DIGITAL APPENDIX 6-2

Annex Report 2: Fisheries and Coastal Community Profiles

Fisheries and Coastal Livelihoods Expert Group

Work Package 1

Boegoebaai Port Development and Special Economic Zone (SEZ) Strategic Environmental Assessment (SEA)

November 2024

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Abbreviations and Acronyms

BCLME	Benguela current large marine ecosystem
CSIR	Council of Scientific and Industrial Research
DFFE	Department of Forestry, Fisheries and the Environment
EEZ	Exclusive economic zone
GDP	Gross Domestic Product
MLRA	Marine Living Resources Act of 1998 (South Africa)
MSY	Maximum sustainable yield
NCEDA	Northern Cape Economic Development Trade and Investment Promotion Agency
NSRI	National Sea Rescue Institute
RFMO	Regional Fisheries Management Organization
SANEDI	South African National Energy Development Institute
SEA	Strategic Environmental Assessment
SP	Sub place
StatsSA	Statistics South Africa
TAC	Total Allowable Catch
TAE	Total Applied Effort
TNPA	Transnet National Ports Authority
PUCL	Precautionary Upper Catch Limit
WCRL	West coast rock lobster

CHAPTER 1: INTRODUCTION

A substantial programme of greenfield infrastructure has been proposed in the Northern Cape as part of South Africa's ambition to become a player in the globally emerging green hydrogen market (CSIR, 2024). This proposed greenfield infrastructure consists of three components:

1. A new breakwater port at Boegoebaai, dry and liquid bulk berths, and multi-purpose terminals.
2. A mixed-use Special Economic Zone (SEZ) located in the region adjacent to the proposed Boegoebaai port.
3. An expansive regional renewable energy (wind and solar PV) generation and transmission infrastructure.

As green hydrogen production envisaged at this scale in the Northern Cape will entail a diverse and multifaced process, a Strategic Environmental Assessment (SEA) has been initiated through a collaboration between the South African National Energy Development Institute (SANEDI), Northern Cape Economic Development Trade and Investment Promotion Agency (NCEDA), and Transnet National Ports Authority (TNPA). This SEA is being undertaken by the Council for Scientific and Industrial Research (CSIR) (CSIR, 2024).

Under Work Package 1, the area of interest concentrates on a local spatial scale (33 500 ha) covering the extent of the proposed Boegoebaai Port and SEZ, focused on a land use perspective (see Figure 1). However, for the purpose of this report, the area of interest has been expanded to better capture descriptions of fisheries and coastal livelihoods in relation to the proposed development in Boegoebaai.

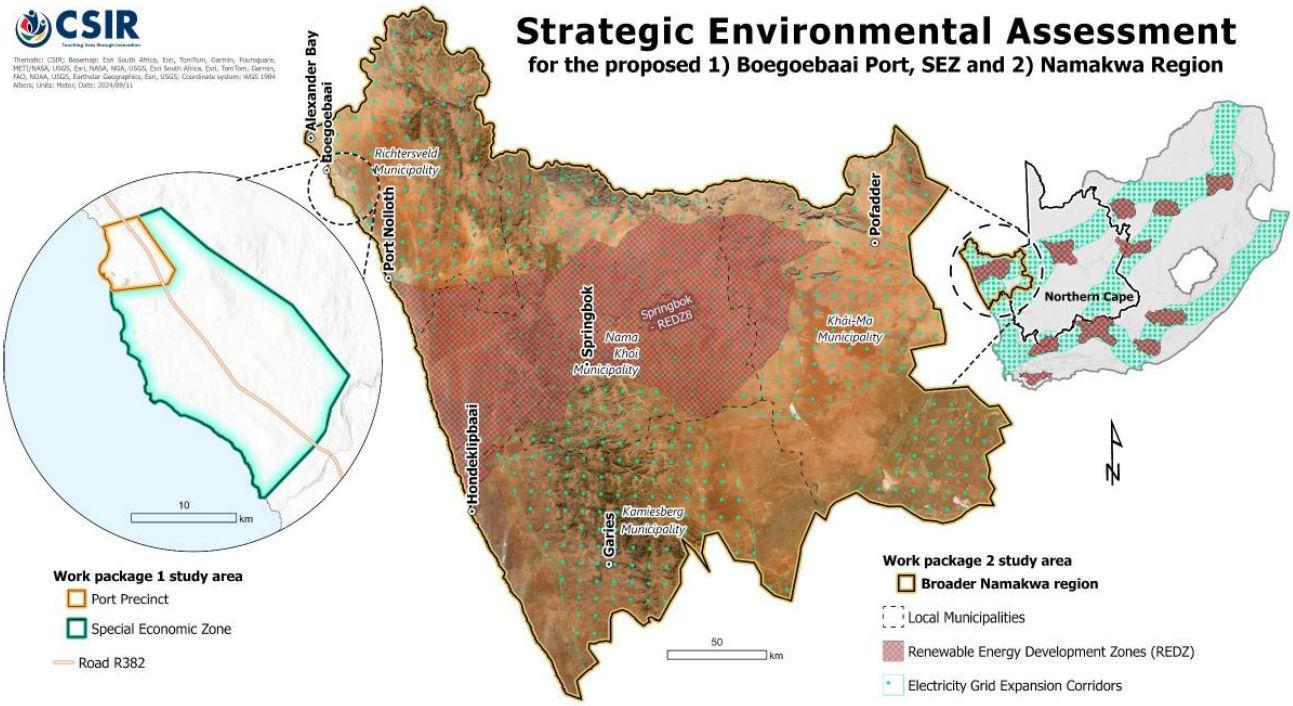

Figure 1. The spatial extent of the two SEA Work Packages for the proposed Boegoebaai Port and SEZ

This report provides a description of fisheries and coastal livelihoods through comprehensive community profiles developed for selected communities of interest, contributing to Work Package 1. The introduction (Chapter 1) introduces the area of interest and communities of interest, as well as the approach and methods undertaken for this report. Chapter 2 provides a description of fisheries through an overview of national fisheries in South Africa, west coast fisheries and fisheries in the Northern Cape Province. Chapter 3 details community profiles for the four communities of interest – Alexander Bay, Port Nolloth, Kleinzee and Hondeklipbaai. Chapter 4 concludes this report by outlining potential impacts of the proposed Boegoebaai Port and SEZ may have on the wider fishery system and communities of interest.

1.1 Overview of the receiving environment

The area of interest for this report falls within the coastline of the Northern Cape Province – including the adjacent marine environment. The Northern Cape is divided into five district municipalities and further subdivided into 26 local municipalities (Municipalities of South Africa, 2024). The Northern Cape is the largest province of South Africa with the smallest population size due to its largely arid climate (IKI, 2024). The majority of the population is located in the northern and north-eastern part of the Northern Cape – close to mining and agricultural activities that are the two primary economic activities in the province. The highest employment sectors within the Northern Cape include agriculture, forestry and fishing; community and social services; wholesale and retail trade; and mining and quarrying (IKI, 2024). The Northern Cape coastline spans 313 kilometres alongside the Atlantic Ocean and extends over three (out of six) local municipalities within the Namakwa District Municipality, namely the Richtersveld, Nama Khoi and Kamiesberg (Ramasar, 2004).

1.1.1 Seaward context

South Africa has roughly 3000 km of coastline and is dominated by two major ecosystems – the Agulhas Current Large Marine Ecosystem on east coast and the Benguela Current Large Marine Ecosystem (BCLME) on the west and southwestern Coast (Jarre *et al.*, 2015). The BCLME, an eastern boundary current system dominated by coastal upwelling, is a highly productive region that sustains significant fisheries for Angola, Namibia, and South Africa (e.g., BCC, 2013)). The BCLME is characterised by rich marine biodiversity that supports both small-scale and industrial fisheries in all three countries, making important contributions to food security, economic stability, and cultural identity in coastal communities (Sowman and Raemaekers, 2018). The BCLME, comprising four sub-(eco) systems (see Figure 2), has been shown to exhibit variability across several temporal scales and is experiencing warming at its peripheries (Hutchings *et al.*, 2009; Rouault *et al.*, 2010; Dufois and Rouault, 2012; Blamey *et al.*, 2015; Jarre *et al.*, 2015).

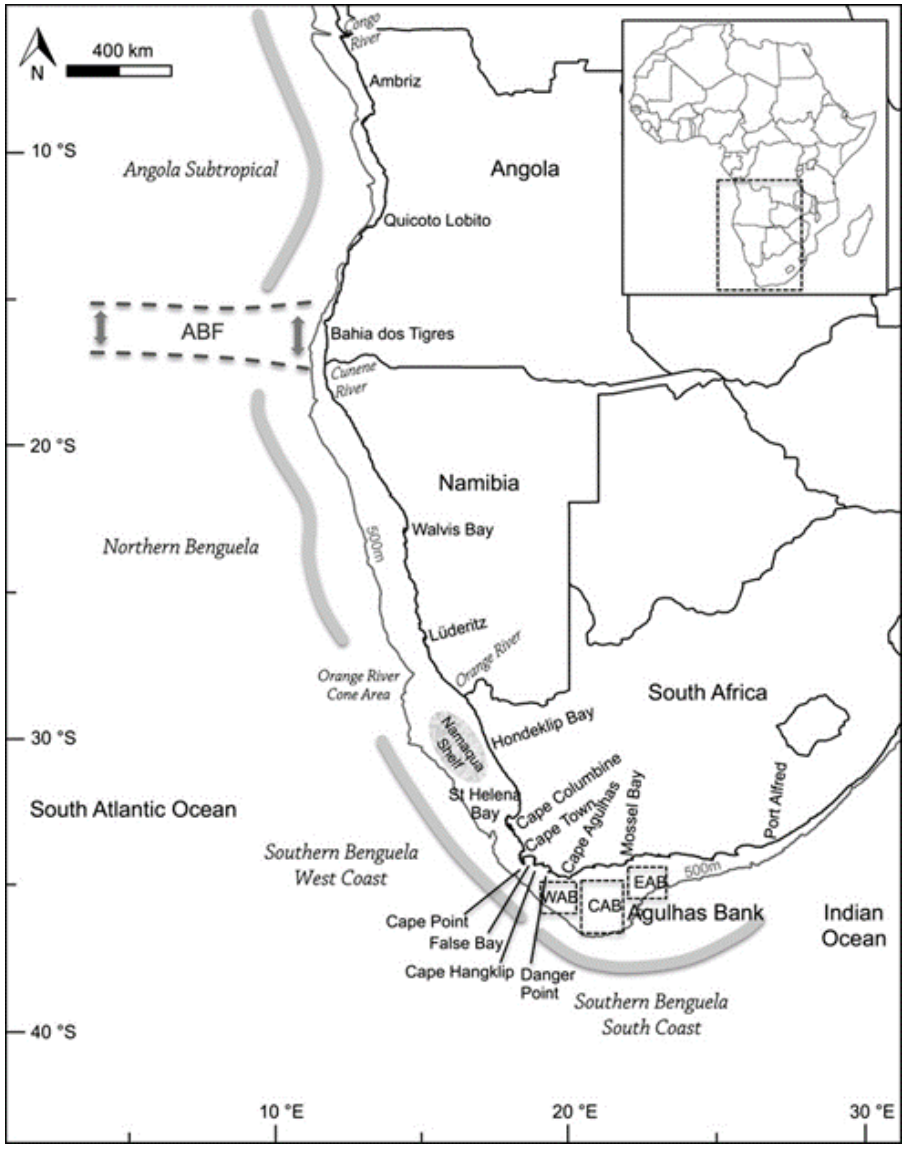

Figure 2. The four subsystems of the Benguela Current large marine ecosystem. The southern Benguela consists of two subsystems: the west coast, driven by the cold Benguela Current (including the western Agulhas Bank) and the south Benguela south coast/Agulhas Bank subsystem, under much stronger influence of the warm Agulhas Current. WAB, CAB, EAB: Western, central and eastern Agulhas Bank, ABF: Angola-Benguela front (Jarre et al., 2015)

Looking seaward and extending beyond the immediate boundary of Work Package 1, lies the southern Benguela – this larger, interconnected ocean space and its fishery resources play a critical role in maintaining the economic and cultural stability of local communities along the west coast. Therefore, this report considers fisheries operating at multiple scales, from national fisheries operating in South Africa's Exclusive Economic Zone (EEZ) along the west coast, to the two main regional fishing nodes in the Northern Cape Province, namely Port Nolloth and Hondeklipbaai (see Chapter 2).

Changing contexts in the marine system

The southern Benguela ecosystem is increasingly vulnerable to external pressures such as climate change, overfishing, and habitat degradation. These pressures present significant threats to fish stocks, with potentially severe consequences for the livelihoods that rely on them (Allison *et al.*, 2005; FAO, 2014; Ortega-Cisneros *et al.*, 2021). Climate change, in particular, affects both fish populations and their ecosystems, resulting in shifts in species distribution and abundance (Ortega-Cisneros *et al.*, 2021). Variations in climate, such as rising sea surface temperatures and changing oceanographic conditions, can disrupt traditional fishing practices and reduce the availability of key species to fishing (Gammage *et al.*, 2017, 2019; Jarre *et al.*, 2018; Martins *et al.*, 2019; Gammage and Jarre, 2020). Furthermore, overfishing

exacerbates these challenges by depleting fish populations, thereby threatening the sustainability of fisheries (Jarre *et al.*, 2018; Gammage and Jarre, 2020). Other anthropogenic pressures on the west coast marine SES include mining (expanded in section 1.1.2) and offshore oil and gas exploration (Masterson, 2021). Offshore gas and oil exploration and prospecting activities are currently undertaken in various licence blocks off the west coast (McGrath, 2024).

For example, commercial fisheries were a prominent industry from the 1920s to the 1990s in the northern part of the west coast. However, overfishing by commercial fisheries along the west coast in the 1960s resulted in the abrupt stock collapse of the sardine (*Sardinops sagax*) population, pushing the small pelagics industry to target alternative species (such as anchovy (*Engraulis encrasicolus*) and redeploy its workforce into canning factories. However, an ecosystem regime shift[1] occurring in the late 1990s/early 2000s resulted in distribution shift of small pelagics from the west coast to the south coast and the fishing industry subsequently shifted to follow the fish, closing many factories on the west coast that had significant consequences for dependent coastal communities (Jarre *et al.*, 2013). Both the Namaqua canning company in Hondeklipbaai and the John Ovenstone fish factory in Port Nolloth closed in the mid-90s and early-2000s respectively. These closures had significant impacts for local coastal livelihoods and women working in the fishing industry were severely impacted (Human, 2021; Soudens, 2022), where the cumulative stressors of competition in the ocean space with mining and oil and gas operations continue to hamper the livelihoods of these coastal fishing communities (Christianson, 2021) .

1.1.2 Landward context

The Namakwa District Municipality, running along the coastline of the Northern Cape, is the largest district in the province with the smallest population size (approximately 148 935) (StatsSA, 2022). While the Namakwa District Municipality has the lowest poverty rate (38.2% in 2022) in relation to the other district municipalities, poverty rates have increased over time across the district (Northern Cape Provincial Government, 2024). While agriculture and tourism are key economic sectors across the Namakwa District Municipality (Municipalities of South Africa, 2024), this differs across the three local municipalities running along the Northern Cape coastline. The local municipality of the Richtersveld is the smallest municipality in the district and the primary economic activities include mining, agriculture, fisheries and tourism (Municipalities of South Africa, 2024). While mining activities played a central role in economic activities in the past of the Nama Khoi Local Municipality, tourism is now viewed as the new frontier for economic development (Municipalities of South Africa, 2024). In the Kamisberg Local Municipality, agriculture employs the highest number of people in rural communities of this local municipality (Namakwa District Municipality, 2023).

The immediate landward area of Boegoebaai under consideration for the SEA is under restricted access linked to diamond mining activities under Alexkor (see https://alexkor.co.za/), where the area is currently uninhabited. Therefore, the communities of interest to examine local coastal livelihoods are selected based on their proximity to Boegoebaai, prioritising existing fishing communities and fishery related activities where relevant. These communities of interest fall under the Namakwa District Municipality. Four towns were selected, namely Alexander Bay, Port Nolloth, Kleinzee and Hondeklipbaai. Table 1 below details municipal jurisdiction for the selected towns, as well as the primary reason to include the select towns as communities of interest.

Table 1: Communities of interest for fisheries and coastal livelihoods

District Municipality	Local Municipality	Community (based on Main Place)	Reason to include as a community of interest
Namakwa	Richtersveld	Alexander Bay	Closest proximity to Boegoebaai
		Port Nolloth	Traditional fishing community
	Nama Khoi	Kleinzee	Aquaculture activities
	Kamiesberg	Hondeklipbaai	Traditional fishing community

[1] Ecological regime shifts are large and sudden changes in ecosystems that push systems into a different state which cannot necessarily be reversed, which can negatively impact people's livelihoods (Biggs *et al.*, 2009).

Changing contexts in the terrestrial system

The Northern Cape is a hot and dry region, where coastal areas are cooler than inland areas on average, resulting in temperature gradients and conditions favourable for strong winds and storms (Namakwa District Municipality, 2023). Changes in climate along the coastline of the Namakwa District Municipality are projected to negatively impact marine and terrestrial systems through variable rainfall patterns, drying trends and expected temperature increases. In particular, issues around water scarcity and quality are prevalent across this district municipality, where changes in climate are expected to exacerbate this problem through drought, reduced runoff, increased evaporation and an increase in flood events (Namakwa District Municipality, 2023). While agriculture plays a key role in local livelihoods, where small stock sheep and goat farming is the main economic activity and land user across the Namakwa District Municipality, projected changes in climate are set to negatively impact these rural communities dependent on small-scale agriculture (Namakwa District Municipality, 2023).

Mining activities are also prominent drivers of change along the coastline of the Northern Cape. The mining of minerals has played a central role in the historical development in the northern part of the west coast, where alluvial diamonds extracted from the beaches and the sea between Alexander Bay and Port Nolloth (Britz *et al.*, 2000; Municipalities of South Africa, 2024). Prospecting and mining activities for diamonds and heavy mineral sands in the ocean space off the Northern Cape take place on the coastal land, beaches, the nearshore environment and in the deep-sea (Masson, 2022). However, mining has become less significant for coastal livelihoods over the last 10 years – notably due to the mine closure in Kleinzee and the greatly reduced mining activities of Alexkor in Alexander Bay (Britz *et al.*, 2000). Some smaller companies have been given concessions to mine diamonds in the area, but systemic issues linked to illegal mining and marginalisation of small-scale miners remain widespread (Masson, 2022).

1.2 Approach

A description of the receiving environment was developed to contextualise fisheries and coastal communities in the area of interest (see section 1.1.). A description of fisheries was developed through a comprehensive literature review, drawing on relevant sources describing national, west coast and Northern Cape fisheries. This description of fisheries is detailed in Chapter 2 of this report. Importantly, this description must be read in conjunction with the specialist Marine Ecology report, developed for this SEA as this report places the emphasis on the intersection of fish and people.

A description of the communities of interest was created through developing community profiles for the four coastal communities, drawing on the stakeholder analysis (see Annex Report 1) that formed part of a wider approach to lay a foundation to better understand key stakeholders and relationships in the area of interest. The stakeholder analysis informed the type of livelihood activities that the selected communities of interest engaged in, which were then detailed using an approach to develop community profiles. In the case of coastal communities within the context of social-ecological systems, community profiles can provide a useful snapshot of communities engaged in coastal livelihood activities within their historic, demographic, economic and cultural contexts. Community profiles can provide information on the level of interest community members may have in being actively involved in a project and their preferred method of engagement (Clay and Olson, 2007; Colburn *et al.*, 2010). These community profiles are detailed in Chapter 3 of this report.

1.2.1 Methods and data collection

Description of fisheries

A desktop approach was used to gather data drawing on online research for the literature review of fisheries. The review included on peer-reviewed publications and relevant published grey literature – such as journal publications, government documents and research documents. This data collection process drew on secondary data (i.e., data that has already been collected through primary sources and made readily available for research) and no ethical clearance was required for this project phase. To gain a comprehensive understanding of this system, the review included an overview of national fisheries in South Africa, west coast fisheries and fisheries in the Northern Cape Province. This literature review was further

strengthened through the consultation of relevant subject matter experts – where verbal consent was obtained prior to these key expert interviews and are referenced in this report accordingly.

Developing community profiles

Drawing on the stakeholder analysis (see Annex Report 1), typologies of coastal livelihood activities for each community of interest were developed (see Appendix 1). These typologies informed which livelihood activities were pertinent to the relevant coastal communities and were expanded accordingly under the community profiles. Table 2 gives an overview of the key livelihood activity typologies identified and a general description per category based on research from the stakeholder analysis.

Table 2: Description of coastal livelihood activities

Coastal Livelihood Activity	Description
Agriculture	The cultivation of crops and the rearing of animals to provide food and other products
Conservation	Activities related to the conservation of natural resources that support livelihood activities
Fisheries	Marine and estuarine fisheries (and related marine industries), including small-scale fisheries and aquaculture
Mining	The extraction of valuable geological materials and minerals from the environment, including the seabed (and related mining industries)
Tourism	Activities related to receiving tourists to support the hospitality industry and tourist information centres

A community profile was created for each community of interest (see section 1.1) that included:

- **Location** – details on the geographic position and historical background
- **Demographic attributes** – population size, gender and age structure, racial profile, language and other relevant economic characteristics
- **Inventory of features** – land and sea use characteristics, existing businesses and services, community facilities and other relevant features
- **Involvement in coastal livelihood activities** – type of activity and characteristics

Initially, a desktop review was undertaken to build a profile for each community drawing on peer-reviewed publications and relevant published grey literature. Data sources included the 2011 South African Census[2] and other secondary sources. In alignment with Statistics South Africa (StatsSA), the main terms referenced in this report are expanded in Table 3 below. Other important sources included local tourism and municipal websites. As the data collection process for this desktop review only involved secondary data (i.e., data that has already been collected through primary sources and made readily available for research), no ethical clearance was required for this project phase.

Table 3: Main terms referenced in this report in line with StatsSA definitions

[2] At community level, the census data from 2011 was the most readily available resource. It should be noted that these data most likely are partly outdated as they are more than 10 years old, particularly as the socio-economic status of these communities have been impacted by political, economic, environmental and health stressors, including the Covid-19 global pandemic.

