity of a receptor is defined on a scale of Very Low, Low, Medium, High or Very High guided by the definitions in briefing note. These are derived from the baseline information. Under normal operations the:

- Ancestry / spirituality receptor sensitivity is medium in the Western Cape, since the majority articulation of ancestral beliefs regarding the ocean are to be found in the Western Cape Province.
- Archaeology/Tangible heritage receptor sensitivity is medium to high. Many sites are onshore and can be mitigated via avoidance of areas where there are vulnerable archaeological sites. Although this receptor sensitivity cannot be low because Khoisan descendants and leaders use these coastal waters for ritual purposes and these leaders will also have to be engaged in a thorough process of consultation prior to the commencement of normal operations. The sites used by indigenous peoples include cave shelters and fish traps.
- Sense of Place receptor sensitivity is medium to high because the areas are used for multiple purposes (i.e., leisure, income generation via tourism, SSF use, ritual purposes), all of which combine to produce a unique sense of place for each site.
- Livelihoods receptor sensitivity is high because communities in all the sites, affected by normal operations in the Area of Interest depend on marine life for subsistence.
- Natural heritage receptor sensitivity is high because of the number of MPAs along the West Coast, as well as sites carrying a unique sense of place.
- Health receptor sensitivity is medium to low under normal operations, as operations efficiently managed should not have adverse impacts on human health. However, it is not negligible sensitivity because if the water is no longer perceived as pristine enough for ritual activities and it may affect the cultural wellbeing of indigenes, as noted in this report.
- To summarize: combined and prior to mitigation efforts and considering factors noted above, the overall sensitivity of receptors to drilling operations is assessed to be high.

### 7.3.6 Impact Magnitude (or Consequence)

Magnitude (or Consequence) is determined based on a combination of the “intensity”, “duration” and “extent” of the impact. In normal operations, the following is evident:

- Duration: The duration of the impact is assessed to be short term as there are proposals to drill in the north of the block and possibly further south in block
- Extent: The extent is assessed to be regional
- Intensity: the intensity is assessed to be high, due to perceived impact (the mediatization of offshore drilling in South Africa) in the pre-mitigation phase.

To summarize: The potential impact of normal operations on receptors noted above and prior to mitigation is considered to be of **high intensity, short-term duration** and **regional extent**. Thus, the consequence) is considered to be **medium**. Appropriate and substantive public participation efforts in the pre-mitigation phase can reduce the intensity of impact. After mitigation, the residual impact will become **medium**.

### 7.3.7 Impact Significance

Based on the sensitivity of receptors (under normal operations and prior to mitigation), and the **medium magnitude**, the potential impact of drilling in Block 3B/4B on intangible cultural heritage is considered to be **medium significance** without mitigation. To reduce the impact of significance, mitigation measures need to be implemented.

### 7.3.8 Identification of Mitigation Measures

The following measures arise from interviews and the specialist assessment of interviews with indigenous leaders and culturally affected stakeholders in the area of indirect influence. These should be implemented to mitigate impact on intangible cultural heritage:

Table 3 Identification of Mitigation Measures

No.	Mitigation measure	Classification
1	Establish a participatory forum in the area of indirect influence (i.e., between Port Nolloth and Hout Bay) in which consultation with representatives from coastal stakeholders and indigenous groupings and their leadership, can present the form of engagement and ritual events (that recognize the cultural dimension of human relations with the sea) that should be undertaken prior or during the implementation of the project. Such engagement should ensure open, direct and consistent communication with stakeholders that may be affected by operations.	Avoid / abate offsite
2	Support the implementation of the identified ritual event/s which are to take place as per the timeline appropriate to project operations, led by the aboriginal/First Nations paramount chiefs (and nominated traditional leaders) and indigenous Nguni leadership, or as deemed appropriate by affected stakeholders and determined during the consultation/s in the participatory forum.	Avoid / abate on site
3	Support the implementation of a gender sensitive event/s that recognises gendered health and wellbeing connection with the ocean, led by nationally approved gender awareness entities in the area of indirect influence (i.e., Port Nolloth and Hout Bay), as deemed appropriate by affected stakeholders and determined during the consultation/s, that recognizes gendered coastal cultural heritage to permit all genders to articulate their cultural relation with the sea and coast.	Abate
4	Establish a grievance mechanism that allows stakeholders to submit specific grievances related to operations, which includes consultation with stakeholders to ensure parameters are identified for consideration and implementation.	Abate

### 7.3.9 Residual Impact Assessment

The proposed mitigation could reduce the residual impact of normal operations to **medium**.

Table 4 Normal Operations Impacts on Cultural Heritage

	<b>CULTURAL HERITAGE IMPACT OF DRILLING BLOCK 3B/4B</b>	
<b>Project Phase:</b>	<b>(Exploration Drilling etc.)</b>	
<b>Type of Impact</b>	<b>Induced</b>	
<b>Nature of Impact</b>	<b>Negative</b>	
	<b>Pre-Mitigation Impact</b>	<b>Residual Impact</b>
<b>Sensitivity of Receptor</b>	<b>HIGH</b>	<b>LOW</b>
<b>Magnitude</b>	<b>HIGH</b>	<b>HIGH</b>
<b>Intensity</b>	<b>HIGH</b>	<b>LOW</b>
<b>Extent</b>	<b>REGIONAL</b>	<b>REGIONAL</b>
<b>Duration</b>	<b>SHORT TERM</b>	<b>SHORT TERM</b>
<b>Significance</b>	<b>MEDIUM</b>	<b>MEDIUM</b>

<b>Probability</b>	<b>POSSIBLE</b>	<b>POSSIBLE</b>
<b>Confidence</b>	<b>HIGH</b>	<b>HIGH</b>
<b>Reversibility</b>	<b>PARTIALLY REVERSIBLE</b>	<b>PARTIALLY REVERSIBLE</b>
<b>Loss of Resources</b>	<b>LOW</b>	<b>LOW</b>
<b>Mitigation Potential</b>	<b>MEDIUM</b>	<b>MEDIUM</b>
<b>Cumulative Potential</b>	<b>UNLIKELY</b>	<b>UNLIKELY</b>

## 7.4 Unplanned Events Impacts

### 7.4.1 Source of Impact

Accidental release of oil or diesel at sea that could result in an oil and/or natural gas spill:

Project phase	Activity
Operation	Bunkering of fuel in port Vessel accident and damage to equipment Well blow out/major spill
Mobilisation and Demobilisation	Vessel accident

Small instantaneous spills of marine diesel at the surface of the sea can potentially occur during bunkering and such spills are usually of a low volume. Very low volumes of hydraulic fluid can be involved in the case of streamer damage. Larger volume spills of marine diesel could occur in the event of a vessel collision or vessel accident, or accident at the drilling site.