Term	Definition
Location	
Main Places	Named locations determined by StatsSA, which generally correspond to towns, small cities, regions of large cities, or traditional council areas. Areas that do not fall within any named settlement are incorporated in a main place named for the municipality.
Sub Places	Named locations determined by StatsSA, which generally correspond to suburbs, villages, or localities. When a main place contains only one sub place, that sub place is named for the main place with a suffix of "SP".
Small Areas	The smallest output unit for census data; on average each small area contains approximately 600 people.
Demographics	
Population Group	A group with common characteristics (in terms of descent and history), particularly in relation to how they were (or would have been) classified before South African gained independence in the 1994 elections. The following categories are provided in the census: Black African, coloured, Indian or Asian, white, other.
Black African	The majority population of South Africa are those that classify themselves Black Africans, which is a culturally and linguistically diverse group. The major ethnic parts of the group are the Zulu, Xhosa, Bapedi (North Sotho), Tswana, South Ndebele, Basotho (South Sotho), Venda, Tsonga and Swazi, who predominantly speak Southern Bantu languages.
Coloured	Stemming from the apartheid-era race classification, the term "coloured" refers to South Africans who have a mixed-race heritage, coming from a combination of ethnic backgrounds including Black Africans, Indigenous South Africans, Griqua, Asians and whites. The majority of this population group is concentrated in the Cape region of South Africa.
Indian or Asian	Stemming from the policies of apartheid, Indian (synonymous with Asian under this regime) is regarded as a race group in South Africa. The majority of this group descended from indentured labourers and migrants who arrived from British India during the late 1800s and early 1900s (and predominately reside in the Natal region of South Africa).
White	Predominantly descendants of Dutch, German, French Huguenots, English and other European settlers, where traditionally this group is divided culturally and linguistically divided into Afrikaners (who speak Afrikaans) and English-speaking groups.
Other	Captures self-classification that do not fall into the five main race categories provided by StatsSA. To note, the Khoisan of South Africa are the minority of indigenous South Africans that are conventionally classified under the Black South African population; however, some do not agree with this classification and identify as coloured, or a number of expatriate Khoisan identify as other (including linguistics as separating characteristic).
Linguistics	
Language	South Africa is a multilingual country with 11 official languages (Afrikaans, English, Ndebele, Sotho, Southern Sotho, Swati, Tsonga, Tswana, Venda, Xhosa and Zulu), each of which is guaranteed equal status. Most South Africans are multilingual and able to speak at least two or more of the official languages. For governance purposes, the Western Cape uses Afrikaans (the most widely used language in this region), isiXhosa and English.

This desktop review was supported by fieldwork conducted between 4 to 6 September 2024 in the four coastal communities of interest: Alexander Bay, Port Nolloth, Kleinzee and Hondeklipbaai. Observations of the four coastal communities during the fieldwork were used to ground truth and develop each community profile. In-person interviews were conducted with local stakeholders during the fieldwork, as well as remote interviews where select stakeholders were not available in person, to gain further insights and perspectives in relation to local coastal livelihoods and the proposed port development. These interviews aimed to gain high-level insights from a cross-section of local stakeholders, depending on their primary livelihood activity and which community of interest they resided in. These interviews supported the data collection for the profiles and did not serve as formal, intensive stakeholder engagement consultations.

Interviews focused on local stakeholders linked to agriculture, conservation, fisheries (including aquaculture), mining and tourism. Interview guides developed were semi-structured to capture insights on current livelihood activities, details on fishing activities (where applicable), and perceptions on the proposed development (see Appendix 2A). The interview guides were drawn up in both English and Afrikaans, where the researcher conducting the interviews was fluent in both languages. Participants were

required to sign a written consent form (in the preferred language of English or Afrikaans) that outlined the interview procedures around feedback, recording, permissions, and confidentiality (see Appendix 2B). A total of 12 local key stakeholders were interviewed between September to November 2024 (see Table 4), where all interview data was transcribed into English and captured via Microsoft Forms. Results from this interview process are referenced as "pers. comm." in this report to make the distinction between primary and secondary data sources, as well as to ensure local stakeholder interviewee anonymity. This was also supported by the consultation of relevant subject matter experts – where verbal consent was obtained prior to these key expert interviews and are referenced in this report accordingly.

Table 4: Local stakeholders interviewed to support the community profile development

Community of interest	Number of interviews	Area of expertise (i.e. coastal livelihood activity)
Alexander Bay	4	Agriculture; Conservation; Mining; Tourism
Port Nolloth	3	Fisheries; Other (local industry)
Kleinzee	3	Aquaculture; Mining; Tourism
Hondeklipbaai	2	Fisheries

CHAPTER 2: FISHERIES

The southern Benguela is one of the most productive marine ecosystems globally because of its nutrient-rich upwelling system. This upwelling supports a high plankton biomass, which forms the foundation of the marine food web, leading to abundant fish populations, particularly small pelagic species such as sardines and anchovies. These species are crucial for commercial fisheries and the overall health of marine ecosystems (Hutchings *et al.*, 2009; Ruzicka *et al.*, 2024). The southern Benguela fisheries are vital to coastal communities' livelihoods, providing direct employment in fishing, processing, and distribution and supporting thousands of households. The importance of these fisheries transcends economic value, being deeply interwoven with the cultural and social identities of these communities, contributing to both food security and the preservation of traditional practices (Griffiths *et al.*, 2010). This evolution highlights the critical role of these resources in maintaining the economic and cultural stability of local communities.

Beyond their local importance, the economic contributions of these fisheries extend nationally, with fisheries playing a key role in South Africa's gross domestic product (GDP), contributing although less than 1%, also generating foreign exchange earnings through exports (Brick and Hasson, 2016). The South African fishing industry comprises two main components: wild capture fisheries and aquaculture. The former includes the commercial, small-scale, subsistence, and recreational sub-sectors. The commercial sector provides direct employment to 28,000 individuals and supports indirect employment for between 100,000 and 130,000 people (Brick and Hasson, 2016). There are 22 commercial sub-sectors in South Africa, and estimates indicate approximately 30,000 subsistence fishers in the country (Clark *et al.*, 2002) . Small-scale and subsistence fishers heavily rely on fishing, representing a vital source of employment and food security in coastal communities with limited opportunities (Isaacs and Hara, 2015) – for example, in communities of Port Nolloth and Hondeklipbaai.

The fishing sector is critical for providing protein sources to local and Southern African populations, making a substantial contribution to food security (e.g. Griffiths *et al.*, 2010; Hara *et al.*, 2017). The interconnections between fisheries and broader economic systems underscore the necessity for sustainable management practices to ensure the long-term viability of these resources and the well-being of communities that depend on them. Moreover, the fisheries sector is not only an economic pillar but also an essential part of the social fabric of coastal communities, reinforcing cultural identities and traditional practices (Griffiths *et al*., 2010).

2.1 Overview of South African fisheries

South Africa's territorial waters are home to 22 commercial fisheries sectors (Sink *et al.*, 2019). The most important in terms of economic value and catch volume are the demersal trawl and long-line fisheries, which target Cape hakes (*Merluccius paradoxus and M. capensis*), and the purse-seine fishery, which focuses on small pelagics such as sardine (*Sardinops sagax*), anchovy (*Engraulis encrasicolus*), and red-eye round herring (*Etrumeus whitheadii*). The pelagic long-line and pole fisheries seasonally catch highly migratory tuna and swordfish within South African waters. These include albacore (*Thunnus alalunga*), bigeye tuna (*T. obesus*), yellowfin tuna (*T. albacares*), and swordfish (*Xiphias gladius*). Near the shore, the traditional line fishery targets a diverse range of species, including snoek (*Thyrsites atun*), Cape seabream (*Pachymetopon blochii*), geelbek (*Atractoscion aequidens*), kob (*Argyrosomus japonicus*), yellowtail (*Seriola lalandi*), and various reef fish. The crustacean fisheries comprise a trap and hoop net fishery for West coast rock lobster (*Jasus lalandii*), a line trap fishery for South Coast rock lobster (*Palinurus gilchristi*), and an East Coast-based trawl fishery targeting penaeid prawns, langoustines (*Metanephrops andamanicus* and *Nephropsis stewarti*), deep-water rock lobster (*Palinurus delagoae*), and red crab (*Chaceon macphersoni*) (Japp and Wilkinson, 2021; DFFE, 2023a). Other fisheries include a mid-water trawl fishery targeting horse mackerel (*Trachurus trachurus capensis*) predominantly on the Agulhas Bank, South Coast and a hand-jig fishery targeting chokka squid (*Loligo vulgaris reynaudii*) on the South Coast (Japp and Wilkinson, 2021; DFFE, 2023a). Table 5 provides an overview of the wholesale value of production of South African offshore commercial fishing sectors in 2017.

Table 5: South African offshore commercial fishing sectors: wholesale value of production in 2017 (adopted from Wilkinson and Coppin (2024))

Sector	No. of Rights Holders (Vessels)	Catch (tons)	Landed Catch/ Sales (tons)	Wholesale Value of Production in 2017 (R'000)	% of Total Value
Small pelagic purse-seine	111 (101)	313476	313476	2164224	**22.0**
Demersal trawl (offshore)	50 (45)	163743	98200	3891978	**39.5**
Demersal trawl (inshore)	18 (31)	4452	2736	90104	**0.9**
Mid-water trawl	34 (6)				
Demersal longline	146 (64)	8113	8113	319228	**3.2**
Large pelagic longline	30 (31)	2541	2541	154199	**1.6**
Tuna pole-line	170 (128)	2399	2399	97583	**1.0**
Linefish	422 (450)	4931	4931	122096	**1.2**
Longline shark demersal		72	72	1566	**0.0**
South coast rock lobster	13 (12)	699	451	*337912*	**3.4**
West coast rock lobster	240 (105)	1238	1238	*531659*	**5.4**
Crustacean trawl	6 (5)	310	310	32012	**0.3**
Squid jig	92 (138)	11578	11578	1099910	**11.2**
Miscellaneous nets	190 (N/a)	1502	1502	25589	**0.3**
Oysters	146 pickers	42	42	3300	**0.0**
Seaweeds	14 (N/a)	9877	6874	27095	**0.3**
Abalone	N/a (N/a)	86	86	*61920*	**0.6**
Aquaculture		3907	3907	881042	**9.0**
Total		**528966**	**458456**	**9841417**	**100**

Commercial fishing vessels use only designated fishing harbours, for instance, large industrial vessels targeting hake use only the major ports of Saldanha Bay, Cape Town, Mossel Bay and Gqeberha. On the West coast, the main landing sites for the small pelagic fleets are St. Helena Bay and Saldanha Bay where there is also the necessary infrastructure for processing anchovy and sardine into fishmeal and canning, respectively. Port Nolloth, Hondeklipbaai, Laaiplek, Hout Bay and Gansbaai harbours are the smaller fishing harbours on the West / South-West coast. On the East Coast, Durban and Richards Bay are the main ports for the crustacean trawl and large pelagic longline sectors (Japp and Wilkinson, 2021).

In 2016 the small-scale sector was legally created to acknowledge those fishers who depend on marine living resources for direct food security or those using traditional fishing methods. There are more than 169 small-scale fishing communities that support approximately 8 027 active small-scale fishers with an estimated 85% of them harvesting linefish (DFFE, 2023a). Small-scale fisheries commonly use small, open boats generally less than 10 m in length that mainly operate close to the shore and are only allowed access to nearshore target species. In addition to commercial and small-scale sectors, recreational fishing occurs along the coastline comprising shore angling and boat-based fishing. The commercial and recreational fisheries are reported to catch over 250 marine species, although fewer than 5% of these are actively

targeted by commercial fisheries, which comprise 90% of the landed catch (Wilkinson and Coppin, 2024) – refer to Table 6.

Table 6: South African fishing sectors, fishing areas, ports of operation and target species (adapted from Wilkinson and Coppin, 2024)

Sector	Areas of Operation	Main Ports in Priority	Target Species
Small pelagic purse-seine	West, South Coast	St Helena Bay, Saldanha, Hout Bay, Gansbaai, Mossel Bay	Anchovy (*Engraulis encrasicolus*), sardine (*Sardinops sagax*), Redeye round herring (*Etrumeus whiteheadi*)
Demersal trawl (offshore)	West, South Coast	Cape Town, Saldanha, Mossel Bay, Port Elizabeth	Deepwater hake (*Merluccius paradoxus*), shallow- water hake (*Merluccius capensis*)
Demersal trawl (inshore)	South Coast	Cape Town, Saldanha, Mossel Bay	East coast sole (*Austroglossus pectoralis*), shallow- water hake (*M. capensis*)
Mid-water trawl	West, South Coast	Cape Town, Port Elizabeth	Adult horse mackerel (*T. capensis*)
Demersal long- line	West, South Coast	Cape Town, Saldanha, Mossel Bay, Port Elizabeth, Gansbaai	Shallow-water hake (*M. capensis*)
Large pelagic long-line	West, South, East Coast	Cape Town, Durban, Richards Bay, Port Elizabeth	Yellowfin tuna (*T. albacares*), big eye tuna (*T. obesus*), Swordfish (*Xiphius gladius)*
Tuna pole-line	West, South Coast	Cape Town, Saldanha	Albacore tuna (*T. alalunga*)
Linefish	West, South, East Coast	All ports, harbours and beaches around the coast	Snoek (*Thyrsites atun*), Cape bream (*Pachymetopon blochii)*, geelbek (*Atractoscion aequidens)*, kob (*Argyrosomus japonicus)*, yellowtail (*Seriola lalandi),* Sparidae, Serranidae, Carangidae, Scombridae
South coast rock lobster	South Coast	Cape Town, Port Elizabeth	*Palinurus gilchristi*
West coast rock lobster	West Coast	Hout Bay, Kalk Bay, St Helena	*Jasus lalandii*
Crustacean trawl	East Coast	Durban, Richards Bay	Tiger prawn (*Panaeus monodon*), white prawn (*Fenneropenaeus indicus*), brown prawn (*Metapenaeus monoceros*), pink prawn (*Haliporoides triarthrus*)
Squid jig	South Coast	Port Elizabeth, Port St Francis	Squid/chokka (*Loligo reynaudii)*
Gillnet	West Coast	False Bay to Port Nolloth	Mullet / harders (*Liza richardsonii*)
Beach seine	West, South, East Coast	Coastal/Nearshore	Mullet / harders (*Liza richardsonii*)
Oysters	South, East Coast	Coastal/Nearshore	Cape rock oyster (*Striostrea margaritaceae*)
Seaweeds	West, South, East	Coastal/Nearshore	Beach-cast seaweeds (kelp, *Gelidium* spp. *Gracilaria)*
Abalone	West Coast	Coastal/Nearshore	*Haliotis midae*
Small-scale fisheries	**West, South, East**	**Coastal/Nearshore**	Various

In South Africa, all fishing-related activities, including the processing, sale and trade of marine resources, are regulated under the Marine Living Resources Act No 18 of 1998 and the Marine Living Resources Amendment Act no 5 of 2014. This legislation provides the foundational legal structure for managing and conserving South African marine resources, ensuring their sustainable use while safeguarding marine ecosystems against harmful human activities. The DFFE is tasked with overseeing and enforcing these regulations to prevent environmental damage and to promote the long-term sustainability of the country's fisheries industry. Its responsibilities include allocating fishing rights, establishing sustainable limits for Total Allowable Catch (TAC) and Total Allowable Effort (TAE), and developing and revising Operational Management Procedures (OMPs) designed to address changes in fish populations.

2.2 Fish and fisheries in the area of interest

Both the small pelagic fisheries and the hake fisheries operate south of Boegoebaai, with the demersal hake longline, large pelagic longline and demersal trawl fisheries operating further offshore. Figure 3 shows the fishing intensity in the EEZ of South Africa for selected fisheries (i.e., trawl, hake longline, small pelagics, pelagic longline, tuna pole, linefish, net fish, kelp harvesting, West Coast Rock Lobster) important to the area of interest, along the west and south western coasts.

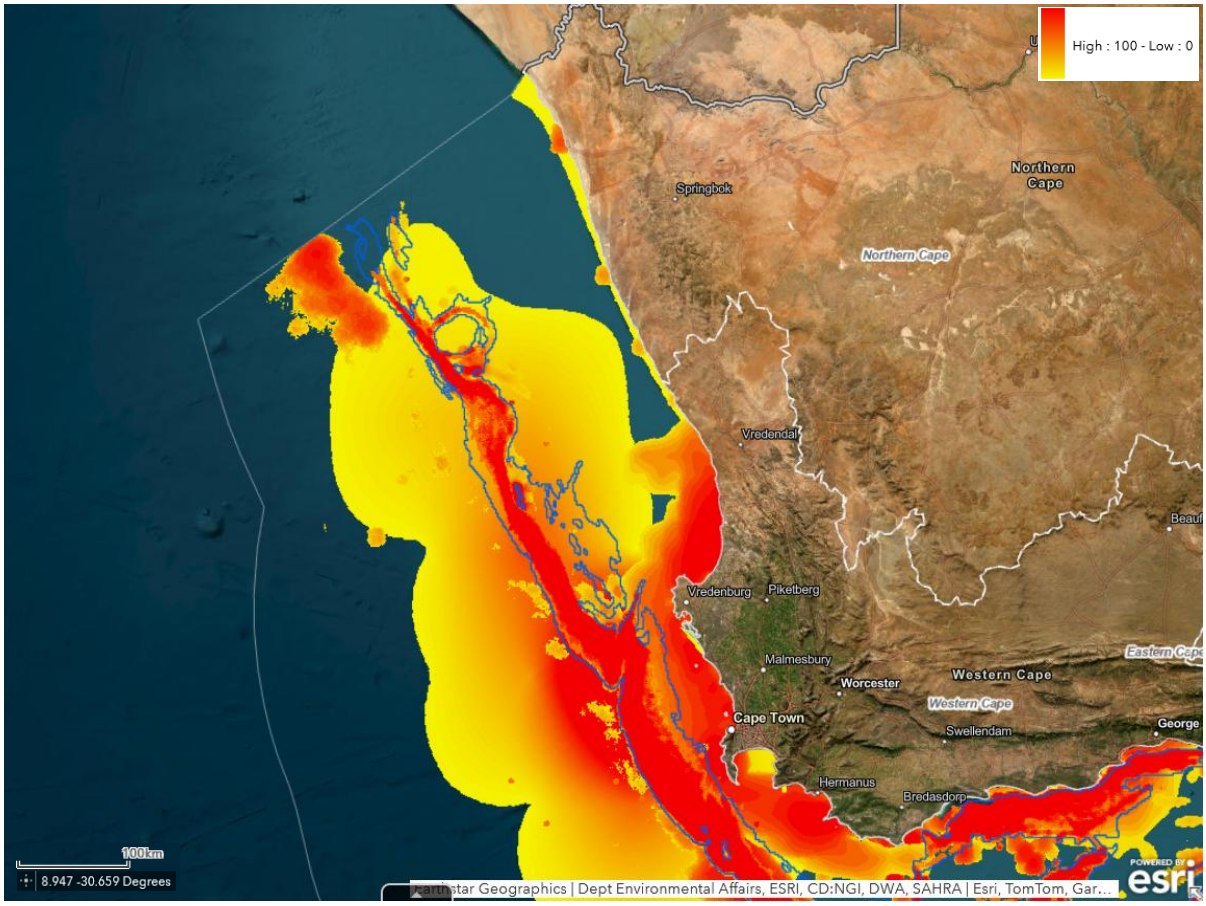

Figure 3. Fishing intensity of fisheries (trawl, hake longline, small pelagics, pelagic longline, tuna pole, linefish, net fish, kelp harvesting, West Coast Rock Lobster) with a focus on the west coast of South Africa (extracted from Coastal Viewer (DFFE, 2024))

Importantly, the area between St Helena Bay and the Orange River is an important nursery ground and the main area for recruitment of all small pelagic species on the Southern African coastal shelf (Hutchings *et al.*, 2002; Coetzee *et al.*, 2008). Therefore, the small pelagic fisheries of South Africa may be adversely affected by the development. Thus, the Boegoebaai development may have potential impacts on the pelagic fishing fleet further south. The same caution applies to the commercial hake fisheries as the coastal area around Boegoebaai serves as nursery grounds for these species (Hutchings *et al.*, 2002;

Grüss *et al.*, 2016). The area north of Port Nolloth is also known to have a high average density (kg nautical-mile-2) of shallow water hake (*Merluccius capensis*) (DFFE, 2023a).

2.2.1 Stock distribution, spawning and recruitment of fisheries of interest

Spawning, the process through which fish release and fertilize eggs, is essential for sustaining and replenishing fish populations. Environmental factors such as water temperature, light intensity, and ocean currents significantly influence when and where spawning occurs for many fish species. Recruitment refers to the stage when juvenile fish grow and eventually integrate into the adult population. This developmental phase is crucial in the fish life cycle, as the survival and maturation of juveniles directly affect the overall health and stability of fish populations. The South African coastline is dominated by seasonally variable and sometimes strong currents and most species have evolved highly selective reproductive patterns to ensure that eggs and larvae can enter suitable nursery grounds situated along the coastline. Coastal oceanographic dynamics in southern Africa, including eddies, filaments, retroflections, and offshore Ekman transport, often lead to the dispersal and loss of nutrient-rich shelf waters to the open ocean. These processes create challenges for the retention of planktonic eggs and larvae produced by broadcast spawners, thereby limiting successful spawning outcomes, despite the region's wide shelf edge and productive waters (Fowler and Boyd, 1998; Huggett *et al.*, 1998; Roy and Fréon, 2001, p 200; Hutchings *et al.*, 2002; Sink *et al.*, 2019). Consequently, many fish species in this area have evolved specific reproductive strategies to ensure that larvae remain in or return to coastal nursery grounds.

The inshore waters along South Africa's West coast serve as vital nursery areas for numerous pelagic and demersal fish species. While the central Namibian shelf also functions as a nursery ground, its importance is considered less critical. Additional nursery grounds in South Africa include the Natal Bight on the East Coast and the Agulhas Bank on the South Coast. Each of these nursery areas is closely associated with a corresponding spawning region, as well as mechanisms for transport, recirculation, and nutrient-rich upwelling along the coast or at the shelf edge (Hutchings *et al.*, 2002, 2009).

Figure 4 highlights the main reproductive habitats of southern African fisheries. Species such as hake, sardine, anchovy, and horse mackerel are broadcast spawners that release large quantities of eggs, which are then dispersed by ocean currents (Hutchings *et al.*, 2002). These species primarily spawn on the central and western Agulhas Bank. Coastal upwelling and the north-eastward flow of surface waters create a coastal jet current originating from the Agulhas Bank and extending along the West coast. This current is instrumental in transporting eggs and larvae to nursery areas along the West coast. At Cape Columbine, the jet diverges, forming offshore, alongshore, and inshore flow components (Hutchings *et al.*, 2002, 2009). Importantly, the coast immediately adjacent to the area of interest serve as important nursery grounds for commercially important west coast fisheries (Hutchings *et al.*, 2002, 2009). Any seaward disturbance in this area will likely have a large negative impact on these nursery grounds (L. Shannon, pers. comm.).

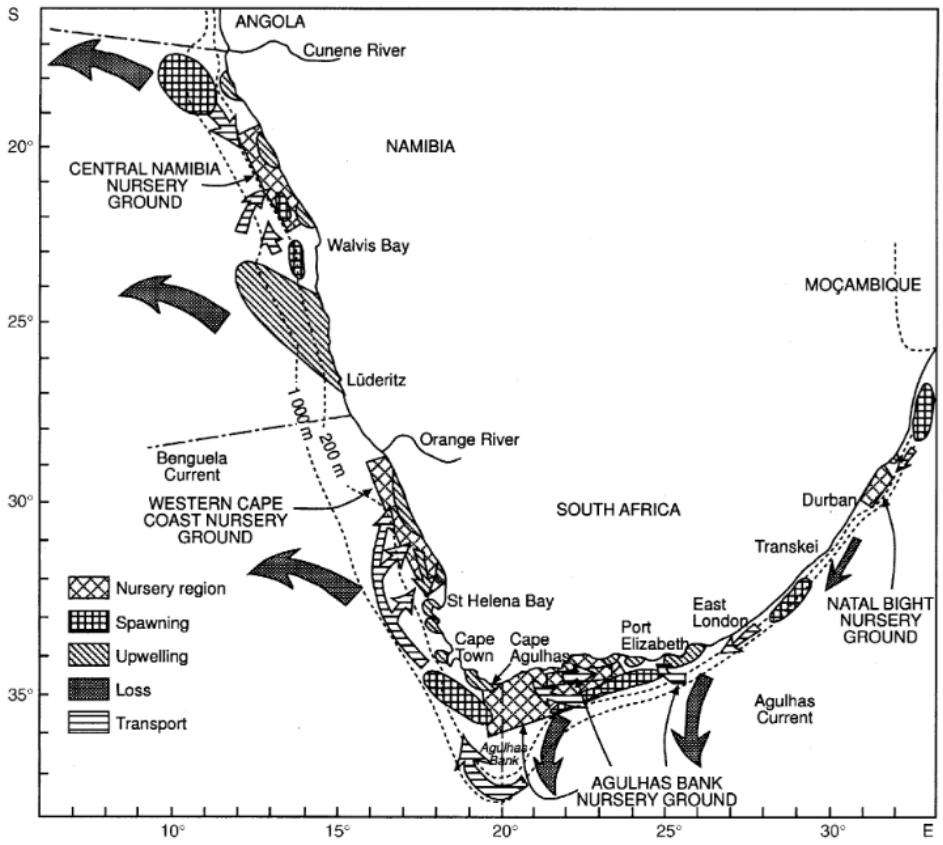

Figure 4. Spawning, transport and nursery grounds for pelagic fish in the southern African region. Pelagic fish use strong convergent flow on the western Agulhas Bank and the jet currents outside the upwelling cells to transport eggs and larvae from the Agulhas Bank spawning grounds to the west coast nursery grounds (Hutchings et al., 2002)

Sardine

Sardines *(Sardinops sagax)* inhabit coastal waters within the 200 m isobath along most of South Africa's coastline. They display a complex population structure, characterized by prolonged spawning periods, diverse reproductive strategies, and various recruitment mechanisms (Mhlongo *et al.*, 2015). Sardine populations in South Africa are thought to consist of multiple groups: those originating from the cool-temperate West coast, the warm-temperate South Coast, and a mixed-origin group (Teske *et al.*, 2021). Sardines from the West coast breed and recruit within that region throughout the year, with peak spawning activity occurring from August to March (McGrath *et al.*, 2020).

Some eggs spawned on the South Coast are carried by coastal currents to nursery grounds on the West coast, where they contribute to recruitment (McGrath *et al.*, 2020). Juvenile sardines originating from the South Coast migrate back to their region to spawn, while juveniles from the West coast move to the South-East Coast between June and November. This seasonal migration is popularly known as the "sardine run" (Sink *et al.*, 2019).

Anchovy

Anchovies (*Engraulis capensis*) share a distribution pattern similar to sardines, mainly occupying the continental shelf. In the southern Benguela system, anchovies migrate from nursery areas to more stable spawning grounds on the Agulhas Bank between July and September. Spawning occurs throughout the Agulhas Bank from October to March, with peak activity during the mid-summer upwelling season (November–December (van der Lingen and Huggett, 2003).

Occasionally, spawning extends to the West coast when warm waters from the Agulhas Bank flow past Cape Point. Since 1994, a noticeable shift in spawning distribution has been observed, with anchovy increasingly favouring the east-central Agulhas Bank (van der Lingen *et al.*, 2001; Roy *et al.*, 2007). Similar

to sardines, coastal jet currents transport anchovy eggs and larvae to West coast nursery areas, where juveniles eventually settle.

Cape Horse Mackerel

Cape horse mackerel (*Trachurus trachurus capensis*) are distributed along the West coast, across the Agulhas Bank, and as far east as Gqeberha, within the 500 m isobath. They spawn intermittently year-round, with two main periods of heightened activity occurring from May to August and October to January (Barange *et al.*, 1998). The South African stock spawns predominantly on the Agulhas Bank, with eggs either remaining inshore on the western Agulhas Bank or transported to nursery grounds on the West coast, where recruitment is most successful. Juveniles are typically found inshore, while adults migrate offshore as they mature, becoming more demersal.

During winter, adult horse mackerel in the West coast region move closer inshore and southward toward the Agulhas Bank for spawning. Horse mackerel form large shoals and exhibit diurnal vertical migration, remaining near the seabed during the day and ascending the water column at night to feed on zooplankton.

Hake

Shallow-water hake (*Merluccius capensis*) and deep-water hake (*Merluccius paradoxus*) are the dominant demersal species in the Benguela Current ecosystem and form the backbone of South African and Namibian fisheries. Both species migrate vertically, inhabiting demersal zones during the day and mid-water at night to feed. Spawning patterns differ between the two, influenced by depth, food availability, and environmental conditions. Hake are serial spawners, reproducing year-round, with peak activity occurring in October/November and March/April (Jansen *et al.*, 2015). Unlike pelagic species, hake eggs and larvae are found in deeper waters, reducing their susceptibility to offshore Ekman transport (Hutchings *et al.*, 2002).

Shallow-water hake are most abundant between depths of 100 m and 450 m, while deep-water hake inhabit depths of 300–1,000 m. Shallow-water hake primarily spawn on the continental shelf in South Africa and Namibia, with significant concentrations reported on the mid-shelf near Cape Columbine and the western Agulhas Bank (Jansen *et al.*, 2015). In Namibia, spawning occurs between 25°S and 20°S, peaking along the shelf break between July and September.

Deep-water hake primarily spawn between the western Agulhas Bank and Elands Bay, with their main nursery ground situated between Hondeklip Bay and the northern tip of the Orange Banks (Strømme *et al.*, 2016). As they mature, fish migrate northward into Namibia before returning south to spawn. Deep-water hake typically spawn at depths of 200–650 m, with eggs distributed between 340–1,500 m (Stenevik *et al.*, 2008). Unlike shallow-water hake, studies suggest that deep-water hake do not spawn in Namibian waters (Kainge *et al.*, 2007; Stenevik *et al.*, 2008; Strømme *et al.*, 2016)

Snoek

Snoek (*Thyrsites atun*) are distributed along South Africa's West and South Coasts, including the Agulhas Bank. They inhabit shallow waters, coastal shelves, and depths up to 500 m, as well as areas near seamounts. Snoek are predators of small pelagic species like anchovy and sardine, exerting a top-down influence on these prey populations and, consequently, on zooplankton dynamics. The species is targeted year-round by traditional linefish and small-scale fishers, with peak activity occurring during their seasonal inshore migration from April to July, colloquially referred to as the "snoek run." During this migration, snoek availability increases due to the recruitment of sardine and anchovy. Additionally, snoek is caught by demersal trawl fisheries in winter when they move further offshore for spawning, and by tuna-pole vessels during periods of low albacore tuna availability.

Spawning occurs along the shelf break at depths of 150–400 m, particularly on the western Agulhas Bank and the West coast, between June and October (Griffiths, 2002). Research indicates behavioural differences between females on the West coast and those on the western Agulhas Bank; West coast females are believed to move inshore to feed between spawning events, whereas females on the Agulhas Bank remain in offshore spawning grounds, likely due to greater prey abundance in that area (Griffiths, 2002).

Ocean currents transport snoek eggs and larvae to nursery areas, with the primary grounds located north of Cape Columbine on the West coast and a secondary area east of Danger Point on the South Coast. Juveniles remain in these nursery grounds until reaching maturity, after which their distribution is influenced by prey availability.

Large Pelagic Species

Large pelagic species, such as albacore tuna (*Thunnus alalunga*), yellowfin tuna (*Thunnus albacares*), bigeye tuna (*Thunnus obesus*), pelagic sharks, and swordfish (*Xiphias gladius*), are widely distributed along the offshore waters of South Africa. Albacore tuna are primarily targeted by the tuna-pole fishery, whereas bigeye and yellowfin tuna are key species for the longline fishery. The availability of these species varies seasonally, influencing catch volumes. For instance, the tuna-pole fishery experiences peak availability of albacore tuna from late summer to early autumn.

- **Albacore tuna** prefer subtropical waters with temperatures ranging between 16°C and 20°C, though their distribution varies based on life stage. Spawning occurs in equatorial regions where water temperatures exceed 24°C (Manning, 1998). Significant aggregations of albacore tuna are observed near the Tripp Seamount, located approximately 10 km south of the license block, which is a high-catch area for this species.

- **Bigeye tuna** spawn in the east-central Atlantic, north of 5°N, during the warm season when surface water temperatures exceed 24°C, as well as in the Gulf of Guinea (Manning, 1998).

- **Yellowfin tuna** are found between 10°S and 40°S in the South Atlantic. Spawning occurs in the central Atlantic near Brazil during the austral summer (Penney *et al.*, 1992). Juvenile and immature yellowfin tuna are present in the Benguela system year-round. Once mature, they migrate from southern African feeding grounds to spawning areas in the central Atlantic during summer (Crawford *et al.*, 1987).

- **Longfin tuna** availability increases during the summer upwelling season, coinciding with greater biological activity and the abundance of prey such as sardines and anchovies.

- **Swordfish** spawn in warm tropical and subtropical waters but migrate to cooler temperate zones during summer and autumn.

Weather plays a critical role in the operations of tuna fisheries, particularly the tuna-pole and longline sectors. Despite relatively low catch volumes along the West coast of South Africa, the high market value of tuna compensates for the limited availability in these regions (Manning, 1998).

2.2.2 Fishery sectors potentially impacted by the proposed development

Based on the 2018 fishing rights register (DEFF, 2018), Port Nolloth was allocated the following fishing rights: Hake longline, Hake handline, Hake deep-sea trawl, netfish, small pelagics, linefish, west coast rock lobster (WCRL) nearshore, WCRL commercial, and a fish processing facility. In Kleinzee, seaweed harvesting rights were allocated to rightsholders, and in Hondeklipbaai, linefish and WCRL nearshore rights were assigned to rightsholders. Additionally, there is an abalone aquaculture facility in Kleinzee.

Small Pelagic Purse Seine

South Africa's small pelagic purse seine fishery is the largest by volume and ranks as the second most valuable fishery after the demersal trawl sector. This fishery primarily targets sardines and anchovies, which together constitute about 80% of the annual catch. Some rights holders also focus on round herring (redeye) (*Etrumeus whiteheadi*). Additionally, there is incidental bycatch that includes chub mackerel (*Scomber japonicus*) and juvenile horse mackerel. Figure 5 shows the intensity of small pelagic catches in South Africa for 2000-2016.

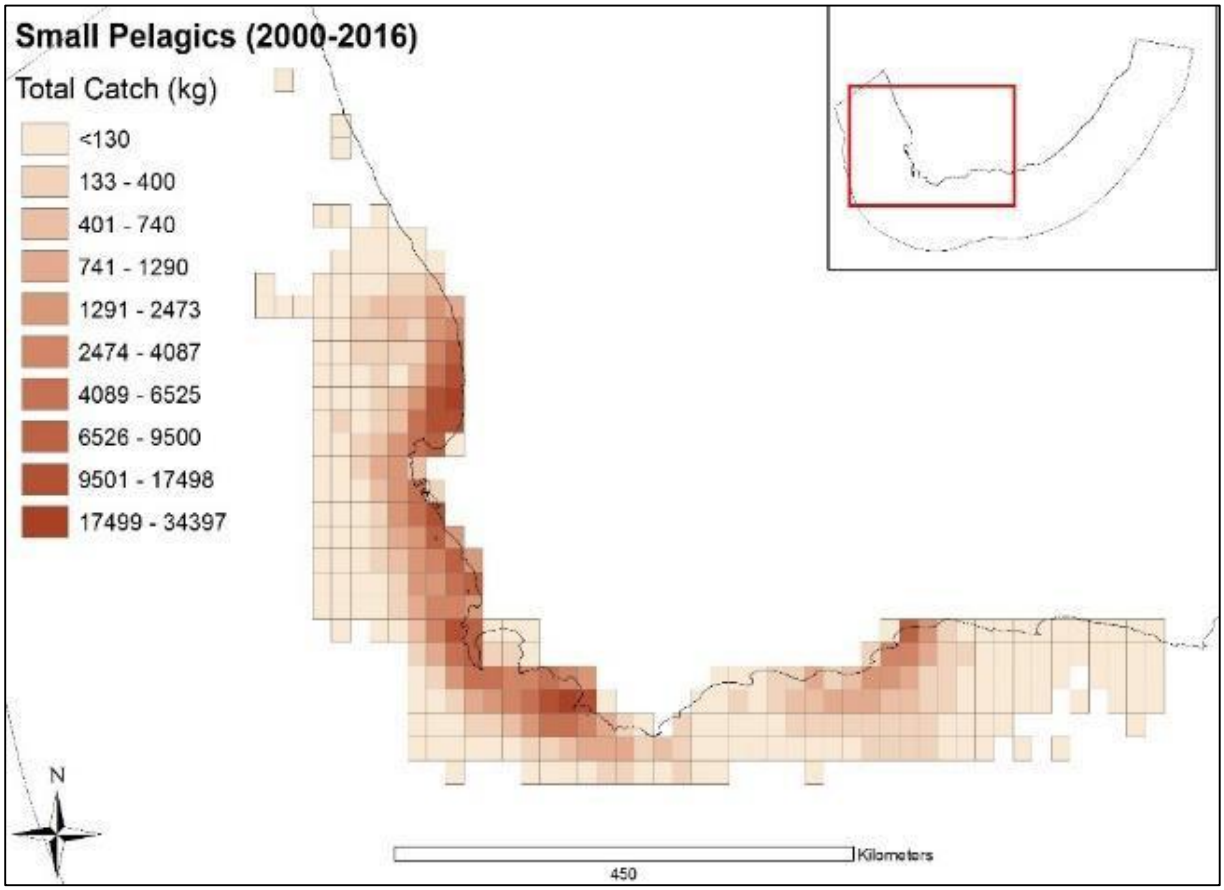

Figure 5. Map of intensity of small pelagic fishery reflecting total catch for period 2000-2016 (Sink et al., 2019)

These species naturally undergo significant fluctuations in abundance and distribution due to environmental variability associated with upwelling, even in the absence of fishing pressures. Long-term shifts in the relative abundance of anchovy and sardine have been observed both locally and globally over decadal and centennial timescales (van der Lingen, 2021; DFFE, 2023a). However, the abundance of sardine has mostly remained below the long-term average and Exceptional Circumstances were declared in December 2018 (Coetzee *et al.*, 2022). From 2016 to 2019, the total combined catch of anchovy, sardine, and round herring landed by the pelagic fishery declined by 45%, dropping from 396,000 tonnes to just 217,000 tonnes. This decrease was primarily due to a substantial reduction in anchovy catches. However, in 2020, anchovy catches rebounded to 285,000 tonnes, elevating the total combined catch of small pelagic fish above the long-term average. Despite setting high TACs for 2021 and 2022, anchovy catches remained low during these years. The average combined catch between 2017 and 2022 was 288,000 tonnes, approximately 45,000 tonnes less than the long-term annual average of 333,000 tonnes recorded from 1949 to 2022 (see Figure 6) (DFFE, 2023a).

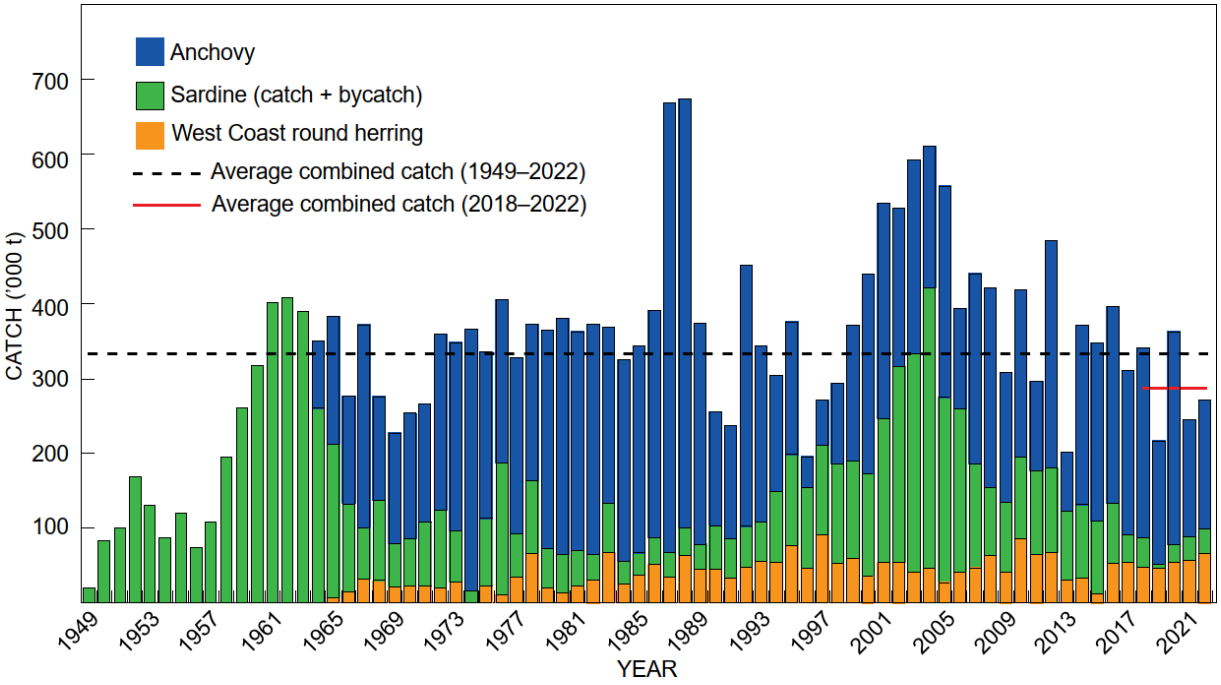

Figure 6. The annual combined catches of anchovy, sardine and round herring by the small pelagic fishery from 1949 to 2022. Also shown is the long-term average combined annual catch (black dashed line) and for the past five years (2018–2022; red solid line) (DFFE, 2023a)

At present, the South African sardine population is considered depleted, with recent pelagic surveys indicating very low biomass estimates. While the 2022 survey showed some signs of recovery, the population remains below the long-term average. In contrast, anchovy and round herring populations are abundant, although the anchovy biomass is significantly lower compared to the peak years of the early 2000s (van der Lingen *et al.*, 2001; DFFE, 2023a).

The fishing fleet comprises approximately 100 vessels ranging from 11 metres to 48 metres in length (McGrath, 2024). Most of these vessels operate along the West and South-West coasts, specifically from St Helena Bay, Laaiplek, Saldanha Bay, and Hout Bay, with a smaller number operating from South Coast harbours such as Gansbaai, Mossel Bay, and Gqeberha. The locations of these ports correspond with the sites of canning factories and fish reduction plants along the coastline.

The sardine-directed fleet concentrates its efforts in a broad area stretching from Lambert's Bay, moving south past Saldanha and Cape Town towards Cape Point, and then eastwards along the coast to Mossel Bay and Gqeberha. The anchovy-directed fishery mainly operates along the South-West coast, from Lambert's Bay to Kleinbaai (near Gansbaai). The intensity of this fishery depends on fish availability and is most active between March and September.

Round herring, a species regulated by a Precautionary Upper Catch Limit (PUCL), is being increasingly targeted in recent years, particularly from January to March, and is distributed from Lambert's Bay to areas south of Cape Point. This fishery can extend further offshore than those focused on sardines and anchovies. Operating throughout the year, the fishery sees increased effort during the winter months and observes a brief seasonal break from mid-December to mid-January. Fishing activities are concentrated inshore, up to a maximum distance of about 100 kilometres from the coast.

While this fishery does not operate within the immediate area of the proposed port development, there is a spatial overlap between the proposed site for the Boegoebaai harbour and support areas for the small pelagic fishery (Hutchings *et al.*, 2002; Grüss *et al.*, 2016). Therefore, the Boegoebaai harbour can potentially harm fisheries by reducing small pelagic stock thereby reducing catch and/or catch per unit effort, increasing costs and decreasing profit for fishing companies. This could have serious implications for coastal communities of South Africa reliant on fish resources, as this will impact businesses and communities involved in fisheries along the entire west coast, from Port Nolloth to Cape Town.

Demersal Trawl

South Africa's demersal trawl fishery is the country's most valuable, accounting for approximately half of the revenue from all commercial fisheries. This fishery is divided into an offshore sector targeting deep-water hake and an inshore sector focusing on shallow-water hake and Agulhas sole (*Austroglossus pectoralis*). By-catch species include various demersal fish, with monkfish (*Lophius vomerinus*), kingklip (*Genypterus capensis*), and snoek being the most commercially significant. Collectively, the inshore and offshore demersal trawl sectors generate catches exceeding R5.2 billion annually (DFFE, 2023a).

The Department of Forestry, Fisheries and the Environment (DFFE) sets a global TAC for both hake species, applied collectively to all hake-directed sectors (DFFE, 2021). Over 80% of this TAC is allocated to the offshore demersal trawl fishery, with the remainder distributed among the inshore trawl fishery, demersal longline, and hake handline sectors. A small portion is deducted to account for incidental hake by-catch in the midwater trawl fishery targeting horse mackerel (see Section 3.3.2). For 2024, the hake TAC has been set at 145,700 tonnes, with PUCL for monkfish and kingklip (significant by-catch species) of 7,875 and 3,733 tonnes, respectively.

The offshore demersal trawl fishery is confined to a designated area known as the "hake trawl ring fence." Established in 2005, this ring fence restricts vessels to regions already impacted by trawling, preventing the expansion of the seabed trawling footprint. Additionally, these vessels are prohibited from operating in waters shallower than 110 metres or within 5 nautical miles of the coast, whichever distance is greater. In contrast, vessels licensed for the inshore fishery on the South Coast typically trawl in waters shallower than 110 metres, though they are not restricted from operating in deeper waters. The ring fence was one of the measures implemented to support the fishery's Marine Stewardship Council (MSC) sustainability certification, first attained in 2004 and successfully renewed twice.

The offshore demersal trawl fleet comprises 61 trawlers (SADSTIA, pers. comm.), including fresh fish trawlers—commonly known as wetfish trawlers—that preserve hake on ice before returning to shore for processing, and freezer vessels that produce frozen headed and gutted hake or sea-frozen fillets. Wetfish vessels range from 24 to 56 metres in length, while freezer vessels are typically larger, ranging from 30 to 90 metres. Freezer vessels can operate in an area for up to a month, whereas wetfish vessels usually remain for about a week before returning to port. These vessels operate from major harbours such as Saldanha Bay, Cape Town, and Gqeberha.

The fishing grounds form an almost continuous band along the shelf edge of the West and South Coasts, between depths of 200 and 1,000 metres, with most effort off the West Coast concentrated between 300 and 800 metres (see Figure 7). Trawl nets are generally towed along depth contours, maintaining a relatively constant depth and running parallel to these contours in a north-westerly or south-easterly direction. Additionally, trawlers target fish aggregations around bathymetric features—particularly seamounts and canyons where there is an increase in seafloor slope—following the depth contours in these areas as well.