Table 5 Unplanned Event Impact on Cultural Heritage

<b>UNPLANNED EVENTS IMPACT ON CULTURAL HERITAGE</b>		
<b>Project Phase:</b>	<b>(Exploration Drilling etc.)</b>	
<b>Type of Impact</b>	<b>Direct</b>	
<b>Nature of Impact</b>	<b>Negative</b>	
	<b>Pre-Mitigation Impact</b>	<b>Residual Impact</b>
<b>Sensitivity of Receptor</b>	<b>HIGH</b>	<b>MEDIUM</b>
<b>Magnitude</b>	<b>HIGH</b>	<b>MEDIUM</b>
Intensity	<b>HIGH</b>	<b>MEDIUM</b>
Extent	<b>REGIONAL</b>	<b>REGIONAL</b>
Duration	<b>SHORT TERM</b>	<b>SHORT TERM</b>
<b>Significance</b>	<b>HIGH</b>	<b>MEDIUM</b>
<b>Probability</b>	<b>UNLIKELY</b>	<b>UNLIKELY</b>
<b>Confidence</b>	<b>HIGH</b>	<b>MEDIUM</b>
<b>Reversibility</b>	<b>PARTIALLY REVERSIBLE</b>	<b>PARTIALLY REVERSIBLE</b>
<b>Loss of Resources</b>	<b>MEDIUM</b>	<b>LOW</b>
<b>Mitigation Potential</b>	<b>MEDIUM</b>	<b>MEDIUM</b>
<b>Cumulative Potential</b>	<b>UNLIKELY</b>	<b>UNLIKELY</b>



In the unlikely event of a well blow-out, the unmitigated impact on cultural heritage would be **high**, because sites used for cultural heritage purposes would be directly affected, as would human cultural use of the sites. Ancient fish traps for example, may be permanently damaged should pollutants reach the shore. If mitigation measures are implemented to resolve the unplanned event, the impact on cultural heritage will be **medium**.

#### 7.4.2 Potential Impact Description

Any impact on the integrity of the coastal and marine ecosystem through an accidental spill of diesel, hydraulic fluid and/or oil could have an immediate detrimental effect on the marine environment and thus in turn could impact various aspects which make up people's intangible cultural heritage (**indirect negative** impact). However, unplanned events in the areas of indirect influence to the Area of Interest are likely to only be related to small spills and would not be unique, but similar to any other vessel traveling along the South African coast.

#### 7.4.3 Project Controls

Project controls include the preparation and implementation of a Shipboard Oil Pollution Emergency Plan (SOPEP), an Emergency Responses Plan and compliance with MARPOL requirements.

#### 7.4.4 Sensitivity of Receptors

The sensitivity of a receptor is defined on a scale of Very Low, Low, Medium, High or Very High guided by the definitions in the specialist briefing note. These are derived from the baseline information. Thus, the following receptor sensitivities are noted:

- **Ancestry / spirituality:** Should an unplanned event or spill happen, the sensitivity of this receptor will rise from medium (in normal operations) to high, as ritual practice and spiritual engagement with the sea requires a healthy ocean, or at the very least, a not visibly polluted ocean. People drink seawater as an emetic in ritual purposes and swim in it for leisure and spiritual or health renewal. They may be unaware of the water quality as they are not able to see the pollution. However, based on the proposed operations noted in this report, only minor spills are likely, and these are also unlikely to reach the shore. What needs to be considered however, is that indigenous and endogenous communities have a spiritually and symbolically important relationship with the ocean and coast and the perceived impacts of oil/diesel spills may be high should an unplanned event occur, regardless of whether technical specialists classify the spill as minor.
- **Archaeology/Tangible Heritage:** The sensitivity of this receptor will increase to high if an unplanned event occurs and oil reaches the shore. This is because coastal tangible heritage sites (fish traps and shipwrecks) contain vulnerable material culture (i.e., also in shell middens there are potential human artifacts that can be destroyed by oil residues).
- **Sense of Place:** The sensitivity of this receptor will increase from medium to high if an unplanned event occurs. This is because valuable heritage towns and locations depend on the sense of place to attract visitors, researchers and investors. If the place is *perceived* to have been negatively impacted by an oil spill, patrons and researchers may not come to the place, thereby destroying the 'sense' of place. In this regard, effort will have to be made by the operators to ensure that swift and sufficient communication regarding the clean-up process is timeously shared with all stakeholders.
- **Livelihoods:** The sensitivity of this receptor will remain high in an unplanned event. SSF depend directly on fish species they catch at sea. Their livelihoods will be negatively affected. Going out to sea for SSF and use of the sea for recreational fishing is also a ritual and gendered (male) cultural heritage in the areas of indirect influence. Furthermore,

anglers and deep-sea fishers organize fishing trips from which they may earn an income but via which they are promoting recreational fishing and masculine leisure.

- **Natural heritage:** The sensitivity of this receptor assessed to be medium under normal operations may increase to high in an unplanned event. Since natural and cultural heritage are interdependent, any impact on the sea, as natural heritage, is going to negatively impact natural heritage. First Peoples and Nguni descendants are likely to be most affected, given the wide range of life cycle and healing rituals that involve use of nature (i.e., medicines from the sea and fynbos) for cultural practices.
- **Health:** The sensitivity of this receptor, assessed to be medium under normal operations may increase to high in an unplanned event. People use the sea in cultural ways to improve, sustain and restore physical and mental health. Access to a healthy ocean is critical in this regard. Any impact on the ocean, such as the oil discharges noted above, may affect the health of coastal communities who regularly imbibe seawater for cultural purposes.
- **To summarize:** Without mitigation the overall impact on these sensitive receptors would be **high** should an unplanned event occur. With mitigation, the impact on these receptors will be **medium**. This is because some cultural heritages may be restored and after the clean-up process, the cultural rituals can continue.

#### 7.4.5 Impact Magnitude (or Consequence)

Magnitude (or Consequence) is determined based on a combination of the “intensity”, “duration” and “extent” of the impact.

- **Duration:** Short term if clean-up operations commence swiftly and efficiently to limit ocean impacts.
- **Extent:** Regional because of proximity to the coast and vulnerable sites.
- **Intensity:** high intensity should the drilling continue for a period that is extensive. However, in assessing the impacts on cultural heritage, one must include perceived impacts on cultural heritage. In my professional opinion, it is possible for perceived impact of drilling to be high even though the actual intensity of impact is low.

The magnitude of an unplanned event on intangible and tangible coastal cultural heritage after mitigation, is therefore assessed to be **medium**.

#### 7.4.6 Impact Significance

Based on the **high sensitivity** of receptors and the medium **magnitude**, the potential impact of unplanned events on intangible cultural heritage is considered to be of medium **significance** prior to mitigation.

#### 7.4.7 Identification of Mitigation Measures

The following measures should be implemented to mitigate impact on intangible cultural heritage:

Table 6 Mitigation Measures for Unplanned Events

No.	Mitigation measure	Classification
1	Emergency Plans in place for very efficient and quick resolution of oil spills as per MARPOL VI	Avoid
2	Avoid exploring within ecologically vulnerable areas and tangible heritage features identified.	Avoid/Abate
3	Ensure that there is sufficient insurance cover to financially manage the consequences of any unplanned event pollution on environmental and social aspects	Abate

#### 7.4.8 Residual Impact Assessment

The proposed mitigation would reduce the intensity and thereby the overall magnitude of the impact. This in turn would reduce the residual impact to **medium significance**. It is recommended that AOSAC implements the consultative processes outlined in this CHIA. Many communities believe in the agency of the sea and in its existence as a living organism. But many more people are in dire need of socioeconomic support in South Africa's coastal communities, therefore, any support that may be given, to economically support such communities may assist in deepening resilience, since it is already known that climate change (and illegal fishing, commercial or otherwise) are impacts already decreasing fish stocks, marine biodiversity in coastal South Africa.

#### 7.5 Cumulative Impacts

Cumulative existing impacts include those impacts already present in the areas researched, as well as the impacts of the project, especially in the future. Regarding existing (non-project) impacts, it is found that the West Coast and NBC have marine diamond mining impacts, commercial fishing impacts, port operations and recreational tourism impacts. These activities are already impacting the natural environment and cultural heritage expression. While the broader future impacts of drilling are difficult to determine (especially for a cultural heritage specialist), in my professional opinion, the cumulative impacts of project activities on cultural heritage may arise due to declining ocean health (i.e., noise pollution, negative impact on marine biodiversity and, directly referring to this report – negative impact on cultural heritage).

Comparing the cumulative impacts of normal operations of the project to existing, often unmitigated impacts of for example, commercial trawling, it could be argued that carefully managed drilling may have less of an impact on the seabed and therefore on cultural heritage practices involving the sea than commercial fishers are presently doing. However, the project in the Area of Interest *may* still impact ritual processes, making waters being *perceived* as less clean for spiritual uses. Here, the reference is to spiritual cleanliness of the natural resource for ritual use.

Table 7 Cumulative Impacts

	<b>CUMULATIVE CULTURAL HERITAGE IMPACTS</b>	
<b>Project Phase:</b>	<b>Drilling</b>	
<b>Type of Impact</b>	<b>Direct</b>	
<b>Nature of Impact</b>	<b>Negative</b>	
	<b>Pre-Mitigation Impact</b>	<b>Residual Impact</b>
<b>Sensitivity of Receptor</b>	<b>HIGH</b>	<b>MEDIUM</b>
<b>Magnitude</b>	<b>MEDIUM</b>	<b>MEDIUM</b>
Intensity	<b>HIGH</b>	<b>MEDIUM</b>
Extent	<b>REGIONAL</b>	<b>REGIONAL</b>
Duration	<b>MEDIUM TERM</b>	<b>SHORT TERM</b>
<b>Significance</b>	<b>MEDIUM</b>	<b>LOW</b>
<b>Probability</b>	<b>POSSIBLE</b>	<b>POSSIBLE</b>
<b>Confidence</b>	<b>HIGH</b>	<b>MEDIUM</b>
<b>Reversibility</b>	<b>PARTIALLY REVERSIBLE</b>	<b>PARTIALLY REVERSIBLE</b>
<b>Loss of Resources</b>	<b>MEDIUM</b>	<b>LOW</b>
<b>Mitigation Potential</b>	<b>MEDIUM</b>	<b>MEDIUM</b>

Cumulative Potential	UNLIKELY	UNLIKELY
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## 7.6 Precautionary Principles

- That AOSAC should undertake the requisite mitigation measures noted under the sections: normal operations and unplanned events to reduce negative impacts on receptors associated with intangible and tangible cultural heritage.
- That AOSAC should implement measures of best practice in the industry, to reduce and minimize adverse outcomes for cultural heritage in the areas of indirect influence. This may include shortening the duration of operations for example.

## 7.7 Recommendations

- It is also recommended that specific request be made to the cross-sectoral and traditional leadership group for rituals/event/s that might be used in mitigation of the potential negative cultural impacts of the proposed operations on cultural heritage.
- That dedicated resources be set aside for consultations and the proposed ritual/event/s, as these may not be once-off ritual processes even if AOSAC's operations are of short-term nature.
- That such activities be implemented to publicly showcase respect for local cultural worldviews and effort to realize local rights to human dignity as emphasised both the South African Constitution, NHRA and the Indigenous Knowledge Act.
- That strict safeguards be introduced, and safety protocols be adhered to, as per provisions in MARPOL 73/78<sup>28</sup> Annexes I, V and VI,<sup>29</sup> to ensure significant minimisation of pollution.
- That transiting vessels avoid, wherever possible, passing through, near or above sites of archaeological, underwater cultural heritage significance.

## 8 CONCLUSIONS

Considering the Cultural Heritage Impact Assessment offered, the conclusion is that the intangible cultural heritage receptors are sensitive in the area of indirect influence. While these sites are already affected by existing/cumulative impacts, mitigation plans must be implemented if the impacts of either normal operations or unplanned events are to be addressed. There are multiple use areas of different value in these locations. These valuable sites and stakeholders include potential underwater cultural heritage, and active SSF families and communities, those using the sea for cultural, leisure and business purposes, as well as those relying on the ocean for psychosocial health. These facts need to be considered, and all the recommended protocols regarding the precautionary measures to protect the highly valued natural and cultural heritages along the potentially impacted stretch of the South African coast.

Indigenous and local peoples' (IPLCs) cultural valuations of the coast must be prioritized (i.e., engaged with), given the historical legacy of slavery and apartheid and the exclusion of these groups from decision-making processes regarding natural resource management.

<sup>28</sup>Convention for the Prevention of Pollution from Ships (MARPOL 73/78)

<https://maddenmaritime.files.wordpress.com/2015/08/marpol-practical-guide.pdf> accessed 12/04/2022

<sup>29</sup> C.F., UK Government. 'Explanatory memorandum to the merchant shipping (prevention of pollution) (drilling rigs and other platforms) order 2005 2005 no.74',

[https://www.legislation.gov.uk/uksi/2005/74/pdfs/uksem\\_20050074\\_en.pdf](https://www.legislation.gov.uk/uksi/2005/74/pdfs/uksem_20050074_en.pdf) accessed 12/04/2022.

Coastal cultural heritage is both a tangible and intangible asset for South Africa. It constitutes an important element in the restorative justice process of the country, and it is key to both psychological and physical wellbeing in a country where there is major inequality and violence. It is important that companies seeking to develop the assets of South Africa engage with local communities and seek to advance consultative, inclusive and democratic processes for socioeconomic development.