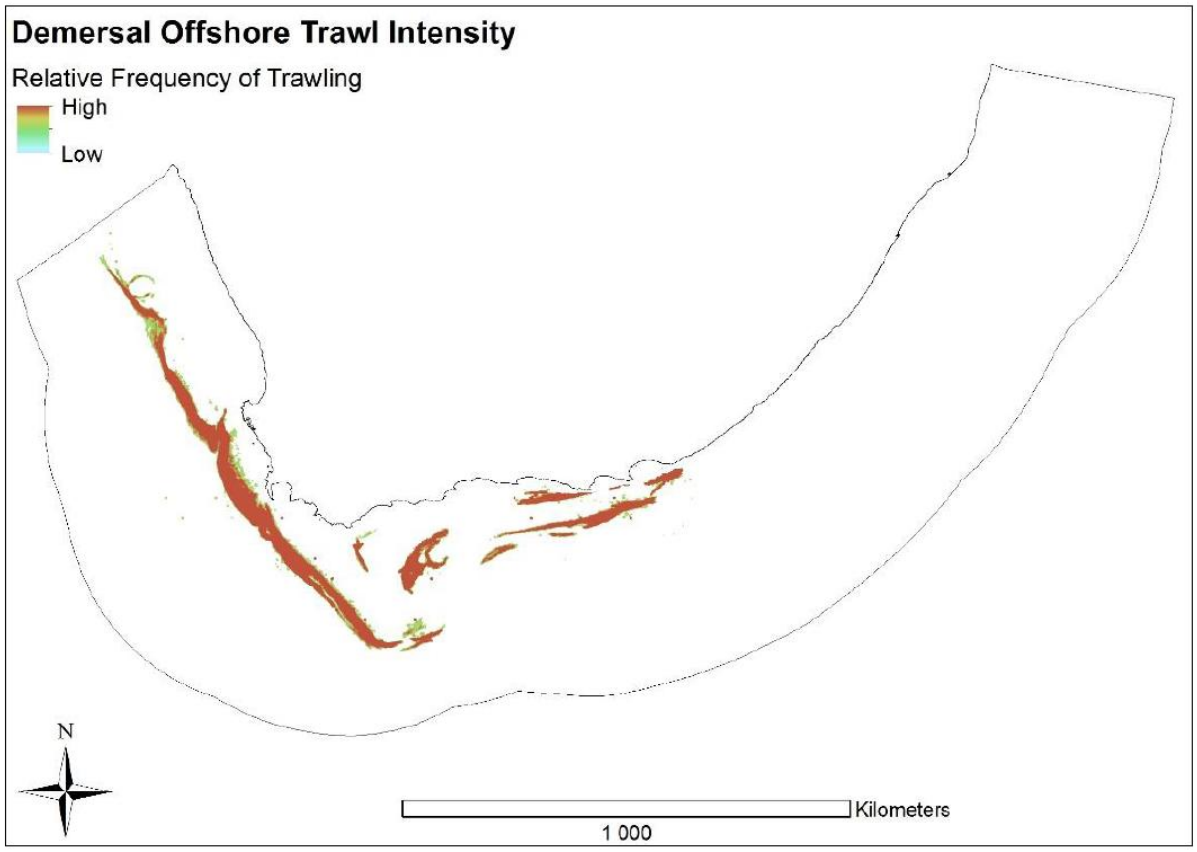

Figure 7. Map illustrating scaled pressure values to reflect fishing effort using frequency of trawling for the offshore demersal trawl sector in South Africa for period 2000-2016 (Sink et al., 2019)

The inshore fishery consists of 26 vessels operating mainly from the harbours of Mossel Bay and Gqeberha on the South Coast (McGrath, 2024). These vessels are smaller and less powerful than those in the offshore trawl fishery, ranging from 14 to 36 metres in length. The inshore fishing grounds are situated on the Agulhas Bank and extend towards the Great Kei River in the east. Vessels target sole close inshore between Struisbaai and Mossel Bay, at depths of 50 to 80 metres. Hake is targeted further offshore in traditional grounds between 100 and 200 metres depth, particularly in an area known as the Blues on the Agulhas Bank.

Hake Demersal Longline

The demersal longline fishery targets bottom-dwelling species, chiefly Cape hakes (both shallow-water and deep-water species), with kingklip frequently caught as bycatch. Fishing operations occur along the West and South-East Coasts, in areas similar to those used by the demersal trawl fishery. As with the offshore trawl sector, vessels are prohibited from operating in waters shallower than 110 metres or within 5 nautical miles of the coastline. An area offshore of Gqeberha, known as the "kingklip box," is closed to fishing from September to November to protect spawning aggregations of kingklip. The hake longline fishery typically accounts for between 5% and 6% of the annual total hake catch, with most catches over the past five years occurring on the West Coast (DFFE, 2021).

Currently, the fishery comprises 109 rights holders who collectively operate between 40 and 50 vessels. The majority of these are wetfish vessels, which remain at sea for approximately six days before returning to port, with their catch preserved on ice. Vessels operate from all major harbours, including Cape Town, Hout Bay, Mossel Bay, and Gqeberha. Secondary deployment points include St Helena Bay, Saldanha Bay, Hermanus, Gansbaai, Plettenberg Bay, and Cape St Francis. Vessels based in Cape Town and Hout Bay operate almost exclusively on the West Coast (west of 20° E).

i) Linefish

Linefishing, which involves capturing fish using hook and line, boasts a long history in South Africa dating back to the 1500s (DAFF, 2016). Key species targeted on the West coast include snoek, yellowtail (*Seriola lalandi*), Cape bream (*Pachymetopon blochii*), geelbek (*Atractoscion aequidens*), and dusky kob (*Argyrosomus japonicus*). These species possess varied life-histories which can make them vulnerable to overexploitation. Effort in linefishing along the Cape increased substantially during the 20th century, peaking during the 1980s and 1990s. This growth was driven by expanded fishing ranges, technological advancements, and the emergence of other fishing sectors. Overfishing of many stocks led to a linefish emergency being declared in 2000 which resulted in restrictions on both effort and target species (DFFE, 2023a). The traditional linefish fishery, also referred to as the commercial linefish fishery, ranks as the third most important fishery in South Africa in terms of both landed tonnage and economic contribution. The value of this fishery was estimated at R105.5 million in 2022 (McGrath, 2024)

The sector is regulated through a TAE allocating rights for boats. Since 2006, the TAE has been capped at 455 vessels across three management zones: Zone A (Port Nolloth to Cape Infanta), Zone B (Cape Infanta to Port St. Johns), and Zone C (KwaZulu-Natal) (DFFE, 2023b). Most of the national catch is attributed to Zone A's commercial fishery. Following the 2022 Fishing Rights Allocation Process (FRAP), 281 vessels in Zone A were allocated to the commercial linefishery, leaving 59 vessels allocated to the small-scale sector (DFFE, 2023b).

A significant proportion of small-scale fishers in South Africa target linefish. In line with the Small-scale fisheries policy, 172 small-scale fishing cooperatives were formed and granted 15-year fishing rights in the Western Cape, Northern Cape, Eastern Cape, and KwaZulu-Natal provinces. Many of the species included in the small-scale fishing basket overlap with those targeted by commercial and recreational linefish sectors, potentially increasing pressure on these stocks.

Linefishing occurs throughout the year, but catches are seasonal. The availability of species such as snoek and yellowtail inshore influence their annual catch, resulting in significant variability. Inter-fishery competition exists for these species, which are also harvested by the tuna pole fishery (snoek and yellowtail), the trawl fishery (snoek), and the beach seine-net fishery (yellowtail).

The linefishery is entirely boat-based, utilising vessels ranging from 4.5 m to 11 m in length. These boats are classified by operational categories, with offshore ranges restricted to a maximum of 40 nautical miles (75 km). However, most fishing activity takes place within 15 km of the coastline. Figure 8 shows the intensity of commercial linefishing in South Africa for 2000-2016.

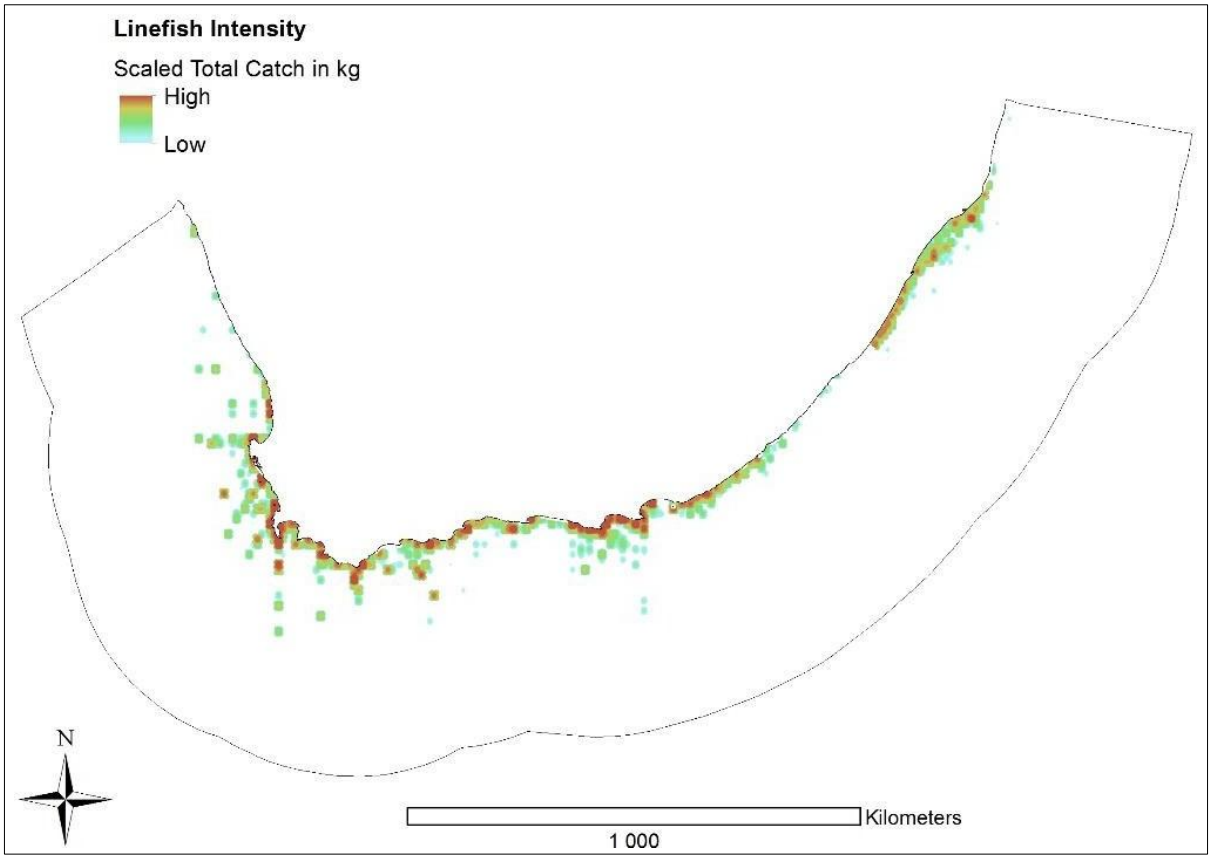

Figure 8. Map of intensity of commercial linefishing in South Africa for period 2000-2016, displayed as scaled total catch in kilograms (Sink et al., 2019)

The main linefish species targeted in the northern cape is snoek with possibly also Cape seabream, geelbek, kob and yellowtail (Japp and Wilkinson, 2021). Linefish fisheries operate inshore near small harbours. In the study area the fisheries operate from Port Nolloth to Hondeklipbaai (Capmarine, 2017). The snoek fishery is seasonal and during the off seasons fishers may target other species such as WCRL (Isaacs, 2013).

West coast rock lobster (WCRL)

The West coast rock lobster (*Jasus lalandii*) fishery is an essential component of South Africa's fishing industry, valued both for its significant market demand and for the livelihoods it supports in coastal communities. The WCRL fishery is commercially the third most valuable fishery in South Africa due to its high market value (more than R500 million per annum) and its importance in providing direct and indirect employment to ~4 300 sea- and land-based jobs. It is especially important for impoverished communities along the entire West coast (Eggers *et al.*, 2022; DFFE, 2023a).

Despite its importance, the resource is critically overexploited and heavily depleted, facing significant pressure from both legal and illegal (poaching) activities (DFFE, 2023a). For the 2023/24 fishing season, the TAC was reduced by 16.43% from the previous season, amounting to 460 tons. Management of the resource is geographically structured, with TACs determined annually for specific management zones. The TAC is further divided into five distinct subsectors: commercial offshore, commercial nearshore, recreational, small-scale nearshore (including subsistence), and small-scale offshore (see Figure 9). Both the commercial and small-scale sectors are permitted to fish for four months in each management zone, with closed seasons imposed on a zone-by-zone basis. Due to differences in stock abundances and fishing pressures, WCRL is managed in five (5) super areas that consist of 14 different fishing areas within six zones. The proposed development falls within management area zone A area 1.

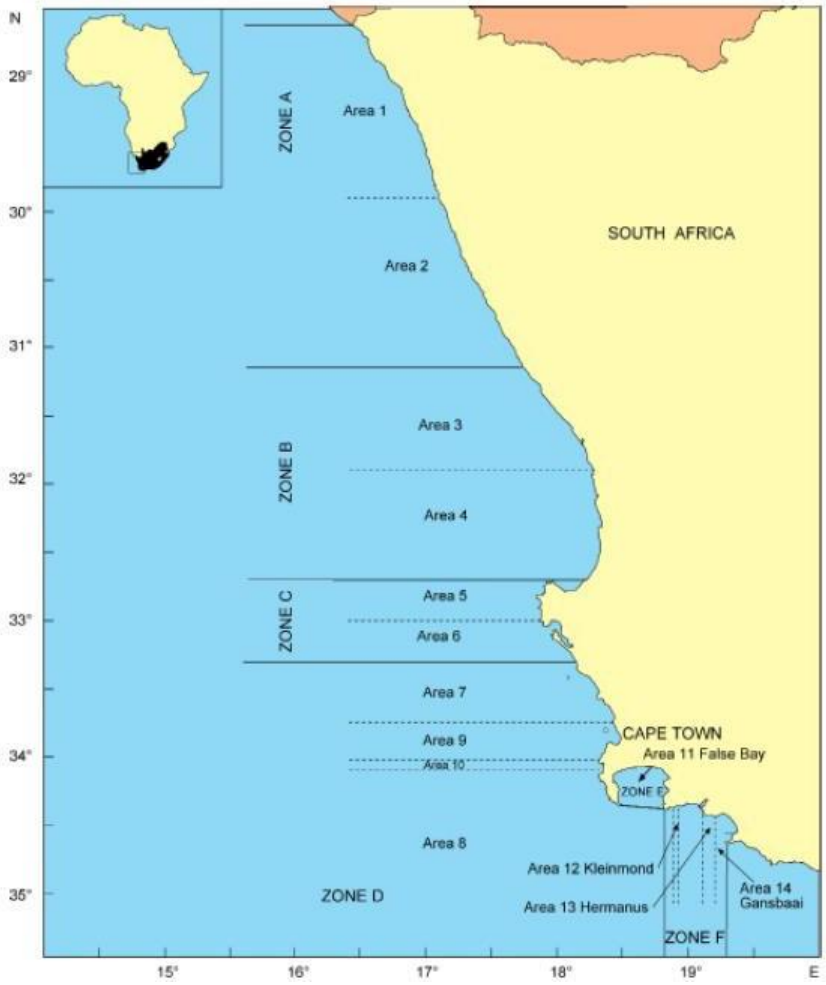

Figure 9. Map of fishing areas for West coast Rock Lobster (DAFF, 2016)

The commercial offshore sector operates at depths ranging from 30 m to 100 m, utilising traps made from rectangular metal frames covered with netting. These traps are typically deployed at dusk and retrieved early the next morning, with approximately 138 vessels participating in this sector. The commercial nearshore sector employs hoop nets to capture lobsters in specific reef areas located at depths of 15–30 m. Figure 10 shows the fishing effort using the total annual catch per square kilometre.

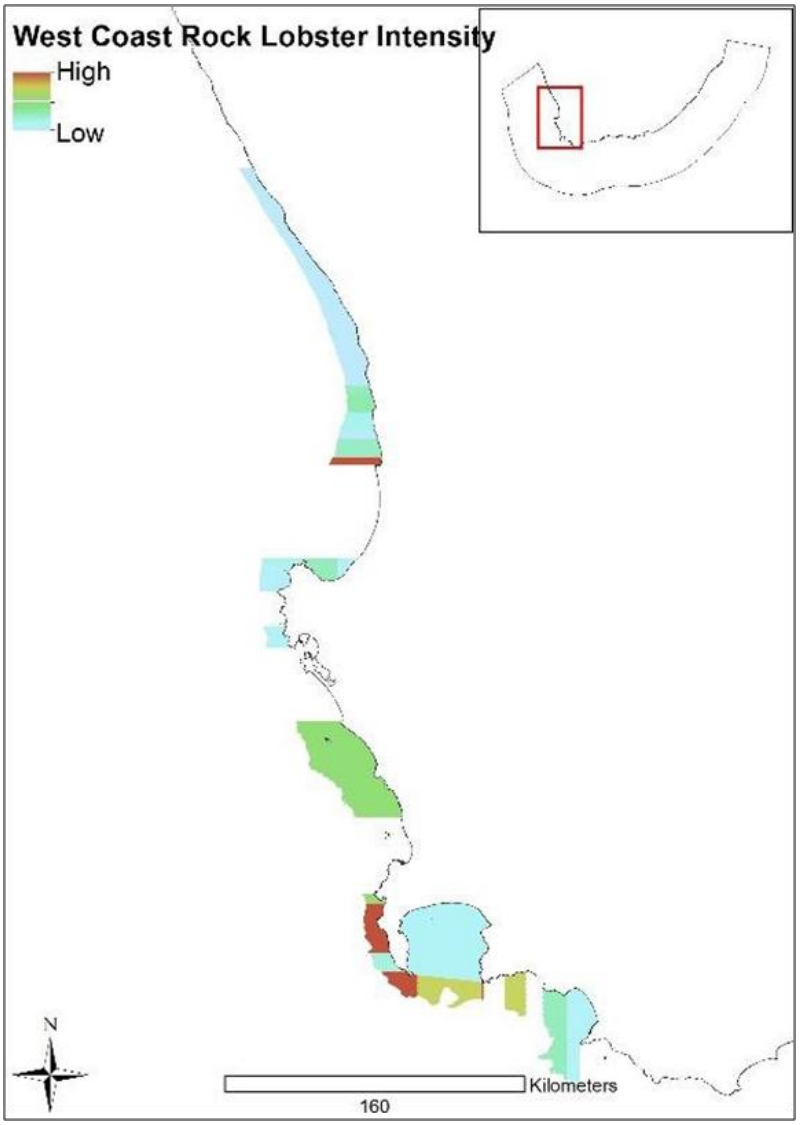

Figure 10. Map of West coast Rock Lobster fishing effort using the annual average total catch per square kilometre (Sink et al., 2019)

Most of these boats operate within a few nautical miles of the harbours, with only 30% of them being deployed from larger deck boats. As a result, WCRL fishing tends to be concentrated close to the shore, within a few nautical miles of Port Nolloth and Hondeklipbaai (Capmarine, 2017). WCRL fishing operates from just south of Alexander Bay to just north of Kleinzee and thus overlaps with almost the entire Northern Cape coastline (Capmarine, 2017).

Tuna pole fishery

The South African tuna pole fishery targets juvenile and sub-adult albacore tuna (*Thunnus alalunga*), also known as southern Atlantic longfin tuna. Other species caught include yellowfin tuna (*Thunnus albacares*), bigeye tuna (*Thunnus obesus*), and skipjack tuna (*Katsuwonus pelamis*). The fishery largely operates off the west coast of South Africa from just south of Alexander Bay (particularly between 29° and 32°S), on the shelf break and beyond the 200m isobath. Most vessels are between 10 and 20 metres in length and lack freezing facilities, so fishing trips usually last up to a week. Larger vessels equipped with freezers can remain at sea for longer periods—over three weeks—and reach more distant fishing grounds. This fishery is seasonal, with vessels operating mainly from November to May, and peak catches occurring between November and January.

Due to the seasonal availability of tuna in South African waters, the tuna pole fishery opportunistically supplements its catches with snoek and yellowtail from inshore waters shallower than 100 metres. The yellowtail catch is regulated by a bag limit of 10 fish per person per trip, and all non-tuna species are designated as bycatch (DFFE, 2023a). Unlike the pelagic longline fishery, tuna pole vessels are prohibited from retaining any incidental catches of swordfish, billfish, or sharks.

Initially managed under the linefishery, this sector has been recognised as a separate fishery since 2003. The DFFE manages it through a TAE system. Following the most recent Fishing Rights Allocation Process (FRAP 2021/22), 150 vessels have been allocated fishing rights for 15 years (DFFE, 2023a). South Africa's membership in three tuna-focused Regional Fisheries Management Organisations (RFMOs) ensures that this fishery complies with their conservation and management measures.

The active fleet consists of approximately 90 vessels based in the ports of Cape Town, Hout Bay, and Saldanha Bay. No tuna pole rightsholders are registered in the Northern Cape, although some fishing does take place in the area of interest (see Figure 11). These vessels typically operate within a 100 nautical mile (185 km) radius of these locations, concentrating effort in the Cape Canyon area (south-west of Cape Point) and along the West coast up to the Namibian border.