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## ANNEXURE

### FURTHER DETAIL REGARDING THE PROJECT DESCRIPTION

#### 9.1 Main Project Components

##### 9.1.1 Drilling Unit Options

Various types of drilling technology can be used to drill an exploration well (e.g. barges, jack-up rigs, semi-submersible drilling units (rigs) and drill-ships) depending on, inter alia, the water depth and marine operating conditions experienced at the well site. Based on the anticipated sea conditions, the Applicant are proposing to utilise a semi-submersible drilling unit or a drill-ship, both with dynamic positioning system suitable for the deep-water harsh marine environment. The final rig selection will be made depending upon availability and final design specifications.

A semi-submersible drilling unit (Figure 14, right) is essentially a drilling rig located on a floating structure of pontoons. When at the well location, the pontoons are partially flooded (or ballasted), with seawater, to submerge the pontoons to a pre-determined depth below the sea level where wave motion is minimised. This gives stability to the drilling vessel thereby facilitating drilling operations.

A drill-ship (Figure 14, left) is a fit for purpose built drilling vessel designed to operate in deep water conditions. The drilling “rig” is normally located towards the centre of the ship with support operations from both sides of the ship using fixed cranes. The advantages of a drill-ship over the majority of semi-submersible units are that a drill-ship has much greater storage capacity and is independently mobile, not requiring any towing and reduced requirement of supply vessels.



Figure 14: Examples of drilling equipment.

##### 9.1.2 Support Vessels

The drilling unit would be supported / serviced by up to three support vessels, which would facilitate equipment, material and waste transfer between the drilling unit and onshore logistics base. A supply vessel will always be on standby near the drilling unit to provide support for firefighting, oil containment / recovery, rescue in the unlikely event of an emergency and supply any additional equipment that may be required. Support vessels can also be used for medical evacuations or transfer of crew if needed.

##### 9.1.3 Helicopters

Transportation of personnel to and from the drilling unit would be provided by helicopter from Springbok Airport (fixed wing trip from Cape Town) using local providers. It is estimated that there may be up to four return flights per week between the drilling unit and the helicopter

support base at Springbok (i.e. 17 weeks (~120 days) x 4 = 68 trips per well). The helicopters can also be used for medical evacuations from the drilling unit to shore (at day- or night-time), if required, in which case the flights are likely to be directly to Cape Town.

#### **9.1.4 Onshore Logistics Base**

The primary onshore logistics base will most likely be located at the Port of Cape Town (preferred option), but alternatively at the Port of Saldanha. The shore base would provide space for the storage of materials, consumables and equipment that would be shipped to the drilling unit and back to storage for onward international freight forwarding. The shore base would also be used for offices, waste management services, bunkering vessels, and stevedoring / customs clearance services.

### **9.2 Mobilisation Phase**

The mobilisation phase will entail the required notifications and permitting, the establishment of the onshore base, appointment of local service providers, procurement and transportation of drilling equipment and materials from various ports and airports, accommodation arrangements and transit of the drilling unit and support vessels to the drilling area. The drilling unit and supply vessels could sail directly to the well site from outside South African waters or from a South African port, depending on which drilling unit is selected, and where it was last used.

Core specialist and skilled personnel would arrive in South Africa onboard the drilling unit and the rest of the support personnel will be flown to Cape Town for crew change. Drilling materials, such as casings, mud components and other equipment and materials will be brought into the country on the drilling unit itself or imported via a container vessel directly to the onshore logistics base from where the supply vessels will transfer it to the drilling unit. Cement and drilling chemicals will be sourced locally.

### **9.3 Operation Phase**

#### **9.3.1 Final Site Selection and Seabed Survey**

The selection of the specific well locations will be based on a number of factors, including further detailed analysis of the 3D seismic data and pre-drilling survey interpretation and the geological target. A Remote Operating Vehicle (ROV) will be used to finalise the well position based on inter alia the presence of any seafloor obstacles or the presence of any sensitive features that may become evident.

#### **9.3.2 Well Drilling Operation**

The well will be created by drilling a hole into the seafloor with a drill bit attached to a rotating drill string, which crushes the rock into small particles, called “cuttings”. After the hole is drilled, casings (sections of steel pipe), each slightly smaller in diameter, are placed in the hole and permanently cemented in place (cementing operations are described below). The hole diameter decreases with increasing depth.

The casings provide structural integrity to the newly drilled wellbore, in addition to isolating potentially dangerous high-pressure zones from each other and from the surface. With these zones safely isolated, and the formation protected by the casing, the well will be drilled deeper with a smaller drill bit, and also cased with a smaller sized casing. For the current project, it is anticipated that there will be five sets of subsequently smaller hole sizes drilled inside one another, each cemented with casing, except the last phase that will remain an open hole.

Drilling is essentially undertaken in two stages, namely the riserless and risered drilling stages (Figure 15). A typical well design is summarised in Table 8. The well design ultimately

depends upon factors such as planned depths, expected pore pressures and the location of the anticipated hydrocarbon-bearing formations. Several types of drilling fluids with different compositions and densities would be used for drilling operations. The composition of the muds is provided in Table 4. This may vary slightly depending on the contractor's selection and may be modified to suit operational needs.