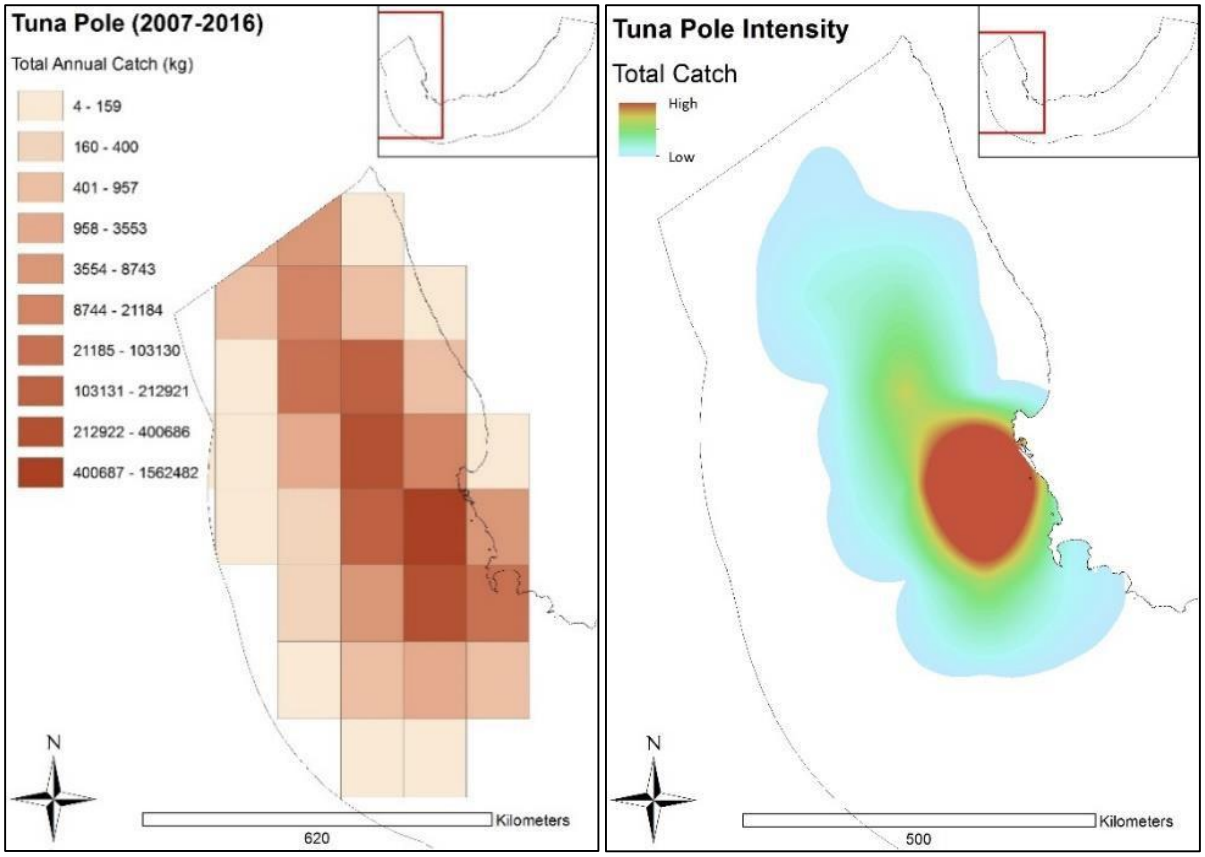

Figure 11. Maps of tuna pole intensity using annual average catch on a one-degree grid (left), and the scaled tuna pole intensity used in the assessment (right) (Sink et al., 2019)

Netfish

Netfishing in South Africa comprises two sectors: beach seining and gillnet fishing (see Figure 12). Beach seine fishing dates back to the mid-1600s and was initially primarily focused on large linefish species. While these activities employ very different fishing methods, they overlap in fishing areas and target species. Fishing rights were issued for 28 beach-seine and 162 gillnet right holders operating on the west coast from Port Nolloth to False Bay, with this area divided into 15 defined zones (DFFE, 2023a). This fishery is regulated through a TAE system, which allocates a fixed number of operators across 15 management zones.

Beach-seining is a labour-intensive fishing method where crews use woven nylon nets to encircle shoals of fish in the surf zone. These nets are then pulled to shore by teams of 6 to 30 individuals, depending on the size of the net and the length of the haul. Net sizes vary from 120 to 275 m in length and are limited to a maximum depth of 10 m.

The gillnet fishery operates along the West coast from Yzerfontein to Port Nolloth. Surface-set gillnets, used to catch mullet, are restricted to dimensions of 75 m in length and 5 m in depth. Bottom-set gillnets, targeting St Joseph sharks, are smaller, with dimensions of 75 m in length and 2.5 m in depth (da Silva *et al.*, 2015). Both types are deployed in shallow waters, at depths of less than 50 m. Figure 12. Map of gillnet (left) and beach seine (right) fishing effort illustrated using the average number of permits per square kilometre (Sink et al., 2019) shows the intensity of effort in both Beach Seine and Gillnet fisheries using the average number of permits per square kilometre.

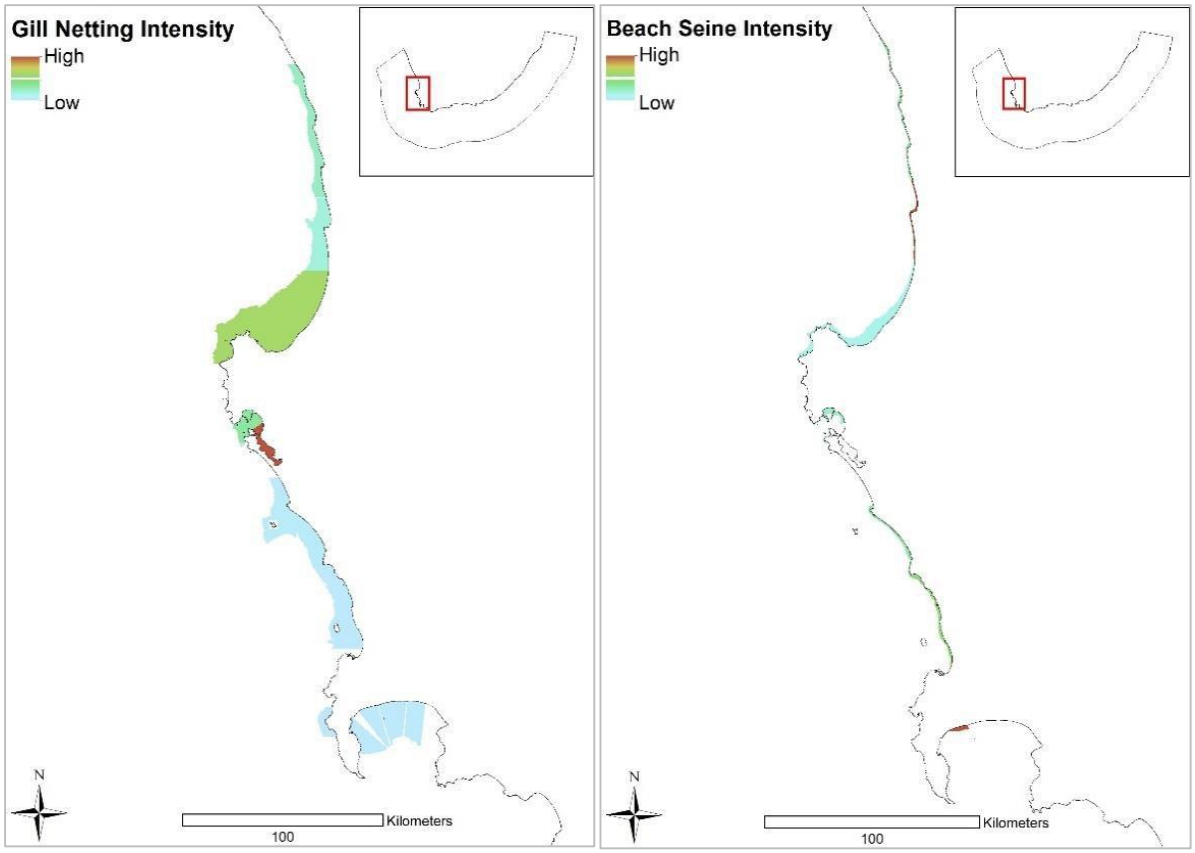

Figure 12. Map of gillnet (left) and beach seine (right) fishing effort illustrated using the average number of permits per square kilometre (Sink et al., 2019)

The main target species for the netfishery in the northern Cape are harders (*Chelon richardsonii*), St Joseph (*Callorhynchus capensis*) and species that appear on the 'bait list0F[3]'. Netfish falls within the small-scale fishery allocation, along with the hake handline, WCRL nearshore and linefish fisheries.

Small-scale fisheries

In South Africa, "small-scale fishing" refers to a variety of fishing activities that rely on low-technology, labour-intensive practices, often involving manually operated artisanal gear. The sector involves various methods targeting more than 30 species (Griffiths and Branch, 1997) across a range of habitats (Branch *et al.*, 2002; Clark *et al.*, 2002). In 2002, the sector was estimated at approximately 30 000 participants (Clark *et al.*, 2002). On the West coast, boat-based harvesting of near-shore subtidal species such as linefish and WCRL is the main activity (Clark *et al.*, 2002). There is significant overlap between small-scale

[3] The following species are classified as bait species according to the DFFE: *Lisa richardsonii*, *Callorhinchus capensis*, as well as *Trachurus trachurus capensis* and may be targeted by the netfishery.

fishing and other sectors, including recreational and commercial fisheries. On the West and South Coasts, communities typically use motorised vessels to gather nearshore resources, whereas intertidal subsistence activities dominate on the East Coast (Clark *et al.*, 2002).

Small Scale Fishers were not defined or provided for in the post-Apartheid fisheries policy framework (Marine Living Resources Act No 18 of 1998; MLRA), leading to more than a decade's legal wrangling to recognise and provide for the sector (Sowman and Sunde, 2021). Legal recognition was achieved through the gazetting of the Small-scale Fisheries Policy (Act No 474 of 2012) and the ensuing MLRA amendment (RSA, 2014).

Official recognition of the sector came with the establishment of fishing cooperatives across the four coastal provinces, a process completed in November 2023. The sector is governed through a community-based co-management system, involving these cooperatives. One of the primary goals of the small-scale fisheries framework is to provide redress for historically disadvantaged fishing communities affected by political, economic, or industrial developments in larger-scale fisheries. Applicants for small-scale fishing rights must demonstrate historical involvement in traditional fishing and a reliance on such activities for their primary livelihood. Key challenges in implementing the policy include overlaps with existing fisheries, stock assessments, catch monitoring, and ensuring compliance with regulations (DFFE, 2023a).

Two community cooperatives, comprising 103 fishers, were successfully established in the Northern Cape - the Aukotowa primary cooperative in Port Nolloth and the Longtime Hondeklipbaai fishing cooperative in Hondeklipbaai, and were awarded 15-year fishing rights. Similarly, 62 cooperatives in the Western Cape, encompassing 3,850 fishers, received 15-year rights.

The small-scale fisheries framework adopts a multi-species approach to allocating rights, granting access to a basket of species within designated areas. Cooperatives are restricted to species present in their local vicinity. Basket Area A stretching from the Namibian border to Cape of Good Hope, has 61 species (see Figure 13). When cooperatives target commercial species, their efforts and catches are regulated within the TAE and TAC limits for those species. For example, 77 linefish vessels were allocated to the small-scale sector from the total TAE of 455 vessels under the 2021/22 traditional commercial linefish allocation (DFFE, 2023a).

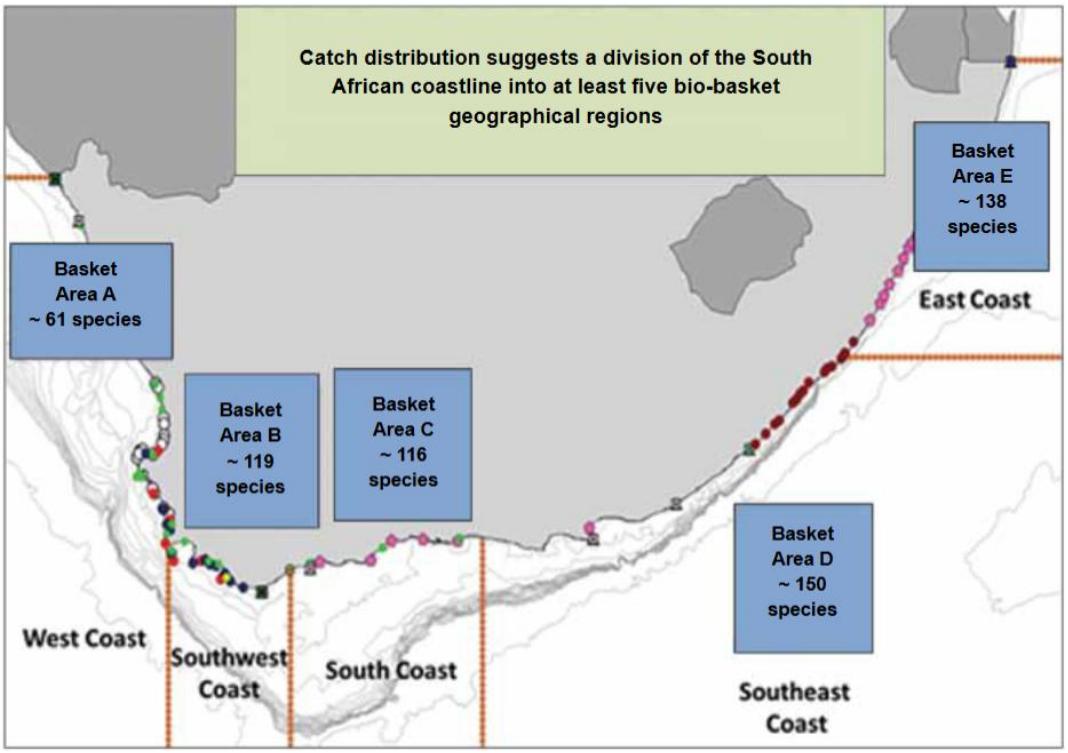

Figure 13. The number of species available to small-scale fishers in each of five Basket Areas on the South African coast. The coloured dots show the locations of identified small-scale fishing communities (DFFE, 2023a)

In the Northern Cape and Western Cape, small-scale fishers primarily engage in traditional linefishing, WCRL, and abalone fisheries. Nearshore species targeted by small-scale fishers on the West and South-West coasts include snoek, Cape bream, and yellowtail. Snoek, in particular, is a primary target during its seasonal migration from April to June, when it forms nearshore shoals and can be caught using handlines. Fishers also utilise hoop nets from small "bakkies[4]" to harvest WCRL on reefs at depths of less than 30 meters. Larger vessels in the commercial rock lobster fishery target depths of up to 100 meters. Wild abalone harvesting is typically conducted along the West coast at depths of up to 20 meters.

Recreational Fishing

Recreational fishing, defined as non-commercial and not-for-profit activity, is widespread along the coast and varies based on the size of the vessels used. This form of fishing encompasses elements of many commercial fisheries, including species such as linefish, West and East Coast lobsters, squid, abalone, crabs, spearfishing targets, and numerous others. Recreational anglers are required to obtain permits and must comply with restrictions on the quantity they can catch, which are regulated both seasonally and per individual fishing trip. Marine recreational fishers tend to use similar gear and target species as their commercial counterparts. Owing to the lack of catch and effort data for recreational boat-based fishing, the pressure data for the commercial linefishery is used as a proxy for recreational activities. The operation of small recreational or pleasure vessels offshore is constrained by their certification categories.

Aquaculture

There were approximately 44 operational marine aquaculture farms in South Africa in 2021, where the Western Cape Province has most of the marine aquaculture farms accounting for 77% of South African marine farms, followed by the Eastern Cape accounting for 12%, the Northern Cape accounting for 9%, and Kwa-Zulu Natal accounting for 2% (DFFE, 2022). The main marine aquaculture species cultured at commercial scale in South Africa include abalone (*Haliotis midae*), pacific oyster (*Crassostrea gigas*), mussels (*Mytilus galloprovincialis* and *Choromytilus meridionalis*), dusky kob (*Argyrosomus japonicas*), East Coast Rock Lobster (*Panulirus homarus*) and seaweed (*Ulva spp and Gracilaria spp*) (DFFE, 2022). The marine aquaculture industry has seen significant growth in South Africa in recent years – predominately in the Western Cape Province. In the Northern Cape, there were four abalone farms and one oyster facility in 2022. It is important to note that aquaculture has the potential to create more jobs compared to traditional fisheries (Britz *et al.*, 2000).

While abalone cultivation has traditionally been onshore, abalone ranching presents more cost-effective opportunities for production (Troell *et al.*, 2006). Abalone ranching involves stocking hatchery-produced seed into kelp beds outside the natural distribution area of abalone to harvest when grown (Troell *et al.*, 2006). Port Nolloth Sea Farms pioneered abalone ranching in 2000. The practice expanded in the area in 2013 when the then Department of Agriculture, Forestry and Fisheries (DAFF) issued rights for each of the four Concession Area Zones, starting just south of Alexander Bay to south of Kleinzee and overlapping with the Boegoebaai development area (Capmarine, 2017). Furthermore, the introduction of kelp as abalone feed has led to the creation of new job opportunities, with approximately 5000 tons of fresh kelp being harvested annually for abalone feed (Troell *et al.*, 2006; Capmarine, 2017).

Seaweed harvesting

The South African seaweed industry primarily targets kelps (*Ecklonia maxima* and *Laminaria pallida*) and red seaweed (*Gelidium spp.*), with most activities concentrated in the Northern and Western Cape regions. The seaweed industry directly employs around 400 people (Troell *et al.*, 2006; Capmarine, 2017). Harvesting involves collecting beach-cast material as well as cutting fresh kelps (Capmarine, 2017). The coastline stretching from Port Nolloth to Port St. Johns is divided into 23 designated harvesting areas, with 14 commercial seaweed harvesting rights allocated, allowing one right-holder per seaweed type within each area.

The harvesting zones between Doringbaai and Langebaan on the West coast are the most productive, contributing 98.5% of the national kelp harvest between 2000 and 2017. In 2021, the commercial seaweed sector recorded an annual yield of 5,233 tonnes (DFFE, 2023a).

[4] A traditional style of small fishing boat (i.e., two-people boats running on a motor or being rowed) with the colloquial name originating on the west coast of South Africa.

Although the only rights holder for seaweed harvesting in the Northern Cape is in Kleinzee, seaweed is harvested along the entire Northern Cape coast. The total prescribed maximum sustainable yield (MSY), as set out in annual permit conditions, for the Northern Cape (Rights holder zones 13-19) for the 2023/2024 season, is 7246 tons of whole kelp and 3624 tons of kelp fronds. Boegoebaai falls within rights holder zone 19, for which the prescribed MSY is 765 tons of whole kelp and 383 tons of kelp fronds (DFFE, 2023a).

2.3 Summary

Below provides a summary of the seasonality and relative intensity of fishing effort of each of the main commercial fishing sectors that operate off the west coast of South Africa (see Table 7).

Table 7: Seasonality of fishing intensity expended by fisheries operating on the West coast (adapted from McGrath (2024))

Fishery	Targeted Species	Fishing Intensity on the West coast											
Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Small pelagic purse-seine	Sardine, anchovy, round herring	M	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	M
Tuna pole	Albacore, snoek	**H**	**H**	**H**	**H**	**H**	M	M	M	M	M	**H**	**H**
Traditional Linefish	Snoek, Cape bream, geelbek, kob, yellowtail	**H**	M	M	M	M	M	M	M	M	M	M	**H**
West coast rock lobster	West coast rock lobster	M	M	M	M	M	M	M	M	N	M	M	M
Netfish	Mullet, St Joseph shark	M	M	M	**H**	**H**	**H**	M	M	M	M	M	M
Small-scale	Hake, monkfish, kingklip, snoek	M	M	M	M	M	M	M	M	M	M	M	M

Note: Ratings of high (H), low to moderate (M), and none (N) are relative within each row and are not comparable between fisheries.

CHAPTER 3: COMMUNITY PROFILES

3.1 Introduction

A community can be bounded by a shared history, location and/or social, economic and political interests, where most common core definitions of a community emphasize social interactions typically in a shared environment, frequently defined in spatial terms (Colburn *et al.*, 2010). When referring to a more specific group, such as a fishing community, definitions can include themes such as a visible or material connection to the industry and infrastructure elements (e.g., equipment and related businesses); connections between on-land and at-sea networks; the role kinship often plays in the labour process; multiple households and family-level ties to fishing; and a sense of cultural (even spiritual) connection to a specific livelihood occupation (Clay and Olson, 2007). In the South African context, community is a complex concept that occupies a space in the state's regulatory framework, such as in land restitution and land distribution matters (Averweg and Leaning, 2015). It is therefore important to note that there are many nuances in understanding what community means in terms of legal processes and popular understanding (e.g., refer to Box 1), where other interpretations of a community could be reduced and thus dimmish the social lives of those who live in unrecognised communities (Averweg and Leaning, 2015).

BOX 1: UNPACKING THE COMPLEXITIES OF SOUTH AFRICAN FISHING COMMUNITIES

The complexities of defining a fishing community in a South African context are highlighted through the evolution of policy for managing marine fisheries, largely due to historical policy under the apartheid regime favouring industrial fishing sectors, where small-scale and subsistence communities were excluded from policy definitions. This led to the Marine Living Resources Act of 1998 (MLRA), which worked to address the past inequalities. Given the multitude of different kinds of fishers operating within the South African context, related definitions were refined through the introduction of the Policy for the Small-Scale Fisheries Sector in South Africa (2012): where *community* is defined as "… any group of persons or a part of such a group who share common interests and regard themselves as a community." The Marine Resources Amendment (Act No 587) of 2014 further refined the definition of a small-scale fisher as "a member of a small-scale fishing community engaged in fishing to meet food and basic livelihood needs, or directly involved in processing or marketing of fish, who— (a) traditionally operate in near-shore fishing grounds; (b) predominantly employ traditional low technology or passive fishing gear; (c) undertake single day fishing trips; and (d) is engaged in consumption, barter or sale of fish or otherwise involved in commercial activity, all within the small-scale fisheries sector."

For example, the nature of fishing as a livelihood is, critically, so much more than just a means to make an income. While the income from fishing is vital to individuals and their dependents, the social and cultural aspects of fishing as an identity marker as a history is one of the ways in which communities maintain their sense of a collective identity (Van Zyl, 2009; Williams, 2021). The often-heard phrase is that the "sea is in our blood", denoting a physical, spiritual and cultural co-identification with the sea. Even though it is the men in the coastal communities in question who actively ***do*** the actual fishing, the communities self-identify as "fishing communities" due to these myriad and complex relationships, built up and maintained over generations, that the larger group has with the ocean and the act of fishing.

Key coastal livelihood activities were identified for each community of interest (see Appendix 1) and are detailed in Table 8 below. Key activities included agriculture, fisheries, mining and tourism. While conservation was also identified as a key activity, it did not play a central role in terms of contributing directly to livelihood activities in the communities of interest, but rather linked to and supported tourism activities. Thus, wider conservation activities are discussed in relation to tourism activities taking place in the communities of interest.

Table 8: Community profiles geographically distributed according to municipal demarcations

District Municipality	Local Municipality	Community of interest	Key coastal livelihood activities	
			Primary importance	Secondary importance
Namakwa	Richtersveld	Alexander Bay	Mining	Agriculture, tourism (including conservation)
		Port Nolloth	Fisheries, mining	Tourism (including conservation)
	Nama Khoi	Kleinzee	Fisheries (aquaculture)	Mining, tourism (including conservation)
	Kamiesberg	Hondeklipbaai	Fisheries	Tourism (including conservation)

The local spatial scale (33 500 ha) covering the extent of the proposed port and SEZ (see Figure 1) under Work Package 1 does not currently fall under these community profiles as the Boegoebaai area is currently under mining concessions owned by Alexkor, where the area south of Alexander Bay until just south of Boegoebaai is a restricted diamond mining area. There are thus no formal dwellings or permanent inhabitants in the Boegoebaai area, and the activities are restricted to diamond mining – where the natural harbour is accessed by sea and used as a shelter during winter storms by diamond boats from Port Nolloth (Local Stakeholder Interview, pers. comm.). However, according to local stakeholders, this area does hold historical and cultural significance to surrounding local communities, which predates mining activities.

In the Boegoebaai area, locally referred to as *Boegoeberg* (see Figure 14), local stakeholders account that there are 17 grave sites belonging to the Nama people (including that of Kaptein Swartbooi), as well as scarce *Buchu* plants that hold cultural and medicinal significance to the Nama people (Nortje and van Wyk, 2019). The Boegoebaai area also contains grave sites of early colonial settlers (1890s) that are linked to the original Rietfontein farmhouse that predated the mining activities and subsequent restrictions (Local Stakeholder Interview, pers. comm.). Furthermore, the Boegoebaai coastal area also historically formed part of traditional fishing grounds for small-scale fishers based in neighbouring Port Nolloth (M. Sowman, pers. comm.). Predating mining activities, Boegoebaai was an important traditional fishing area for WCRL (Local Stakeholder Interview, pers. comm.) – where small-scale fishers have lost access to these fishing grounds over time due to closures linked to mining restrictions (M. Sowman, pers. comm.).