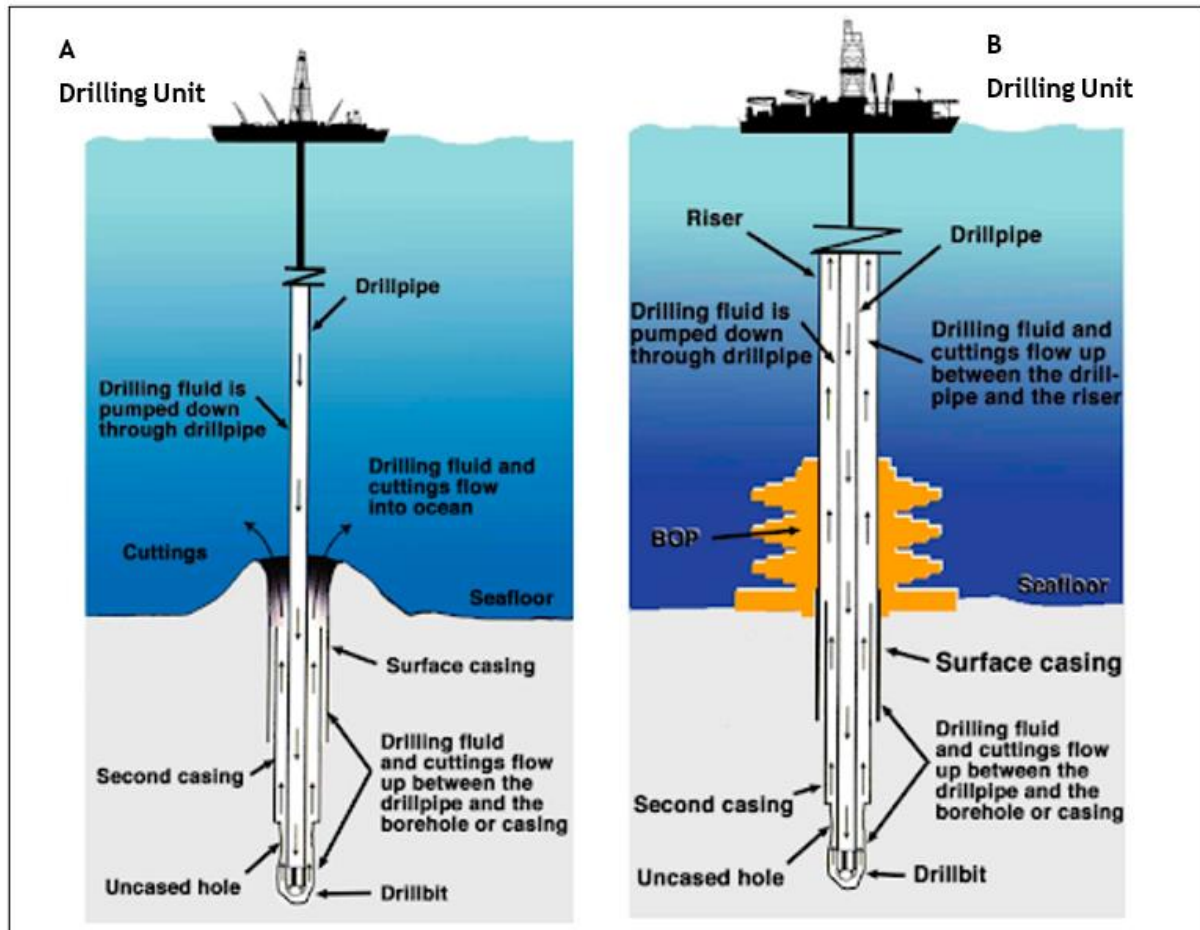


Figure 15: Drilling stages: (a) Riserless Drilling Stage; and (b) Risered Drilling Stage

Table 8: Cuttings and mud volumes per phase for notional base case well design and estimated drilling discharges.

Drill Section	Hole diameter (inches)	Depth of section (m)	Type of drilling fluid used	Mass of drilling fluid discharged (tonnes)	Volume of cuttings released (m <sup>3</sup> )	Drilling fluid and cuttings discharge location
<b>Riserless drilling stage</b>						
1	36"	70	Seawater, viscous sweeps & WBM	209	40	At sea bottom
2	26"	320		135	76	
-	Suspension / Displacement before drilling Section 3	-	High Viscous Gel sweeps / KCl Polymer PAD mud	30	-	1 m above seabed
<b>Total Riserless</b>		390		374	116	

Drill Section	Hole diameter (inches)	Depth of section (m)	Type of drilling fluid used	Mass of drilling fluid discharged (tonnes)	Volume of cuttings released (m <sup>3</sup> )	Drilling fluid and cuttings discharge location
<b>Risered drilling stage</b>						
3	17.5"	700	KCl/Glycol WBM	133	74	10 m below mean sea level
4	12.25"	1 250		109	61	
5	8.5"	1 160		61	27	
<b>Total Risered</b>		<b>3 110</b>	<b>3110</b>	<b>303</b>	<b>162</b>	
<b>Total</b>		<b>3 500</b>	<b>3 500</b>	<b>677</b>	<b>278</b>	-
Note: * Total quantity of mud discharged including Oil On Cuttings (OOC) @ 6% by weight of cuttings (metricT) + Other constituents.						

### 9.3.2.1 Initial (Riserless) Drilling Stage

The process of preparing the first section of a well is referred to as “spudding.” Sediments just below the seafloor are often very soft and loose, thus, to keep the well from caving in and to carry the weight of the wellhead, a 30- or 36-inch diameter structural conductor pipe is drilled, or in some cases jetted, and thereafter cemented into place or in some cases jetted.

For the proposed wells, the drill and cement option is preferred. It is usually implemented where the nature of the seafloor sediments (hard sediments) necessitate drilling. A hole of diameter 36 inches will be drilled, and the conductor pipe will be run into the hole and cemented into place. The cement returns exit the bottom of the conductor and travel up the annular space between the conductor and the hole with some cement being deposited on the seabed around the conductor pipe.

When the conductor pipe and low-pressure wellhead are at the correct depth, approximately 70 m deep (depending upon substrate strength), a new drilling assembly will be run inside the structural conductor pipe and the next hole section will be drilled by rotating the drill string and drill bit.

Below the conductor pipe, a hole of approximately 26 inches in diameter will be drilled to a depth of approximately 320 m below the seabed. The rotating drill string causes the drill bit to crush rock into small particles, called “cuttings”. While the wellbore is being drilled, drilling fluid is pumped from the surface down through the inside of the drill pipe, the drilling fluid passes through holes in the drill bit and travels back to the seafloor through the space between the drill string and the walls of the hole, thereby removing the cuttings from the hole. At a planned depth the drilling is stopped and the bit and drill string is pulled out of the hole. A surface casing of 20 inch diameter is then placed into the hole and secured into place by pumping cement through the casing at the bottom of the hole and back up the annulus (the space between the casing and the borehole). The 20-inch casing will have a high-pressure wellhead on top; which provides the entry point to the subsurface and it is the connection point to the Blow-out Preventor (BOP).

These initial hole sections will be drilled using seawater (with viscous sweeps) and WBM. All cuttings and water based mud (WBM) from this initial drilling stage will be discharged directly onto the seafloor adjacent to the wellbore.

### 9.3.2.2 Risered Drilling Stage

The risered drilling stage commences with the lowering of a BOP and installing it on the wellhead. The BOP is designed to seal the well and prevent any uncontrolled release of fluids

from the well (a ‘blow-out’). A lower marine riser package is installed on top of the BOP and the entire unit is lowered on riser joints. The riser isolates the drilling fluid and cuttings from the external environment, thereby creating a “closed loop system”.

Drilling is continued by lowering the drill string through the riser, BOP and casing, and rotating the drill string. During the risered drilling stage, should the WBMs not be able to provide the necessary characteristics, a low toxicity Non-aqueous Drilling Fluid (NADF) will be used. The drilling fluid emerges through nozzles in the drill bit and then rises (carrying the rock cuttings with it) up the annular space between the sides of the hole to the drilling unit.

The cuttings are removed from the returned drill mud, sampled for analysis and the balance of the cuttings are discharged overboard. In instances where NADFs are used, cuttings will be treated to reduce oil content and discharged overboard. Operational discharges are discussed further in Section 9.5.1.