Figure 14. Boegoeberg viewed from the main road between Alexander Bay and Port Nolloth (credit: Z. du Toit, 2024)

The profiles below provide a snapshot of community histories, social and economic characteristics, available infrastructure and service provision, and their respective involvement in the identified coastal livelihood activities for the four identified communities of interest: Alexander Bay, Port Nolloth, Kleinzee and Hondeklipbaai.

3.2 Alexander Bay

3.2.1 Location

Alexander Bay is the northwesternmost town in the Northern Cape (28°35'58"S 16°30'06"E). It is located on the Orange River, which forms the border with Namibia. The town is within the jurisdiction of the Richtersveld Local Municipality and Namakwa District Municipality.

Alexander Bay is primarily a mining town, where the town was proclaimed after the discovery of alluvial diamonds in 1925 (Marais, 2023). The original mining town was owned by the State-owned diamond-mining company Alexkor, and the town and surrounding areas were once closed off to the public. However, it is now accessible without permits. Mining operations continue to date (see Figure 15), although at a reduced scale (Showme South Africa, 2012). The result is that the town is sparsely populated, and very few industries survive there. The main industries are related to mining, such as diamond divers and those that service boats or mining equipment (Local Stakeholder Interview, pers. comm.).

Figure 15. Mining activities along the road towards Alexander Bay (credit: Z. du Toit, 2024)

3.2.2 Demographic attributes

In 2011, there were a total of 1,736 people residing in Alexander Bay, where 75.7% were of working age (15-64 years), 21.9% were young (1-14 years) and 2.3% were elderly (65+ years). Approximately 1.2% (aged 20+ years) had no schooling, 26.3% matriculated and 7% received higher education. Only 2.7% of residents had no income (StatsSA, 2011).

The town of Alexander Bay is divided into three small areas and the demographic features of the three areas are very similar (see Table 9). Afrikaans is the primary language in Alexander Bay and the home language for more than 90% of residents. The majority of residents across the three small areas are Coloured, followed by White and Black African.

Table 9: Select demographic characteristics of Alexander Bay (StatsSA, 2011)

		Small area 0014	Small area 0016	Small area 0018
General	Total Estimated Population (count)	557	572	607
	Population Density (count per km²)	291	390	712
	Number of Households (count)	163	158	190
	Males (%)	55%	60%	53%
	Females (%)	45%	40%	47%
Population Group	Black African (%)	14%	13%	3%
	Coloured (%)	83%	79%	62%
	Indian/Asian (%)	0	0.35%	0
	White (%)	3%	7%	35%
	Other (%)	0	1%	0
First Language	Afrikaans (%)	91%	90%	97%
	English (%)	0.19%	3%	1%
	IsiXhosa (%)	4%	3%	1%
	Other (%)	5%	4%	1%

3.2.3 Inventory of features

Most of Alexander Bay has formalised dwellings and services, where 96.7% of the town consists of formal dwellings. Approximately 98.6% contain a flush toilet connected to sewerage, 97.5% have piped water inside the dwelling, all (100%) have electricity for lighting, and 99.8% have access to weekly refuse removal services (StatsSA, 2011).

As a traditional mining town, the entire town of Alexander Bay belonged to the mine, which provided infrastructure and homes to all mine employees in the past. Food such as milk, eggs, fresh fruit and vegetables were subsidised, and water and electricity were provided by the mine. Upkeep of infrastructure and homes was also undertaken by the mine. Today, that is no longer the case, and infrastructure and service provision has subsequently eroded over time according to local stakeholders. Most residents still rent their homes from Alexkor at present (Local Stakeholder Interview, pers. comm.). The main tar road between Alexander Bay and Port Nolloth is in good condition; however, the roads in Alexander Bay have potholes and require substantial roadworks.

The Alexander Bay airport had one asphalt and two gravel runways but was closed in 2007. There is a working police station, a hospital and a community health clinic in town, and an Engen petrol station. There used to be a bus service between the town and the mine, but it is no longer operational. There is a small grocery store (Riverport Trading), one furniture store (Lewis), the Oppiestoep restaurant and one other at the angling club, a home industry shop that sells homemade cookies and a hairdresser. Many residents drive to Oranjemund in Namibia for groceries; however, that becomes expensive as border fees are applicable. The only automatic bank teller in town is often out of order. There is one primary and one high school in Alexander Bay and children from nearby Sendelingsdrif and Lekkersing also attend those schools. There are also two churches in the town (Local Stakeholder Interview, pers. comm.). Recreational facilities in the town consist of a Golf Club, Tennis & Squash courts, a rugby field and an angling club.

The Alexander Bay harbour is mainly used by the diamond boats. As part of Alexkor's diversification into aquaculture, an oyster farm that functioned as a hatchery for the Pacific oyster (*Crassostrea gigas*), was started. The hatchery cultivated seed oysters from imported oyster spat and provided tours of the facility; however, this facility is no longer operational (Robinson *et al.*, 2005).

3.2.4 Coastal livelihoods

As identified through the stakeholder analysis (see section 1.2.1), coastal livelihood activity typologies were identified for Alexander Bay and are detailed in Appendix 2. These typologies are expanded below, based on desktop review, fieldwork observations and local stakeholder interviews.

Involvement in agriculture

Alexander Bay has a long history in agriculture due to its geographical location to the Orange River. The original farm, where the town of Alexander Bay is today, was called Groenvlei and was established in 1847. Cattle farming has greatly increased since the successful land claims in 2003 (Local Stakeholder Interview, pers. comm.).

The Richtersveld Growers manage the Beauvallon Farm near Alexander Bay. It is a partnership between the Richtersveld community and private investors, focusing on promoting agricultural development and social upliftment in the Richtersveld region. They employ between 50-60 people directly and approximately 300 people during the harvest season when they use contractors to bring in the harvest. Produce cultivated include potatoes, onions and other vegetables and fruit that they sell at the Cape Town and, to a lesser extent, the Johannesburg market. They also cultivate grapes for raisins which is sold to South African Dried Fruit (SAD).[5] Not only does the association of the Richtersveld Growers directly employ community members of Alexander Bay but also support the local high school by contributing to the salary of the agriculture science teacher. Alexander Bay High School teaches agricultural science as a subject in the school and has access to a farm owned by the Richtersveld community where they plant maize and lucerne for teaching purposes (Local Stakeholder Interview, pers. comm.).

Involvement in fisheries

The history of fishing in Alexander Bay is only subsistence fishing, starting with migrant Nama people who fished in the area for food and hunted seals for their skins (Barnard, 1992). According to the 2018 Fishing Rights Register, no fishing rights were allocated to residents or businesses in Alexander Bay.

There is an angling club located in Alexander Bay, and the mouth of the Orange River is a popular fishing spot among recreational fishers. According to Alexkor, it is currently involved in talks with the Richtersveld community to revive the oyster farm (Alexkor, 2023).

Involvement in mining

For nearly a century Alexkor has mined diamonds in Alexander Bay, making the mine the main source of local employment. However, ownership of the land and the mining concessions are complex. The land where Alexkor had its mining operations was expropriated by the colonial state after the discovery of diamonds in the 1920s and all proceeds from diamond mining belonged to the state-owned mining company. In the late 1990s, the community lodged a claim for their land rights to be reinstated. After a protracted legal battle against the state and Alexkor, the Richtersveld community won its land back in 2003. The mining rights on the land were also ceded to the community and Alexkor was left with only its marine mining concessions (Reddy, 2021).

In 2011, the Pooling and Sharing Joint Venture (PSJV) was set up as a joint venture between Alexkor and the Richtersveld Mining Company as the community's mining conduit. It combined the community's land rights and Alexkor's marine rights and became the vehicle through which the diamonds were sold. In practice, the PSJV do not do any actual mining. Instead, mining is outsourced to private contractors who consist mainly of small boat-based marine divers who dredge the seabed using processing plants owned by the PSJV. The diamonds are then sold by them with the help of a diamond marketer and the proceeds

[5] See https://www.safaridriedfruit.co.za/

are shared with the contractors (Reddy, 2021). In 2023 Alexkor employed 1190 people, which included 1039 contractors (Alexkor, 2023).

Involvement in tourism and conservation

Alexander Bay's unique landscape and biodiversity, including the attraction of the area's diamond mining history, has created interest to promote employment for the local community through tourism. Alexkor diversified into the tourist market for a short while According to the Alexkor website (Alexkor, 2024), the company provides the following facilities as initiatives to support tourism development in the region:

- Funding of the local tourism website called "Diamondcoast"
- The running of guest houses in and around Alexander Bay
- The running of the local airport
- Local museum
- River mouth

However, very few of these initiatives are still operational. The airport is no longer active. Guesthouses are mostly used on a longer-term basis by contractors working on the mining operations. Alexkor also initially hosted mine tours that included a visit to the diamond mine museum (Diamondcoast, n.d.) – it is unclear whether this activity is still ongoing today. Alexander Bay is also mentioned on several tourism sites, however, the telephone number for the Alexander Bay Tourism Office no longer exists. There is a small information office at the entrance to the town. The Namakwa info website mentions walking and cycling trails that link points of interest in and around the town, as part of the "Living Museum" concept but that never became a reality (Local Stakeholder Interview, pers. comm.). There was limited evidence of tourist activities observed in the town during September 2024.

A conservation and tourist attraction in close proximity to Alexander Bay is the Orange River mouth – declared a Ramsar wetland in 1995 (Ramsar, 1995). The wetland is home to a variety of migratory birds and the endemic Barlow's Lark. However, it is a modified ecological system due to years of degradation due to diamond mining activities, river flow regulation, and poor mouth management. The mouth is still a popular recreational fishing site and several endemic and threatened fish species, including Namaqua barb (*Barbus hospes)* and rock catfish (*Austroglanis sclateri)*, are found there (Birdlife South Africa, 2015). Another a point of interest near Alexander Bay is the lichen fields (Jurgens and Niebel, 1991) - the world's most diverse lichen fields (Fleminger, 2024a).

The town is in close proximity to the /Ai-/Ais-Richtersveld Transfrontier Park – a cross-border conservation initiative between South Africa and Namibia and major regional tourism attraction. In addition, to the south of the Richtersveld National Park (on the South African side) is the Richtersveld Cultural and Botanical Landscape, a UNESCO World Heritage Site that constitutes a cultural landscape that is communally-owned and managed by the Nama people (Fleminger, 2024a). Sendelingsdrif, the main South African entrance to the park, is approximately 89km from Alexander Bay.

3.3 Port Nolloth

3.3.1 Location

Port Nolloth is located 86 km south of Alexander Bay and 144 km Northwest of Springbok on the Northern Cape coast (29°15'11"S 16°52'09"E). It is the seat of the Richtersveld Local Municipality and falls within the Namakwa District Municipality. The town was founded by Captain M.S. Nolloth in 1854, where the harbour was initially used for the transportation of copper and later diamonds and later became a fishing village from the 1950s (Southafrica.com, 2024). Traditional fishers based in Port Nolloth are deeply connected to the sea in terms of legacy (i.e., intergenerational fishing families) and culturally, where fishing is deeply personal and central to their coastal livelihoods – reflecting not only a profession but a way of life

for these fishing communities (Local Stakeholder Interview, pers. comm). At present, the principal livelihood activities are fishing (see Figure 16), mining and tourism.

Figure 16. Harbour use alongside the Port Nolloth jetty at the former fish factory (credit: Z. du Toit, 2024)

3.3.2 Demographic attributes

In 2011, there were a total of 6,092 people residing in Port Nolloth, where 69.4% were of working age (15-64 years), 24.1% were young (1-14 years) and 6.5% were elderly (65+ years). Approximately 2.1% (aged 20+ years) had no schooling, 22.1% matriculated and 8% received higher education. Approximately 12% of residents had no income (StatsSA, 2011).

Port Nolloth is divided into four sub-areas: McDougall's Bay; Nollothville; Owen Island and Port Nolloth SP (sub place) – refer to Table 10 below.

Table 10: Select demographic characteristics of Port Nolloth (StatsSA, 2011)

		McDougall's Bay	Nollothville	Owen Island	Port Nolloth SP
General	Total Estimated Population (count)	288	3,443	15	2,346
	Population Density (count per km²)	884.96	1,610.92	39.47	85.39
	Number of Households (count)	141	921	6	763
	Males (%)	43%	51%	60%	50%
	Females (%)	57%	49%	40%	50%
Population Group	Black African (%)	1%	1.8%	0%	39%
	Coloured (%)	10%	97%	0%	44%
	Indian/Asian (%)	0.35%	0.49%	27%	0.5%
	White (%)	86%	0.46%	60%	15%
	Other (%)	2%	0.52%	13%	1.5%
First Language	Afrikaans (%)	88%	97%	92%	66%
	English (%)	11%	1%	8%	6%
	IsiXhosa (%)	0%	0%	0%	19%
	Other (%)	1%	1%	0%	9%

McDougall's Bay was once a diamond area and thus access was controlled – it was opened to the public in 1986. Presently, McDougall's Bay is a popular holiday destination with a lot of holiday accommodation advertised as well as a caravan park and it's beach is certified as a blue flag beach (Fleminger, 2024b). Boating and recreational fishing are popular activities in McDougall's Bay. The population is predominantly white, Afrikaans-speaking people.

Nollothville was the traditional coloured area, and its population still consists mainly of Coloured people and most people speak Afrikaans. Owen Island is a very small area of only 0.38 km² and only 15 people live there. It consists mainly of the Port Nolloth Country Club Lodge. Port Nolloth SP is the largest sub-area in Port Nolloth and includes the old town, the harbour and the business centre. Most people speak Afrikaans, and its population consists mainly of Black African and Coloured people.

According to local stakeholders, rising unemployment and deteriorating infrastructure in recent years have increased social ills in the town.

3.3.3 Inventory of features

Most of Port Nolloth has formalised dwellings and services, where 97.9% of the town consists of formal dwellings. Approximately 87.2% contain a flush toilet connected to sewerage, 78.2% have piped water inside the dwelling, 98% have electricity for lighting, and 93.8% have access to weekly refuse removal services (StatsSA, 2011). The Richtersveld is a low rainfall area and thus water is a scarce commodity – the water which serves the town of Port Nolloth is pumped from the Orange River at Alexander Bay.

Port Nolloth has a busy business centre with many shops. There are five schools in the town as well as many churches in all denominations. The town is only 144 km from Springbok and is connected via the N7

and R382 which are tar roads. The offices for the Richtersveld Municipality are in Port Nolloth as well as a police station, community health clinic, hospital and magistrate's court. There is also a light industry (an associated activities) section in the town that includes local businesses involved in brick manufacturing, panel beaters, solar energy supplies and hardware supplies. This forms part of employment opportunities within Port Nolloth – for example, Richtersveld Bricks (*Steenwerke*) is one local industry that employs approximately 13 residents (Local Stakeholder Interview, pers. comm.).

Port Nolloth is one of six development nodes identified by the South African government to form part of the Operation Phakisa: Oceans Economy development program, to be developed as a sustainable coastal and marine tourism destination. The current small harbour mainly serves the diamond mines and local fishers. Although the Port Nolloth harbour consisted of two jetties, only one of them is operational at present. The De Beers jetty was upgraded in 2017 as part of Operation Phakisa. The De Beers Services Group held a five-year lease agreement to use the port as a supply base for its offshore diamond prospecting activity in Namibia. The Jetty belongs to Transnet and consists of an L-shaped concrete deck on a pile jetty with a 67-metre landing quay comprising a functional area of 1450 m^2 (Infrastructure News, 2017).

Port Nolloth lacks a deep harbour, which is a major limitation for commercial fishing. The harbour can only accommodate vessels up to 23m in size, allowing smaller trawlers and longline vessels to operate from there (Britz *et al.*, 2000). Currently, one of the primary challenges faced by the fishing industry is the deteriorating condition of the jetty (Masifundise, 2018). While the de Beers jetty was recently upgraded, the jetties next to the abandoned John Ovenstone fish factory were observed to be falling apart and not fit for use (see Figure 17). There is a lighthouse in Port Nolloth and a National Sea Rescue Institute (NSRI) station.[6]

Figure 17. Jetty next to the abandoned John Ovenstone fish factory (credit: Z. du Toit, 2024)

[6] See https://www.nsri.org.za/rescue/base-finder

3.3.4 Coastal livelihoods

As identified through the stakeholder analysis (see section 1.2.1), coastal livelihood activity typologies were identified for Port Nolloth and are detailed in Appendix 2. These typologies are expanded below, based on desktop review, fieldwork observations and local stakeholder interviews.

Involvement in agriculture

Port Nolloth has no history of farming and due to the scarcity of water in the area is not ideal for the cultivation of crops. Most farmers in the wider area are subsistence farmers and keep goats and sheep (Local Stakeholder Interview pers. comm.).

Involvement in fisheries

The Nama people were the first to fish for food and to hunt seals for their skins in the Port Nolloth area – locally referred to as *Aukotowa*, meaning "the place where the old man was taken away (by the sea)" (Carstens, 2011). While the port at Port Nolloth was first established in 1854 as a small-vessel harbour for the copper-mining industry, the town became a fishing village in 1953 (Southafrica.com, 2024). A fish processing factory was opened in 1960 and became the main source of employment in the town, along with the diamond mining industry. The majority of workers in the fish factory were women. The fish factory closed in 1993, leading to unemployment for many women factory workers and small-scale fishers in Port Nolloth (Masifundise, 2018).

According to the 2018 fishing rights register (DEFF, 2018) the following fishing rights were allocated to rightsholders in Port Nolloth: Three local companies were granted hake longline rights from 2006 to 2020, totalling 230.48 tons. One hake handline fishing right was initially allocated but later revoked. Two local companies were also awarded hake deep-sea trawl long-term rights from 2006 to 2020, comprising 1763.35 tons. Additionally, three netfish long-term rights are valid from 2016 to 2031. VM Young Visserye BK was allotted four small pelagic rights from 2006 to 2020, including 248.57 tons of anchovy, 331.28 tons of sardine, 24.9 tons of sardine bycatch, and 23.19 tons of sardine juvenile bycatch. There were also two traditional linefish rights, valid from 2014 to 2020, which were both subsequently revoked. Moreover, thirteen WCRL nearshore rights are valid from 2013 to 2033, with each rightsholder receiving 1250 kg of WCRL. Finally, six companies were granted WCRL commercial long-term rights from 2017 to 2033, totalling 14900kg.

Two fish processing facility licenses were granted in 2018, to Noordkaap Visserman Onderneming BK and Port Lobster (Pty)Ltd, respectively. The former is no longer in operation. The rights are valid from 2017 to 2032 (DEFF, 2018).

There are three fishing companies listed in Port Nolloth that were allocated commercial fishing rights according to the 2018 fishing rights register. J&J Visserye has offices in Port Nolloth; however, they are only the rightsholders. Seaharvest use their fishing rights and operate from Cape Town in the Western Cape Province. The company employs two people in their offices and has six directors, of which three live in Port Nolloth and three in Cape Town. Noordkaap Visserye employed three to five people in their offices in Port Nolloth, but these offices have subsequently closed. VM Young Visserye cc still has offices in Port Nolloth but, as with J&J Visserye, they do not operate any vessels from Port Nolloth – however, VM Young Visserye cc do hold fishing rights in the area and leases them to another company operating from Cape Town that undertakes the fishing activities (Local Stakeholder Interview, pers. comm.)

The Aukotowa Small-scale Fisheries Cooperative in Port Nolloth was established in 2018 as part of the implementation of the Small-scale Fisheries Policy (DAFF, 2012; Masifundise, 2022). It was one of the first small-scale fisheries cooperatives to be established in South Africa, along with the neighbouring Hondeklipbaai cooperative based in Hondeklipbaai. The cooperative includes 103 individuals, most of whom are Khoisan/Nama descendants and supports 75 households. The board of the cooperative is made up of seven members, five men and two women. Approximately one-quarter of the fishers are young people. These small-scale fishers traditionally use bakkies and operate close to shore. The cooperative operates eight fishing boats and 18 small lobster vessels, and their offices are located in the abandoned John Ovenstone fish factory in Port Nolloth. The Aukotowa fishing cooperative has small-scale fishing rights, as well as commercial rights for WCRL and offshore hake offshore – although the small-scale fishers do not have the capacity to utilise these rights (Local Stakeholder Interview, pers. comm.). The cooperative

subcontracted to Premier Fishing and Brands Limited (Pty) Ltd, operating out of Hout Bay harbour in the Western Cape Province, to harvest these species (Local Stakeholder Interview, pers. comm.).

Ocean squeeze has resulted in traditional fishing communities in Port Nolloth to increasingly lose access to their fishing grounds – where (for example) in the past, they could move their bakkies over land via trailer to fish north of Port Nolloth but can no longer do so as this access has been closed off due to mining restrictions (M. Sowman, pers. comm.). Port Nolloth is bordered by diamond mines on both sides and small-scale fishers currently only have access to less than 5% of their traditional fishing grounds, even though small-scale fishers are authorised to fish the entire 80 km of coastline between Port Nolloth and the Orange River (Masifundise, 2018; Christianson, 2021). Other concerns have been raised by local fishing communities due to mining activity – for example, the construction of Coffer Dams by mining companies along the Northern Cape coastline have negative impacts on marine life and thus livelihoods dependent on marine resources, such as snoek and WCRL (Masifundise, 2022). The Department of Forestry, Fisheries and the Environment (DFFE) has instituted legal action against Alexkor, for the use of rocks to build cofferdams, which is a very destructive method (Yeld, 2024).

Cumulative stressors on these traditional fishing communities include losing coastal access to their traditional fishing grounds; the rising cost of fuel that limits how far the fishers can travel at sea to their traditional fishing grounds; climate variability and change within the marine environment that limits days at sea; and decreases in fish stocks due to environmental and anthropogenic pressures (M. Sowman, pers. comm).

Involvement in mining

Port Nolloth has a long history in mining – where the town was first established as a harbour to ship copper from the copper mines in Okiep, and remained a transhipment point for copper and later diamonds until 1970 (Tracks4Africa, 2018). Until 1997, Alexkor and Marine West used the Port Nolloth harbour to offload gravel, mined by the diamond divers, for diamond extraction and sorting at Alexander Bay. However, in 1997, 452 people were retrenched by Alexkor due to the reduction in diamond mining activity in the area. Marine West, a private company, also withdrew from Port Nolloth. Currently, the harbour is mainly used by independent diamond divers, as well as offshore support vessels for diamond exploration by the De Beers Services Group in Namibia (Local Stakeholder Interview, pers. comm.). To this end, the De Beers Supply Chain Centre and De Beers Marine Business Manufacturing and supply depots were established in 1999 and by 2015 it employed 77 permanent and fixed-term contractors on site in Port Nolloth. 60 people were also employed to operate the supply vessels (De Beers Group, 2015). The depots are located at the Port Nolloth harbour.