The hole diameter decreases in steps with depth as progressively smaller diameter casings are inserted into the hole at various stages and cemented into place. The expected target drilling depth is not yet confirmed but the notional well depth is approximately 3 500 m below the seafloor with a final hole diameter between of 8.5 and 12.25 inches and a casing diameter of between 7 and 9.6 inches.

### 9.3.2.3 Cementing Operation

Cementing is the process of pumping cement slurry through the drill pipe and / or cement stinger at the bottom of the hole and back up into the space between the casing and the borehole wall (annulus). Cement fills the annulus between the casing and the drilled hole to form an extremely strong, nearly impermeable seal, thereby permanently securing the casings in place. To separate the cement from the drilling fluid in order to minimise cement contamination a cementing plug and/or spacer fluids are used. The plug is pushed by the drilling fluid to ensure the cement is placed outside the casing filling the annular space between the casing and the hole wall.

Cementing has four general purposes:

- it isolates formations and segregates the casing seat for subsequent drilling;
- it protects the casing from corrosion;
- it provides structural support for the casing; and
- it stabilises the formation.

To ensure effective cementing, an excess of cement is often used. Until the marine riser is set, excess cement from the first two casings emerges out of the top of the well onto the seafloor. This cement does not set and is slowly dissolved into the seawater.

Offshore drilling operations typically use Portland cements, defined as pulverised clinkers consisting of hydrated calcium silicates and usually containing one or more forms of calcium sulphate. The raw materials used are lime, silica, alumina and ferric oxide. The cement slurry used is specially designed for the exact well conditions encountered.

Additives can be used to adjust various properties in order to achieve the desired results. There are over 150 cementing additives available. The amount (concentrations) of these additives generally make up only a small portion (<10%) of the overall amount of cement used for a typical well. Usually, there are three main additives used: retarders, fluid loss control agents

and friction reducers. These additives are polymers generally made of organic material and are considered non-toxic.

Once the cement has set, a short section of new hole is drilled, then a pressure test is performed to ensure that the cement and formation are able to withstand the higher pressures of fluids from deeper formations.

### 9.3.3 Well Logging and Testing

Once the target depth is reached, the well would be logged and could be tested dependent on the drilling results. Well logging involves the evaluation of the physical and chemical properties of the sub-surface rocks, and their component minerals, including water, oil and gas to confirm the presence of hydrocarbons and the petrophysical characteristics of rocks. It is undertaken during the drilling operation using Wireline Logging or Logging While Drilling (LWD) to log core data from the well. Information from engineering and production logs, as well as mud logging, may also be used.

Vertical Seismic Profiling (VSP) is an evaluation tool used to generate a high-resolution seismic image of the geology in the well's immediate vicinity and determine the accurate formation velocity. The VSP images are used for correlation with surface seismic images and for forward planning of the drill bit during drilling. VSP uses a small airgun array with a gun pressure of 450 per square inch (psi), which is operated from the drilling unit at a depth of between 7 m and 10 m. During VSP operations, four to five receivers are positioned in a section of the borehole and the airgun array is discharged approximately five times at 20 second intervals at each station. The generated sound pulses are reflected through the seabed and are recorded by the receivers to generate a profile along a 60 to 75 m section of the well. This process is repeated for different stations in the well and may take up to six hours to complete approximately 125 shots, depending on the well's depth and number of stations being profiled.

Well or flow testing is undertaken to determine the economic potential of the discovery before the well is either abandoned or suspended. One test would be undertaken per exploration well should a resource be discovered and up to two tests per appraisal well. Each test would take up to 7 days to complete (5 days of build-up and 2 days of flowing and flaring). For well flow-testing, hydrocarbons would be burned at the well site. A high-efficiency flare is used to maximise combustion of the hydrocarbons. Burner heads which have a high burning efficiency under a wide range of conditions will be used.

The volume of hydrocarbons (to be burned) and possible associated produced water from the reservoir which could be generated during well testing cannot be reliably predicted due to variations in gas composition, flow rates and water content. Burners are manufactured to ensure emissions are kept to a minimum. The estimated volume of hydrocarbons to be burned cannot be predicted with much accuracy because the actual test requirements can only be established after the penetration of a hydrocarbon-bearing reservoir. However, an estimated 10 000 bbl oil could be flared per test, i.e. up to 20 000 bbl over the two tests associated with an appraisal well. If produced water is generated during well testing, it will be separated from the hydrocarbons.

### 9.3.4 Well Sealing and Plugging

The purpose of well sealing and plugging is to isolate permeable and hydrocarbon bearing formations. Well sealing and plugging aims to restore the integrity of the formation that was penetrated by the wellbore. The principal technique applied to prevent cross flow between permeable formations is plugging of the well with cement, thus creating an impermeable barrier between two zones.

Once drilling and logging have been completed, the exploration wells will be sealed with cement plugs, tested for integrity and abandoned according to international best practices. Cement plugs will be set to isolate hydrocarbon bearing and / or permeable zones and cementing of perforated intervals (e.g. from well logging activities) will be evaluated where there is the possibility of undesirable cross flow. These cement plugs are set in stages from the bottom up. Three cement plugs would be installed: i.e. one each for isolation of the deep reservoir and the main reservoir; and a third as a second barrier for the main reservoir.

The integrity of cement plugs can be tested by a number of methods. The cement plugs will be tag tested (to validate plug position) and weight tested, and if achievable then a positive pressure test (to validate seal) and/or a negative pressure test will be performed. Additionally, a flow check may be performed to ensure sealing by the plug. Once the well is plugged, seawater will be displaced before disconnecting the riser and the BOP.

#### **9.4 Demobilisation Phase**

After the exploration wells have been sealed, tested for integrity and abandoned, the intention is to remove the wellheads from the sea floor on non-productive wells. On productive wells, it may be decided to abandon the wellheads on the seafloor after installation of over trawlable protective equipment. The risk assessment criteria will consider factors such as the water depth and use of the area by other sectors (e.g., fishing).

It is proposed temperature and pressure monitoring gauges be installed on wells where the Applicant will return in the future for appraisal / production purposes. The gauges will be placed and remain on the wellhead. Monitoring gauges are not proposed to be installed on exploration wells which are earmarked for abandonment.

With the exception of the over trawlable protective equipment over abandoned wellheads and drilling discharges deposited on the seabed, no further physical remnants of the drilling operation will be left on the seafloor. A final clearance survey check will be undertaken using an ROV. The drilling unit and supply vessels will demobilise from the offshore licence area and either mobilise to the following drilling location or relocate into port or a regional base for maintenance, repair or resupply.