Involvement in tourism

Key tourist attractions in the town include the Port Nolloth museum and Port Nolloth forms part of the Namaqualand Flower Route (Lazorko, 2024; Fleminger, 2024). Further afield, the Nama cultural settlement at Lekkersing[7] (which forms part of the UNESCO Richtersveld Cultural and Botanical Landscape) is 60 km north of Port Nolloth, and the Richtersveld National Park is 173 km from the town.

There are many holiday accommodation options in Port Nolloth, where the town received many tourists and holidaymakers during the spring wildflower season and in the December holidays in the past. However, tourism has decreased over time due to poor infrastructure leading to water shortages (compounded by changes to climate variability) and rising social ills linked to increased unemployment. Thus, the hospitality industry has declined in Port Nolloth, resulting in further unemployment (Local Stakeholder Interview, pers. comm.).

[7] See https://karoospace.co.za/lekkersing-richtersveld/

3.4 Kleinzee

3.4.1 Location

Kleinzee is located 62 km south of Port Nolloth and approximately 100 km from Springbok (29°40'35"S 17°04'12"E). The town was established by De Beers in 1942, after the first diamonds were found on the farm Kleyne Zee in 1927 (Gadd, 2024). The entire town was built and owned by the De Beers mining company and all residents were employed by the company, where access into Kleinzee was limited to permitholders and strict security measures were in place. De Beers closed their mining operations there in the early 2000s and by the end of 2011 infrastructure was deteriorating and the 370 houses in Kleinzee were mostly empty. The town's population decreased from approximately 7000 to 1000. Subsequently, Kleinzee was incorporated into the Nama Koi Local Municipality and declared a public town (Vanessa, 2011; Gadd, 2024). Today, aquaculture is the primary employer in Kleinzee (see Figure 18), where three aquaculture companies operate in the area (Local Stakeholder Interview, pers. comm).

Figure 18. Kelp harvesting as part of aquaculture activities in Kleinzee (credit: Z. du Toit, 2024)

3.4.2 Demographic attributes

In 2011, there were a total of 728 people residing in Kleinzee, where 86.3% were of working age (15-64 years), 12.1% were young (1-14 years) and 1.6% were elderly (65+ years). Approximately 25.5% matriculated and 23% received higher education. Only 1.7% of residents had no income (StatsSA, 2011).

The data and area for Kleinzee main place and Kleinzee SP (sub place) overlap, so for the purposes of this report, they were treated as one area (refer to Table 11). Afrikaans is the primary language in Kleinzee and

the home language for 90% of residents. The majority of residents in the town are Coloured (61%), followed by Black African and White (18%).

Table 11: Select demographic characteristics of Kleinzee (StatsSA, 2011)

	Demographic characteristics	Kleinzee (Main place and SP)
General	Total Estimated Population (count)	728
	Population Density (count per km²)	80
	Number of Households (count)	301
	Males (%)	58%
	Females (%)	42%
Population Group	Black African (%)	18%
	Coloured (%)	61%
	Indian/Asian (%)	1%
	White (%)	18%
	Other (%)	2%
First Language	Afrikaans (%)	90%
	English (%)	6%
	IsiXhosa (%)	2%
	Other (%)	2%

3.4.3 Inventory of features

All of the dwellings in Kleinzee are classified as formal and contain a flush toilet connected to sewerage. Approximately 99.3% have piped water inside the dwelling, 99.3% have electricity for lighting, and 99% have access to weekly refuse removal services (StatsSA, 2011).

When Kleinzee was proclaimed a public town, all the houses were sold to private owners and the Nama Koi Municipality took over the responsibility for infrastructure upkeep and service delivery in 2012 (Van Dyk, 2021). Kleinzee has several basic amenities, including two shops, a bottle store, and two bakeries that take orders. Town features also include a post office and a police station, as well as a local clinic that only operates on specific days of the week (Tracks4Africa, 2018). Additionally, there is a non-franchised fuel service station in the town. While there are no banks in Kleinzee, cash withdrawals can be made at the ATM located next to the grocery store (Van der Merwe, 2020). The school in Kleinzee offers a range of educational services, including pre-school, primary school, skills training, and support for children with special learning needs. Additionally, there is a home-schooling support centre that assists high school students (Van der Merwe, 2020). The roads leading to Kleinzee are primarily paved, with a short stretch of dirt road (ranging from 40 to 65 km) near the town.

Since its establishment in the Nama Khoi Local Municipality, Kleinzee has seen the opening of new businesses and an influx of residents. Many of these new enterprises focus on tourism, including restaurants and shops that sell baked goods. The tourist information centre is located within a small shop that specializes in cookies and souvenirs, which also houses the Kleinzee Diamond Mine Museum. This

shop was opened in May 2024 by one of the new residents who moved to Kleinzee (Local Stakeholder Interview, pers. comm).

Recreational facilities in Kleinzee include the Kleinzee Angling Club, a golf course, squash courts, and various sports grounds. The angling club hosts one angling competition per year for WCRL. While there is a slipway located next to the angling club in Kleinzee, this slipway is in disrepair and boats now launch from the adjacent beach.

3.4.4 Coastal livelihoods

As identified through the stakeholder analysis (see section 1.2.1), coastal livelihood activity typologies were identified for Kleinzee and are detailed in Appendix 2. These typologies are expanded below, based on desktop review, fieldwork observations and local stakeholder interviews.

Involvement in agriculture

The town of Kleinzee was established on the farm *Kleyne Zee*, which was sold to mining companies in 1927. In the area, there are only five or six active commercial farms, most of which raise Dorper sheep and goats. Many farms remain fallow due to droughts, the older generation retiring, and the younger generation showing little interest in taking over the farms. Given this difficult operating environment, many farmers have found it financially challenging to run farms and employ full-time staff – thus only seven people are currently employed as farmworkers. Near Komaggas, some subsistence farmers cultivate communal land and raise goats and sheep (Local Stakeholder Interview, pers. comm).

Involvement in fisheries

Recreational fishing has always been a way of life in Kleinzee; however, it has been severely impacted by siltation caused by mining operations (Local Stakeholder Interview, pers. comm).

For the past seven years, aquaculture has been the primary employer in Kleinzee, where three aquaculture companies operate in the area (Local Stakeholder Interview, pers. comm). Viking Aquaculture (Pty) Ltd established an abalone farm near Kleinzee in the diamond concession area, which produces 120 tons of abalone per year on 400 hectares. The farm employs a multi-trophic production system, wherein seaweed is grown using abalone effluent and then fed to the abalone. Viking Aquaculture employs 69 permanent staff for abalone production, along with five divers. The company has also been granted seaweed harvesting rights valid from 2017 to 2032 and employs an additional 60 to 70 people for harvesting live kelp, which serves as abalone feed. In 2018, the Sea Harvest Group, alongside a consortium of black-owned companies, acquired a majority stake in Viking Aquaculture (Crouth, 2023).

The Kleinzee Mariculture Oyster Farm, located on the outskirts of Kleinzee in a mined-out bedrock pit filled with seawater, cultivates seed oysters and employs approximately 10 people (Local Stakeholder Interview, pers. comm). Additionally, Port Nolloth Sea Farms operate an abalone ranch in Kleinzee, employing 10 residents who receive training in diving and related courses. The ranch has the potential to employ 20 to 30 people when fully operational; however, due to challenges in obtaining the necessary rights, it is currently unable to operate at its full capacity (Local Stakeholder Interview, pers. comm).

Involvement in mining

Kleinzee was established in 1942 by De Beers specifically to support the diamond mine and provide housing for its employees. Since the withdrawal of De Beers from the area, several smaller mining companies and independent miners have received mining concessions from the South African government. Notably, the Trans HEX Group has recently increased its mining activities in Kleinzee. Currently, three mining companies are establishing plants in Kleinzee, which primarily hire contractors for mining operations, security personnel, and the companies' health clinic. Permanent employees mainly consist of management. The mines also hire local residents for maintenance work (Local Stakeholder Interview, pers. comm.).

However, illegal mining is on the rise across all mining sectors in South Africa, including the Kleinzee area, where individuals operate in abandoned diamond mines under dangerous conditions. These illegal miners

in Kleinzee come from various Southern African countries, including Mozambique and Zimbabwe. (SABC, 2023).

Involvement in tourism

Although access to Kleinzee was restricted due to the diamond mine, the town has a history of tourism. The De Beers mine once offered diamond mine tours along with guided 4x4 excursions through restricted coastal diamond areas (Vanessa, 2011).

Kleinzee features several accommodation options and current tourist attractions include the 4x4 shipwreck trail, the natural phenomenon of wildflowers in spring, and birdwatching at the Buffels River estuary. Additionally, visitors can explore the Molyneux Nature Reserve, a small reserve (5.5 hectares) located just north of Kleinzee, which is home to over 100 indigenous plant species (Van der Merwe, 2020; Namakwa-info, 20924).

The farm Rooiklippies, south of Kleinzee, was bought by the Strandveld Conservation Club. It is managed as a permit area to control access and to preserve the area. Permits can be obtained from the tourist information office at the museum. The area consists of an unspoiled coastal zone with typical regional vegetation and rich bird life (Van der Merwe, 2020).

Tourism in Kleinzee is seasonal and most guesthouses typically employ only one or two permanent staff members. There are 6 to 8 guesthouses in the town. Die Houthoop, a guest farm and restaurant located approximately 17 km from Kleinzee, employs three permanent staff members. Additionally, there are two tour guides and one person working at the museum, which also includes a shop and information centre (Local Stakeholder Interview, pers. comm.).

Challenges faced by the tourism industry in Kleinzee include water scarcity and poor access due to the condition of roads (Local Stakeholder Interview, pers. comm.).

3.5 Hondeklipbaai

3.5.1 Location

Hondeklipbaai is a coastal village in the Kamiesberg Local Municipality. The town is named after a rock next to the police station that resembles a sitting dog (Tracks4Africa, 2024). Hondeklipbaai is located approximately 95 km southwest of Springbok (30°18'46"S 17°16'46"E). The town of Hondeklipbaai was initially established by Thomas Grace in 1846 due to a small natural harbour, where a trading station was established and to ship copper ore to the United Kingdom (SAHistory.org, 2020; Namakwa-Info, 2024). In 1925, a crayfish processing factory was built on the harbour and it became the main source of employment in Hondeklipbaai until its closure in 1996 (Britz *et al.*, 2000). Today, the town remains primarily a traditional fishing village (Local Stakeholder Interview, pers. comm.) – see Figure 19.

Figure 19. Bakkies (small boats) in front of the Longtime Hondeklipbaai Fishing Primary Cooperative offices in Hondeklipbaai (credit: Z. du Toit, 2024)

3.5.2 Demographic attributes

In 2011, there were a total of 543 people residing in Hondeklipbaai, where 67.4% were of working age (15-64 years), 24.7% were young (1-14 years) and 7.9% were elderly (65+ years). Approximately 1.3% (aged 20+ years) had no schooling, 20.5% matriculated and 4.9% received higher education. Approximately 26% of residents had no income (StatsSA, 2011).

While Hondeklipbaai is divided into two sub areas (Hondeklipbaai mine and Hondeklipbaai SP) for purposes of the 2011 Census, only Hondeklipbaai SP had any residents and is thus considered for this report (refer to Table 12). Afrikaans is the primary language in Hondeklipbaai and the home language for 97% of residents. The majority of residents in the town are Coloured (11%), followed by White (9%) and Black African (8%).

Table 12: Select demographic characteristics of Hondeklipbaai (StatsSA, 2011)

	Demographic characteristics	Hondeklipbaai SP/Small Area 0021
General	Total Estimated Population (count)	543
	Population Density (count per km²)	496
	Number of Households (count)	189
	Males (%)	48%
	Females (%)	52%
	Female Headed Households (%)	36.5%
Population Group	Black African (%)	8%
	Coloured (%)	81%
	Indian/Asian (%)	1.5%
	White (%)	9%
	Other (%)	1%
First Language	Afrikaans (%)	97%
	English (%)	1%
	IsiXhosa (%)	0.4%
	Other (%)	0.5%

3.5.3 Inventory of features

Most of Port Hondeklipbaai has formalised dwellings and services, where 97% of the town consists of formal dwellings. Only 29.5% contain a flush toilet connected to sewerage, 60.8% have piped water inside the dwelling, 98.9% have electricity for lighting, and 97.4% have access to weekly refuse removal services (StatsSA, 2011).

Hondeklipbaai can be accessed via a dirt road from Koingnaas, which is also the nearest petrol station. In Hondeklipbaai, there are no ATMs available, and only two very small shops that sell basic necessities, along with one bottle store. The town features a few restaurants as well (Tracks4Africa, 2024). Additionally, Hondeklipbaai has a police station and a community health care clinic. The Hondeklipbaai harbour consists of a decaying slipway, which local fishers do not use (see Figure 20) – rather fishers launch their bakkies from the beach. There is a lighthouse at the northern end of the harbour.

Figure 20. Slipway in the harbour of Hondeklipbaai (credit: Z. du Toit, 2024)

A major factor that has prevented development in Hondeklipbaai is the scarcity of water, where water was provided to residents by carting water by truck in the past. In 2001, the water pipeline from Koingnaas to Hondeklipbaai came into operation but it provides a limited amount of water (Hondeklip.co.za, 2024).

Hondeklipbaai is part of an initiative by the Namakwaland Municipality aimed at beautifying towns and boosting tourism (Local Stakeholder Interview, pers. comm.). This initiative is included in the municipality's Expanded Public Works Programme (EPWP) and consists of privately managed bakkie teams that work to combat illegal dumping. They support the municipal refuse trucks by cleaning public spaces and collecting waste when necessary (Kritzinger, 2024).

3.5.4 Coastal livelihoods

As identified through the stakeholder analysis (see section 1.2.1), coastal livelihood activity typologies were identified for Hondeklipbaai and are detailed in Appendix 2. These typologies are expanded below, based on desktop review, fieldwork observations and local stakeholder interviews.

Involvement in agriculture

The rural areas surrounding Hondeklipbaai have a long history of farming. In the early 1700s, the Nama people used the area around Hondeklipbaai for grazing for their livestock (cattle and sheep) (Local Stakeholder Interview, pers. comm.). In the mid-1800s, Dutch and English settlers established farms in the area (Travelleeto, 2023). Most rural communities in the wider area are subsistence farmers and keep goats and sheep (Local Stakeholder Interview, pers. comm.).

Involvement in mining

The town originally served as a port for the export of copper to the United Kingdom. However, it was too distant from the mines around Springbok, leading to the copper export operations relocating to Port Nolloth. For a period, the diamond mining industry employed members of the Hondeklipbaai community. De Beers initially provided jobs, but after they withdrew from the area, Trans HEX took over until they ceased operations in 2003 (Christianson, 2024; Hondeklip.co.za, 2024). There are still some private diamond concession holders in Hondeklipbaai who are engaged in small-scale prospecting activities in the surrounding area (SAHistory.org, 2020).

Involvement in fisheries

Hondeklipbaai is a small, traditional fishing village, where fishing activities are primarily undertaken by small-scale fishers (Local Stakeholder Interview, pers. comm.). The harvesting of WCRL has long been the main fishing activity in the Northern Cape, and Hondeklipbaai is no exception. The Hondeklipbaai WCRL processing factory, which opened in 1925, was the main source of employment in the area. However, due to declining numbers of lobster, the Namaqua Canning Company factory closed in 1996, resulting in significant job losses (Britz *et al.*, 2000; Soudens, 2022) – see Figure 21.

Figure 21. The remains of the Namaqua Canning Company factory in Hondeklipbaai (credit: Z. du Toit, 2024)

The Longtime Hondeklipbaai Fishing Primary Cooperative was established in 2018. It supports 14 active fishers and serves 70 households. The cooperative employs one administrative clerk and one person in the Small Vessel Safety Monitoring Center (VMS); however, due to a loss of funding, this individual is no longer being compensated for their work (Local Stakeholder Interview, pers. comm.; Christianson, 2024). The cooperative plays a significant role in community development by participating in initiatives like the Skipper's Training program, which aims to empower local fishers with essential skills. Additionally, it is involved in the wholesale trade of fish and seafood products (South African Fisheries Development Fund, 2021). The fishing cooperative currently owns 10 bakkies but only has engines for seven of these boats. The fishers primarily use handlines to catch linefish, focusing on species like snoek and Hottentot

seabream, and hoop nets for WCRL. During the snoek season, many fishers from Cape Town come to the area to catch snoek. These tourists rent accommodations from community members and hire part-time workers for various tasks, such as cleaning the fish (Christianson, 2024).

Additionally, the fishers have the rights to harvest beachcast kelp, which is exported to China through a middleman. The Longtime Hondeklipbaai Fishing Primary Cooperative also has the right to harvest live kelp, which they subcontracted to a company that uses rubber ducks to harvest kelp at Kleinzee. The live Kelp is used by Port Nolloth Sea Farms as feed for abalone (Local Stakeholder Interview, pers. comm.).

The following fishing rights were assigned to individual fishers in Hondeklipbaai: one Traditional linefish right – valid from 2014 to 2020, and 3 WCRL nearshore rights for 1250kg each – valid from 2017 to 2033.

Involvement in tourism

Hondeklipbaai has long been a popular holiday destination for local farmers, fishers, and divers. In recent years, tourism has become an increasingly important source of income for the area, leading to the construction of many new houses that are now available as holiday accommodations.

Activities in and around Hondeklipbaai include 4x4 routes along the unspoiled coastline, recreational fishing for WCRL where permits can be obtained in season from the urban centres of Springbok or Garies, scenic drives during the flower season, and the Shipwreck Route that features the wreck of the Aristea that ran aground in 1945 (located south of the town) (Namakwa-Info, 2024).

CHAPTER 4: KEY MESSAGES

A key theme highlighted throughout this report is the cumulative pressures playing out in the sea space that is significantly impacting local coastal communities and their respective livelihoods, particularly in relation to fisheries. This "slow" ocean squeeze on traditional fishers and the associated adverse environmental impacts on coastal and marine ecosystems should be taken into serious consideration when planning future activities that impact the Namaqualand coastline. The systemic erosion of socio-cultural values, traditions and access of local fishing communities linked to the sea, and associated environmental degradation of coastal and marine ecosystems due to historical and current mining and offshore oil and gas activities, should be a main concern when planning blue economy activities – which need to consider blue justice and just transitions to sustainable livelihoods for local communities. Furthermore, the interlinked nature of the ocean space in terms of impacts on sensitive marine habitats that have much wider regional and transboundary implications for both the ocean and socio-economic dependencies is very important to consider when planning ocean-based activities.

4.1 Fisheries

The Boegoebaai harbour has the potential to negatively impact the fisheries livelihoods by decreasing both overall catch and catch per unit effort of target species. This decline can lead to increased costs and reduced profits, resulting in further socio-economic consequences for communities and businesses involved in fishing. This will impact businesses and communities involved in fisheries along the entire west coast, from Port Nolloth to Cape Town.

Potential impacts on fisheries may include:

- Direct mortality of target fish species resulting from the proposed construction of the harbour and standard harbour operations can impact all life stages of fish species, including adults, juveniles, and recruits.

- Destruction of marine habitats or a decline in habitat quality that is critical for target fish species and their supporting ecosystems – such as feeding or spawning grounds, migration routes, and habitats vital for prey species, which can lead to a decrease in the abundance of fishery species. There is a spatial overlap between the proposed site for the Boegoebaai harbour and support areas for at least two of the most important fisheries in South Africa, the small pelagic and hake fisheries (Hutchings *et al.*, 2002; Grüss *et al.*, 2016).

- Disruption and alteration of fish behaviour, such as interference with annual spawning events or migration patterns, which may lead to reduced biological fitness – including a decline in lifetime reproductive output.

- Siltation caused by the construction of the harbour and regular harbour operations may lead to shading or smothering of seaweeds like kelp beds. This can negatively impact seaweed harvesting activities currently supporting local livelihoods and harm the populations of WCRL that rely on these kelp beds for recruitment.

- Establishing traffic exclusion zones around the harbour can lead to a reduction in productive fishing areas. However, these zones may also provide benefits by creating protected habitats for resident species. This protection could lead to an increase in the biomass of spawners, which could enhance catches in adjacent fishing areas through a spill-over effect.

- Direct mortality or sublethal damage to target fish and invertebrate species resulting from chemical pollution or oil spills from shipping activity. Oil spills impact all life stages of fish species, but eggs and larvae are particularly vulnerable to this pollution source (Langangen *et al.*, 2017).

- Negative impacts on the behaviour, physiology and survival of target fish and invertebrate species as a result of marine noise pollution from shipping traffic and harbour operations (Di Franco *et al.*, 2020).

4.2 Coastal Livelihoods

The primary coastal livelihoods in the communities of interest near the proposed Boegoebaai development include agriculture, fishing, mining, and tourism (linked to conservation). While the building of infrastructure around the proposed Special Economic Zone (SEZ) may lead to the growth of secondary economic activities and possibly increase job opportunities, it could also have negative impacts on existing livelihoods and communities.

Potential impacts to existing coastal livelihoods may include:

- The proposed harbour development may impact the ecologically sensitive marine ecosystem that could disrupt WCRL and fish migration patterns (for example snoek), which may have negative implications for small-scale fisheries operating downstream.

- Overlapping land use between the proposed SEZ and local farmers may reduce their earning potential by limiting available land for grazing and thus disrupt small-scale livestock practices.

- The proposed SEZ may have negative implications in terms of access by local communities to the Boegoebaai area, which may continue the mining legacy of land dispossession for the Richtersveld community.

- Improved access to potential markets for local produce (such as crops and meat) and raw materials (such as diamonds) through the establishment of infrastructure connected to the SEZ – including roads, railroads, and the harbour, may enhance the economic viability of these activities and lead to opportunities for greater job security and growth (including more available employment) within associated industries. However, this is dependent on what goods can be moved through the harbour and whether it will include other industries or be restricted to use related to energy considerations only.

- An influx of people due to employment opportunities in the proposed SEZ may benefit the local housing market, service providers and businesses in the adjacent communities. However, the proposed development could also have negative implications if local communities are marginalised and sustainable job opportunities are not locally sourced and sustained through skills and capacity development.

- Greater awareness and access to adjacent coastal communities could lead to increased tourism to the area that may benefit local businesses (including increasing employment opportunities) through the expansion of hospitality accommodation, shops and restaurants. However, the construction and normal operation of the proposed SEZ may harm ecologically sensitive areas containing endemic plant life, such as the lichen fields near Alexander Bay, potentially reducing tourism activities in the area.

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Appendix 1

Key coastal livelihood activity typologies

Coastal Livelihood Activity	Stakeholder Category	Stakeholders Involved	Stakeholder Description
Provincial			
Conservation	Environmental NGOs	The Conservation Act Trust	The overriding goal of the Conservation Action Trust is to save and protect specifically identified species of fauna and flora from threats of destruction or extinction by promoting widespread and impartial investigation and reporting on important conservation and environmental issues. We hope to foster broader awareness and bring about greater public support of vital conservation and environmental issues. E.g. Seismic oil surveys on West Coast pose threat to marine food chain.
		Protect the West Coast (PTWC)	Protect the West Coast (PTWC) is a not-for-profit organisation (NPO) established in 2020 by a group of concerned citizens who wanted to put a stop to the illegal and destructive mining activities which are running rampant on South Africa's West Coast. The team comprises a collective of concerned South Africans (including scientists, journalists, activists, legal and media experts) who work for the organisation to ensure that mining on the West Coast of South Africa is conducted with the correct and proper oversight in accordance with fundamental principles of the law
		SANPARKS	System of sustaining national parks reconnecting and inspiring society.
		Endangered Wild Life Trust	The Endangered Wildlife Trust is dedicated to conserving threatened species and ecosystems in southern and East Africa to the benefit of all.
Alexander Bay			
Mining	State-owned enterprises	Alexkor Mining Company	The primary diamond mining company in Alexander Bay, historically managing both land and marine diamond mining concessions. Current operations are scaled down but employ contractors and community-based marine divers.