#### **9.5 Discharges, Wastes and Emissions**

The proposed drilling operations (including mobilisation and demobilisation) will result in various discharges to water, the generation of waste and emissions. All vessels will have equipment, systems and protocols in place for prevention of pollution by oil, sewage and garbage in accordance with International Convention for the Prevention of Pollution from Ships, 1973/1978 (MARPOL) requirements. Any oil spill related discharges would be managed by an Oil Spill Contingency Plan (OSCP). Onshore licenced waste disposal sites and waste management facilities will be identified, verified and approved prior to commencement of drilling operations.

##### **9.5.1 Discharges to Sea**

###### **9.5.1.1 Drilling Cuttings and Mud**

Drill cuttings, which range in size from clay to coarse gravel and reflect the types of sedimentary rocks penetrated by the drill bit, are the primary discharge during well drilling. Drilling discharges would be disposed at sea in line with accepted drilling practices as defined by the UK and Norway. This is in line with most countries (including South Africa) for early exploration development phases. The rationale for this is based on the low density of drilling operations in the vast offshore area and the high energy marine environment. As such, it is



proposed to use the “offshore treatment and disposal” option for their drilling campaign in Block 3B/4B in the Deep Water Orange Basin. The same method was applied and approved for drilling other deep water exploration wells in Block 11B/12B (namely Brulpadda and Luiperd wells) off the South Coast of South Africa.

During the riserless drilling stage, all cuttings and WBM will be discharged directly onto the seafloor adjacent to the wellbore. An estimated volume of 131 m<sup>3</sup> of cuttings and 374 t of drilling fluid will be discharged per well during the riserless drilling stage (based on notional depth of 3 500 m) (refer to Table 8).

Where NADFs are used (possibly during the risered drilling stage, if WBMs are not able to provide the necessary characteristics), these are sometimes treated onshore and disposed, treated to recover oil and disposed offshore and sometimes re-injected into wells. For the current project, in instances where NADFs are used, cuttings will be treated offshore to reduce oil content to <6.9% Oil On Cutting (OOC) and discharged overboard. During the risered drilling stage, an estimated volume of 257 m<sup>3</sup> of cuttings and 444 t of drilling fluid will be discharged per well (based on notional depth of 3 500 m) (refer to Table 8). During this drilling stage the circulated drilling fluid will be cleaned and the cuttings discharged into the sea at least 10 m below sea level. The drill cuttings will be treated to reduce their mud content using shakers and a centrifuge.

Cuttings released from the drilling unit during the risered drilling stage will be dispersed by the current and settle to the seafloor. The rate of cuttings discharge decreases with increasing well depth as the hole diameter becomes smaller and penetration rates decrease. Discharge is intermittent as actual drilling operations are not continuous while the drilling unit is on location. Discharge is 10 m below sea level.

Further drilling fluid totalling 200 bbl will be released 1 m above the seafloor during well suspension and displacement (between drilling section 2 and 3). The mud used during these processes is a High Viscous Gel sweeps / KCl Polymer PAD mud.

The expected fall and spatial extent of the deposition of discharged cuttings have been investigated in the Drilling Discharges Modelling Study (Livas 2023a), the results of which will inform the Marine Ecology and Fisheries Assessments.

#### **9.5.1.2 Cement and Cement Additives**

Typically, cement and cement additives are not discharged during drilling. However, during the initial cementing operation (i.e. surface casing), excess cement emerges out of the top of the well and onto the seafloor in order to ensure that the conductor pipe is cemented all the way to the seafloor. During this operation a maximum of 150% of the required cement volume may be pumped into the space between the casing and the borehole wall (annulus, this is dependent on the hole size in the first section). In the worst-case scenario where the hole is very in gauge, approximately 50 m<sup>3</sup> of cement could be discharged onto the seafloor.

#### **9.5.1.3 BOP Hydraulic Fluid**

As part of routine opening and closing operations the subsea BOP stack elements will vent some hydraulic fluid into the sea at the seafloor. It is anticipated that between approximately 500 and 1 000 litres of oil-based hydraulic emulsion fluid could be vented per month during the drilling of a well. BOP fluids are completely biodegraded in seawater within 28 days.

#### 9.5.1.4 Produced Water

If water from the reservoir arises during well flow testing, these would be separated from the oily components and treated onboard to reduce the remaining hydrocarbons from these produced waters. The hydrocarbon component will be burned off via the flare booms, while the water is temporarily collected in a slop tank. The water is then either directed to:

- a settling tank prior to transfer to supply vessel for onshore treatment and disposal; or
- a dedicated treatment unit where, after treatment, it is either:
  - if hydrocarbon content is < 30 mg/l, discharged overboard; or
  - if hydrocarbon content is > 30 mg/l, subject to a 2nd treatment or directed to tank prior to transfer to supply vessel for onshore treatment and disposal.

Reinjection of the produced water may be considered if volumes are large and cannot be managed onboard the drilling unit.

#### 9.5.1.5 Vessel Machinery Spaces (Bilge Water)

Vessels will occasionally discharge treated bilge water. Bilge water is drainage water that collects in a ship's bilge space (the bilge is the lowest compartment on a ship, below the waterline, where the two sides meet at the keel). In accordance with MARPOL Annex I, bilge water will be retained on board until it can be discharged to an approved reception facility, unless it is treated by an approved oily water separator to <15 ppm oil content and monitored before discharge. The residue from the onboard oil/water separator will be treated / disposed of onshore at a licenced hazardous landfill site.

#### 9.5.1.6 Deck Drainage

Deck drainage consists of liquid waste resulting from rainfall, deck and equipment washing (using water and a water-based detergent). Deck drainage will be variable depending on the vessel characteristics, deck activities and rainfall amounts.

In areas of the drilling unit where oil contamination of rainwater is more likely (i.e. the rig floor), drainage is routed to an oil / water separator for treatment before discharge in accordance with MARPOL Annex I (i.e. 15 ppm oil and grease maximum). There will be no discharge of free oil that could cause either a film, sheen or discolouration of the surface water or a sludge or emulsion to be deposited below the water's surface. Only non-oily water (i.e. <15 ppm oil and grease, maximum instantaneous oil discharge monitor reading) will be discharged overboard. If separation facilities are not available (due to overload or maintenance) the drainage water will be retained on board until it can be discharged to an approved reception facility. The oily residue from the onboard oil / water separator will be treated / disposed of onshore at an approved hazardous landfill site.

#### 9.5.1.7 Brine Generated from Onboard Desalination Plant

The waste stream from the desalination plant is brine (concentrated salt), which is produced in the reverse osmosis process. The brine stream contains high concentration of salts and other concentrated impurities that may be found in seawater. Water chemical agents will not be used in the treatment of seawater and therefore the brine reject portion would be in a natural concentrated state. Based on previous well drilling operations, freshwater production amounts to approximately 40 m<sup>3</sup>/day, which will result in approximately 35 g salt for each litre water produced (i.e. approx. 1 400 kg salt/brine per day).

#### 9.5.1.8 Sewage and Grey Water

Discharges of sewage (or black water) and grey water (i.e. wastewater from the kitchen, washing and laundry activities and non-oily water used for cleaning) will occur from vessels intermittently throughout the project and will vary according to the number of persons on board, estimated at an average of 200 litres per person. All sewage discharges will comply with MARPOL Annex IV.

Sewage and grey water will be treated using a marine sanitation device to produce an effluent with:

- A Biological Oxygen Demand (BOD) of <25 mg/l (if the treatment plant was installed after 1/1/2010) or <50 mg/l (if installed before this date);
- Minimal residual chlorine concentration of 0.5 mg/l; and
- No visible floating solids or oil and grease.

#### 9.5.1.9 Food (Galley) Wastes

The disposal into the sea of food waste is permitted, in terms of MARPOL Annex V, when it has been comminuted or ground to particle sizes smaller than 25 mm and the vessel is en route more than 3 nautical miles (approximately 5.5 km) from land. Disposal overboard without macerating is permitted for moving vessels greater than 12 nautical miles (approximately 22 km) from the coast. On the drilling unit, all food waste will be macerated to particles sizes <25 mm and the daily discharge is typically about seven tonnes per month.

#### 9.5.1.10 Ballast Water

Ballast water is used during routine operations to maintain safe operating conditions onboard a ship by reducing stress on the hull, providing stability, improving propulsion and manoeuvrability, and compensating for weight lost due to fuel and water consumption.

Ballast water is discharged subject to the requirements of the 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments. The Convention stipulates that all ships are required to implement a Ballast Water Management Plan and that all ships using ballast water exchange will do so at least 200 nautical miles (nm) ( $\pm$  370 km) from nearest land in waters of at least 200 m deep when arriving from a different marine region. Where this is not feasible, the exchange should be as far from the nearest land as possible, and in all cases a minimum of 50 nm ( $\pm$ 93 km) from the nearest land and preferably in water at least 200 m in depth. Project vessels will be required to comply with this requirement.

#### 9.5.1.11 Detergents

Detergents used for washing exposed marine deck spaces will be discharged overboard. The toxicity of detergents varies greatly depending on their composition. Water-based detergents are low in toxicity and are preferred for use. Preferentially biodegradable detergents should be used. Detergents used on work deck space will be collected with the deck drainage and treated as described under deck drainage above.

#### 9.5.1.12 Noise Emissions

The key sources generating underwater noise are vessel propellers (and positioning thrusters), with a contribution from the pontoons (e.g. noise originating from within the pontoons and on-deck machinery), supply vessels and from drilling activities. This is expected to result in highly variable sound levels, being dependent on the operational mode of each vessel. The pre-drilling

sonar surveys and VSP survey would generate a short-term noise, taking 4 weeks and less than nine hours to complete, respectively.

The main sources of noise from these activities are categorised below.

- Pre-drilling sonar surveys may involve multi- and single beam echo sounding and sub-bottom profiling. These surveys would be undertaken between the 700 m and 1900 m depth ranges covering a survey area of approximately 150 km<sup>2</sup>. Each wellsite survey would take up to 10 days to complete. A single beam echo-sounder operates within a frequency range of 38 to 200 kHz, whereas multibeam echo sounders operate in the 70 - 100 kHz range and have a 200dB re 1µPa at 1m source level. Sub-bottom profilers emit an acoustic pulse at frequencies ranging between 2 and 16 kHz, typically producing sound levels in the order of 200-230 db re 1µPa at 1m.
- Drilling noise: Drilling units generally produce underwater noise in the range of 10 Hz to 100 kHz (OSPAR commission, 2009) with major frequency components below 100 Hz and average source levels of up to 190 dB re 1 µPa at 1 m (rms) (the higher end of this range from use of bow thrusters). These noise levels will be assumed as indicative for the current project.
- Propeller and positioning thrusters: Noise from propellers and thrusters is predominately caused by cavitation around the blades whilst transiting at speed or operating thrusters under load in order to maintain a vessel's position. The noise produced by a drilling unit's dynamic positioning systems can be audible for many kilometres. Noise produced is typically broadband noise, with some low tonal peaks. The supply vessels will also contribute to an overall propeller noise generation.
- Machinery noise: Machinery noise is often of low frequency and can become dominant for vessels when stationary or moving at low speeds. The source of this type of noise is from large machinery, such as large power generation units (diesel engines or gas turbines), compressors and fluid pumps. Sound is transmitted through different paths, i.e. structural (machine to hull/pontoons to water) and airborne (machine to air to hull to water) or a mixture of both. The nature of sound is dependent on a number of variables, such as the type and size of machinery operating; and the coupling between machinery and the vessel body. Machinery noise is typically tonal in nature. A ROV will be used to conduct a sweep of the drilling site to identify any debris; however, this is not expected to form a significant noise source.
- Well logging noise: If relevant, VSP will be undertaken in order to generate a high-resolution image of the geology in the well's immediate vicinity. It is expected to use a small dual airgun array, comprising a system of three 150 cubic inch airguns and three 150 cubic inch airguns with a total volume of 450 cubic inches of compressed nitrogen at about 2 000 psi. VSP source will generate a pulse noise level in the 5 to 1 000 Hz range. The volumes and the energy released into the marine environment are significantly smaller than what is required or generated during conventional seismic surveys. The airguns will be discharged approximately five times at 20 second intervals. This process is repeated, as required, for different sections of the well for a total of

approximately 125 shots. A VSP is expected to take up to six hours per well to complete, depending on the well's depth and number of stations being profiled.

- Well testing noise: Flaring would produce some air-borne noise above the sea level where flaring is implemented for up to two days of flowing and flaring.
- Equipment in water: Noise is produced from equipment such as the drill string. The noise produced will be low relative to the drilling noise and the dynamic positioning system.
- Helicopter noise: Helicopters will also form a source of noise, which can affect marine fauna both in terms of underwater noise beneath the helicopter and airborne noise. Helicopters will take off and operate at a minimum height of 2500 ft above sea level.

The extent of project-related noise above the background noise level may vary considerably depending on the specific vessels used and the number of supply vessels operating. It will also depend on the variation in the background noise level with weather and with the proximity of other vessel traffic (not associated with the project).

An Underwater Noise Modelling Study has been undertaken to determine the underwater noise transmission loss with distance from well site and compare results with threshold values for marine fauna to determine zones of impact. These modelling results will be used in the assessment of impacts on marine fauna.

#### **9.5.1.13 Light Emissions**

Operational lighting will be required on the drilling unit and supply vessels for safe operations and navigation purposes during the hours of darkness. Where feasible, operational lights will be shielded in such a way as to minimise their spill out to sea.

#### **9.5.1.14 Heat Emissions**

Flaring during well testing generates heat emissions from the combustion of hydrocarbons at the burner head.