Coastal Livelihood Activity	Stakeholder Category	Stakeholders Involved	Stakeholder Description
	Private Sector/ Contractors	PSJV Contractors	Private marine diving contractors work under the Pooling and Sharing Joint Venture (PSJV), using hand-operated suction devices to collect diamond-bearing gravel.
		Eco- Atlantic Oil and Gas	Eco Atlantic has a strategic portfolio of offshore projects in Namibia and South Africa (Africa) in partnership with major energy companies and large independents.
		Kazera Global PLC	Kazera Global is a diamond mining operation in Alexander Bay.
	Community Based Organisations	Richtersveld Mining Company	Represents the Richtersveld community's interests in the PSJV; supports the Richtersveld community's economic inclusion in diamond mining after winning land rights.
Fisheries and aquaculture	Community Groups	Local Nama Fishers	Traditionally involved in subsistence fishing, mainly for personal consumption, and angling for recreation; limited rights for commercial fishing are evident.
		Richtersveld Local Council	Engaged in discussions with Alexkor to revive the oyster farm as part of a mariculture venture aimed at local economic development.
		Alexander Bay Angling Club	
Tourism	State-owned enterprises	Alexkor Tourism Initiatives	Initially funded the Diamond Coast tourism website, operated guesthouses, and provided mine tours; however, few initiatives remain active.
	Private Sector	Local Tourism Office	Manages limited tourism information at town entrance; organised through Namakwa Info but lacks consistent services due to operational closures.
	Private Sector	Hospitality	Local residents or property owners offering short-term rentals, catering mainly to visitors. Airbnb is not formally organised but represents informal economic activity that complements local tourism efforts. Small guesthouses or lodges, often family-owned, providing accommodation to tourists and contractors. These lodges are key for promoting local tourism and supporting the hospitality economy.
	Community based organisations	Richtersveld Transfrontier Conservation Park (TFCA)	Richtersveld TFCA, although primarily operated through Sendelingsdrif, promotes conservation and attracts nature-based tourism. Alexander Bay benefits indirectly as a nearby attraction.
	Recreational Activities	Alexander Bay Golf Club, Tennis & Squash Courts, Rugby Field,	Provide recreational sporting facilities for residents and visitors; also encourage local tourism and social cohesion.

Coastal Livelihood Activity	Stakeholder Category	Stakeholders Involved	Stakeholder Description
Agriculture	Private Sector	Richtersveld Growers	Private-public partnership operating the Beauvallon Farm; employs local residents and teaches Alexander Bay High School students agricultural techniques.
		John Livestock PTY	Livestock farming production in Alexander Bay
	Educational Institutions	Alexander Bay High School	Offers agricultural science courses and runs farming programs for students on community-owned land. The curriculum is aimed at promoting local agricultural skills development.
Port Nolloth			
Fisheries	Small-Scale Fisheries	Aukotowa Small-scale Fisheries Cooperative	Established in 2018 with 103 members, supporting 75 households, primarily Khoisan/Nama descendants. They operate 8 fishing boats and 18 lobster vessels, focusing on small-scale, nearshore fishing, and face challenges with restricted fishing grounds and infrastructure decay. Around 25% of the Aukotowa Cooperative's members are youth, playing an essential role in the fishery's future; however, they face limited access to traditional fishing grounds and declining economic opportunities.
		Small-scale Fishers	Traditional fishers using small boats (bakkies) close to shore, limited to less than 5% of traditional grounds due to mining access restrictions, leading to economic hardship.
	Commercial Fishers	Contracted Commercial Fishers	Cooperative contracted Premier Fishing and Brands Limited (Pty) Ltd. for offshore commercial species, including WCRL and hake, with additional local companies licensed for pelagic species and sardine bycatch.
	Fish Processing Facilities	Noordkaap Visserman Onderneming BK, Port Lobster (Pty) Ltd	Processing facilities granted licenses in 2018 to support local fishers and provide processing jobs; Noordkaap facility is no longer operational.
	Indigenous and Traditional Groups	Traditional Nama Groups	Indigenous Nama communities with deep cultural ties to the area, including traditional fishing and seal hunting. Face economic and social impacts from fishing and mining restrictions that limit cultural practices.
	Community Workforce	Women Former Fish Factory Workers	Previously employed in the fish processing factory until its closure in 1993, many have since experienced limited employment options due to the sector's instability, especially affecting women's economic security.

Coastal Livelihood Activity	Stakeholder Category	Stakeholders Involved	Stakeholder Description
Mining	Diamond Mining	Alexkor De Beers Group Giga Marine	Operates coastal diamond mining, affecting fishing grounds and marine ecosystems due to practices such as cofferdam construction, which locals believe harms target fish species.
	Diamond Miners	Local Miners	Provides local employment but limits Port Nolloth's economic diversification due to mining's restriction of coastal access for other activities.
Tourism	Hospitality	Accommodation	Locals providing accommodation for tourists and contractors as Airbnb Hosts. Airbnb helps diversify the economy by attracting visitors to the area, which has limited tourism infrastructure. Lodges offer accommodation for tourists and contractors, supporting the hospitality sector, often collaborating with local tour operators to showcase cultural heritage.
Kleinzee			
Fisheries and aquaculture	Aquaculture Companies	Diamond Coast Aquaculture (Pty) Ltd	Holds seaweed harvesting rights (2017–2032) and operates an abalone farm on a 400-hectare site within a diamond concession area, producing 120 tons of abalone per year and distributing through Viking Aquaculture.
		Port Nolloth Sea Farms	Operates an abalone ranch near Kleinsee, employing 10 local residents. The operation has the capacity to expand to 20-30 employees if licensing issues are resolved, allowing full production potential. Employed by Port Nolloth Sea Farms, with training opportunities provided for diving and aquaculture skills. This creates pathways for workforce development and potential income stability in Kleinzee.
		Viking Aquaculture	Partnered with Diamond Coast Aquaculture for distributing farmed abalone, enhancing Kleinzee's connectivity to national and international seafood markets.
	Aquaculture	Oyster Farming	Kleinzee's dam is being used to grow oysters for export and some of the locals are employed at the abalone aquaculture project, farming abalone in giant tanks. They already produce 100 tons a year.

Coastal Livelihood Activity	Stakeholder Category	Stakeholders Involved	Stakeholder Description
	Recreational Fishing	Kleinzee Angling Club	A community of fishing enthusiasts who come together for recreational or sport fishing. Members gain access to exclusive fishing spots, participate in competitions, and enjoy social events. These clubs also promote sustainable fishing practices, provide educational resources, and foster a supportive network for sharing fishing techniques and conservation efforts. They have a Facebook page. The angling club hosts one angling competition per year, for WCRL.
Mining	Mining Rights Holder	Kleinzee Holdings Proprietary Ltd (led by Melki Mining and HolGoun Investment Holdings)	Recently acquired Buffels Marine Mining Right (BMMR) from De Beers Group in August 2023. Plans to resume mining operations, bringing new employment and economic opportunities to Kleinzee and surrounding areas.
	Former Mining Operator	De Beers Group	Held and operated the BMMR until 2010, conducted rehabilitation of the site, and completed the sale to a qualified operator committed to responsible mining practices. De Beers is also investing in regional socio-economic development, focusing on education, skills development, and job creation.
	Informal (illegal) Small-scale Miners	Zamas-zamas	These are informal miners, including South African nationals and migrants who often enter abandoned mines. They face considerable risks but see mining as a last resort for survival due to a lack of job opportunities and high poverty rates in Namaqualand. Their activities have implications for both local economic resilience and regulatory enforcement. These stakeholders include those who lost jobs or livelihoods during the pandemic and now live in derelict housing left by mining companies. Their experiences reflect the broader economic decline in Namaqualand following the downturn of formal mining and limited local employment opportunities.

Coastal Livelihood Activity	Stakeholder Category	Stakeholders Involved	Stakeholder Description
Tourism	Heritage Eco Adventure Biodiversity	4X4 and Mine Tours Kleinzee Museum Kleinzee Nature Reserve Seal Colony Namaqua Coastal Expeditions Bird Life	Guided tour showcasing diverse natural and historical sites, including diamond mine workings. The Kleinzee Shipwreck Tour is a fantastic trek over the dune fields of the beach. Book the tour at the Kleinzee Tourism office right next door to the Kleinzee Museum, also worth a visit. The shipwreck tour has a 4x4 option of the 37km between Kleinzee and Koingnaas. Informative museum covering the history of diamond mining, natural environment, and early human history in the region. Nature reserve preserving the unique local flora. Home to a resident colony of more than 450,000 seals, protected by the adjacent mining area. The hugely abundant bird life at the Buffels River estuary at Kleinzee attracts birders, whilst the huge Seal colony just north of the beach, with around 350 000 animals right on the beach – the largest on-land colony in the country – is an added attraction.
	Hospitality	Accommodation	Options include Camping, B&Bs, Guest Farms, and Self-Catering cottages, catering to various budgets and providing unique local stays.
	Recreational Activities	Golf and Sports Club	The scenic nine-hole golf course in Kleinzee is on the banks of the Buffel's River. It is a well laid out course which is carefully maintained and offers a challenge to all golfers.
Hondeklipbaai			
Fisheries	Fishing Co-operative	Longtime Hondeklipbaai Fishing Primary Cooperative	Established in 2018, supporting 14 fishermen and 70 households. It plays a community development role by offering Skipper's Training and aims to empower fishermen with essential skills. It also engages in wholesale seafood trade.
	Small-scale Fishers	Individuals Fishers	Local fishermen in Hondeklipbaai hold rights for traditional line fish (2014–2020) and nearshore WCRL (2017–2033), with harvesting primarily focused on WCRL, despite reduced catch due to declining stocks.

Coastal Livelihood Activity	Stakeholder Category	Stakeholders Involved	Stakeholder Description
	Fishers Administration – Employment and Skills	Cooperative Staff	The cooperative employs one administrative clerk, supporting cooperative operations and contributing to local employment opportunities.
	Training Program/ Skills Development Initiatives	Skipper's Training Program	A program supported by the cooperative, aimed at equipping local fishermen with essential maritime skills to strengthen livelihoods and enhance safety in fishing practices.
Tourism	Natural Attractions Outdoor and Eco-Tourism Cultural and Heritage Hospitality and Culinary expenses	Silver Sands Trail Hondeklipbaai Beach Caracal eco-route Die Rooi spinnekop restaurant Hondeklipbaai light house	The Caracal Eco Route provides a 4x4 journey from mountains to coast through the scenic Namaqualand National Park, ideal for nature and adventure enthusiasts. Die Rooi Spinnekop restaurant, named after the local term for crayfish, offers freshly caught seafood on the Cape West Coast, showcasing regional flavours. The Hondeklipbaai Lighthouse, known for its rustic charm, serves as a remote historical landmark with stunning coastal views. The area also features activities like hiking and birdwatching in Namaqua National Park, known for its vibrant wildflowers and coastal scenery.
	Hospitality	Accommodation	Accommodation options in the area include a range of Airbnbs, guest farms, and self-catering cottages, catering to various budgets while offering unique local experiences. Notable choices include The HonneHokke Resort's chalets, Honne-Pondokkies, Fisherman's Cottage, Heuningness Guestfarm, Die Baai se Bek, and Die Baai se Bek Studio. The Hondeklipbaai caravan park is situated very close to the sea but is quite barren. Facilities include ablutions and braai stands.

Appendix 2

2A. Semi-structured questionnaire (English and Afrikaans)

August 2024

Semi-structured Interview Guide (English Version)

1. Name of interviewee (s)	
2. Name of interviewer (s)	
3. Date	
4. Organisation	
5. Role	
6. KII Number	

Interviewer to capture data here:
https://forms.office.com/Pages/ResponsePage.aspx?id=NUNFkk5Wz0ywsCREW4wD9-uEwwlkJ_BAi53Zl-mi2gZUNERFUFdBT0dZWlc0TUMM0hJNTE2TEFMUSQlQCN0PWcu

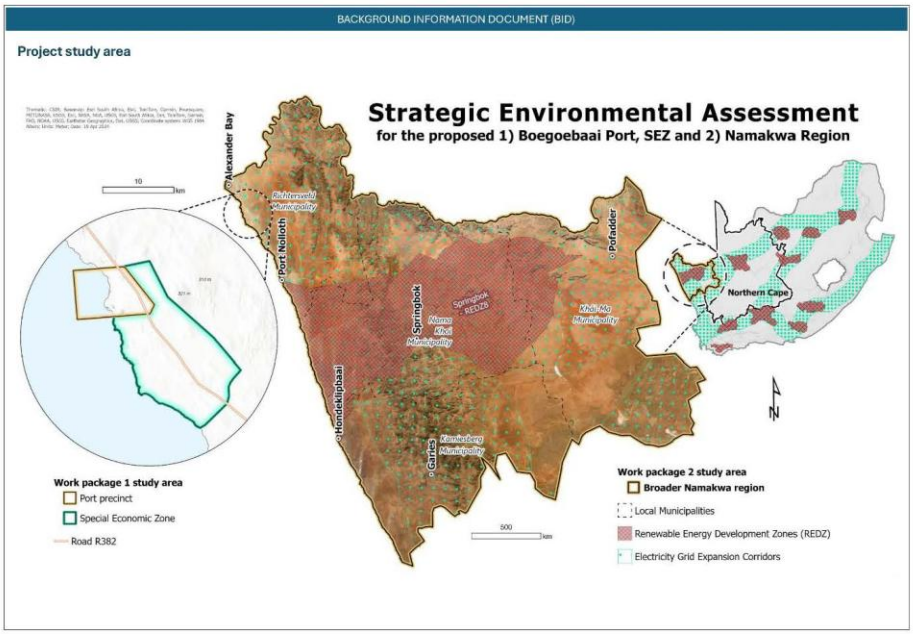
Introduction

Green hydrogen, and its derivative products (e.g., green ammonia and green methanol), provide an opportunity to decarbonise the South African energy economy, generate new revenues, create jobs and skills, and facilitate a Just Energy Transition. As part of South Africa's ambition to become a player in the globally emerging green hydrogen market, a substantial programme of greenfield infrastructure has been proposed in the Northern Cape consisting of three components:

1. A new breakwater port at Boegoebaai, dry and liquid bulk berths, and multi-purpose terminals.
2. A mixed-use Special Economic Zone (SEZ) located in the region adjacent to the proposed Boegoebaai port.
3. An expansive regional renewable energy (wind and solar PV) generation and transmission infrastructure (not the subject of this study).

The Council for Scientific and Industrial Research (CSIR) has been appointed to undertake the proposed development's strategic environmental assessment (SEA). The CSIR has contracted us to provide expert advice on the potential impact of the port and adjacent Special Economic Zone (SEZ) development on fisheries and coastal livelihoods.

1



A SEA is a knowledge-policy tool used to guide sustainability planning at different spatial scales. It encompasses several approaches, methods, and processes to assess the opportunities and risks of proposed development programmes and policies.

This expert group focuses on coastal livelihoods and fisheries to make sure that impacts on fisheries and coastal livelihoods are explicitly considered in the planning process.

Coastal livelihoods (for everyone)

7. Based on your experience, what are the most important livelihoods in this town or area.

8. Why do think these are the most important livelihoods?

9. Based on your experience, how have livelihoods (thinking about fishing, farming, mining, conservation, tourism) changed in the area (or specific town) over the last 10 years?

10. Is Boegoebaai important to you or other people in your community? For example, is Boegoebaai used for recreational activities such as fishing or any other activities

11. If you answered yes to the previous question, please elaborate.

2

12. Does this area hold any cultural or historical significance?

Fisheries

13. Type of fishing activity:

Recreational/Angling

14. Which species does the fishery target?

15. Which permits were allocated to rightsholders?

16. In which geographical area does the fishery operate?

17. What vessels are used in the fishery?

18. How many vessels are used in the fishery?

19. What type of gear is used?

20. How many households are supported by the fishery?

21. How many people are directly employed by the fishery?

22. How many people are indirectly employed by the fishery?

23. What does indirect employment entail?

24. Are the employees also employed elsewhere when not fishing?

25. If you answered yes in the previous question, where are employees employed?

Impacts of the proposed development

26. Based on your experience, would the construction of the Boegoebaai Port have a positive or negative impact on coastal livelihoods?

Positive/Negative/Neutral (select one)

27. List the impacts.

28. Based on your experience, would the construction of the SEZ have a positive or negative impact on coastal livelihoods?

Positive/Negative/Neutral (select one)

29. List the impacts.

30. Based on your experience, would the construction of the Boegoebaai Port have a positive or negative impact on fisheries?

Positive/Negative/Neutral (select one)

31. List the impacts

32. Based on your experience, what impacts would the construction of the SEZ have a positive or negative impact on coastal fisheries?

Positive/Negative/Neutral (select one)

33. List the impacts

Views on potential mitigation measures

32. How can positive impacts (benefits) be leveraged?

33. How can negative impacts be mitigated?

4

August 2024

Semi-gestruktureerde onderhoud gids

(Afrikaans weergawe)

1. Naam van deelnemer (s)	
2. Naam van onderhoudvoerder(s)	
3. Datum	
4. Organisasie	
5. Rol	
6. KII Nommer	

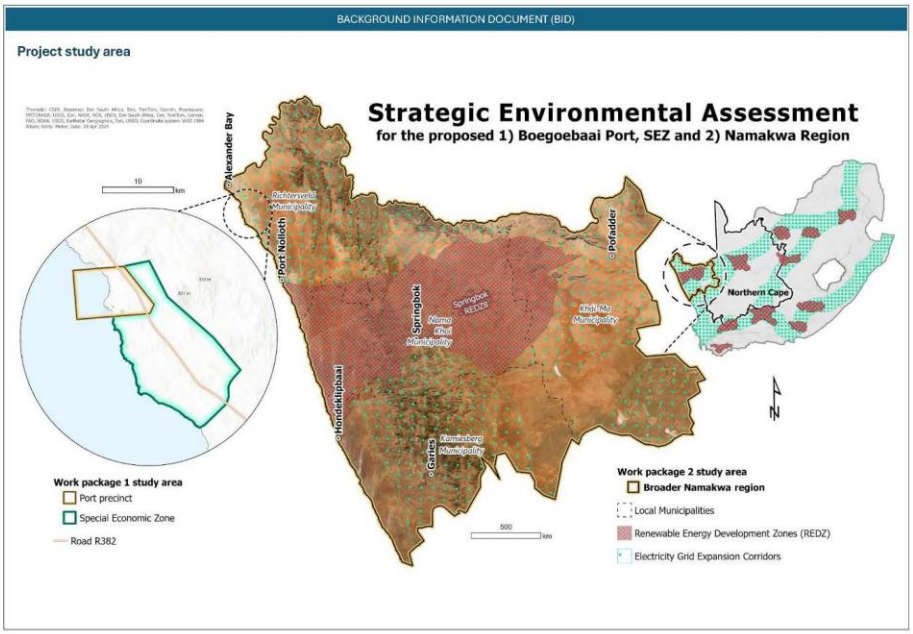
Onderhoudvoerder moet data hier vaslê: https://forms.office.com/Pages/ResponsePage.aspx?id=NUNFkk5Wz0ywsCREW4wD9-uEwwlkJ_BAi53Zl-mi2gZUNERFUFdBT0dZWlc0TUMM0hJNTE2TEFMUSQlQCN0PWcu

Inleiding

Groen waterstof, en sy afgeleide produkte (bv. groen ammoniak en groen metanol), bied 'n geleentheid om die Suid-Afrikaanse energie-ekonomie te de-karboniseer, nuwe inkomste te genereer, werk en vaardighede te skep, en 'n Regverdige Energie-oorgang te fasiliteer. As deel van Suid-Afrika se ambisie om 'n speler in die wêreldwye opkomende groen waterstof mark te word, is 'n infrastruktuur program in die Noord-Kaap voorgestel wat uit drie komponente bestaan:

1. 'n Nuwe breekwater hawe by Boegoebaai, droë en vloeibare grootmaat aanlê plekke, en veeldoelige terminale.
2. 'n Spesiale Ekonomiese Sone (SES) vir gemengde gebruik, geleë in die streek aangrensend aan die voorgestelde Boegoebaai-hawe.
3. Uitgebreide streeks hernubare energie (wind- en sonkrag-) opwekking en transmissie-infrastruktuur (nie die onderwerp van hierdie studie nie).

Die Wetenskaplike en Nywerheidsnavorsingsraad (WNNR) is aangestel om die Strategiese Omgewingsimpak Opname (SOA) te onderneem. Ons is deur die WNNR gekontrakteer om kundige advies te verskaf oor die potensiële impak van die ontwikkeling van die hawe en aangrensende Spesiale Ekonomiese Sone (SES) op bestaande visserye en kus (lewens) bestaan aktiwiteite.



'n SOA is 'n kennis-beleidsinstrument wat gebruik word om volhoubare beplanning op verskillende ruimtelike skale te rig. Dit sluit verskeie benaderings, metodes en prosesse in om die geleenthede en risiko's van voorgestelde ontwikkelingsprogramme en -beleide te assesseer. Hierdie kundige groep fokus op kus (lewens) bestaan aktiwiteite en visserye om seker te maak dat impakte op visserye en kus (lewens) bestaan uitdruklik in die beplanningsproses in ag geneem kan word.

Kus (lewens)bestaan aktiwiteite

7. Gebaseer op jou ervaring, wat is die belangrikste lewens bestaan aktiwiteite in hierdie dorp of gebied?

8. Hoekom dink jy is hierdie die belangrikste lewens bestaan aktiwiteite?

9. Gebaseer op jou ervaring, hoe het lewens bestaan aktiwiteite (dink aan visvang, boerdery, mynbou, bewaring, toerisme) in die gebied (of spesifieke dorp) oor die afgelope 10 jaar verander?

10. Is Boegoebaai vir jou of ander mense in jou gemeenskap belangrik? Byvoorbeeld, word Boegoebaai gebruik vir ontspanningsaktiwiteite soos visvang of enige ander aktiwiteite

11. Indien die antwoord vir die laaste vraag ja was, verduidelik asseblief u antwoord.

12. Hou hierdie gebied enige kulturele of historiese betekenis vir jou?

2

Vissery aktiwiteite

13. Tipe Visvangs aktiwiteit

Kommersieel/ontspanning/albei

14. Watter spesies teiken die vissery?

15. Watter permitte is aan Regshouers toegeken?

16. In watter geografiese gebied vang hierdie vissery vis?

17. Watter vaartuie word in die vissery gebruik?

18. Hoeveel vaartuie word in die vissery gebruik?

19. Watter tipe toerusting word gebruik?

20. Hoeveel huishoudings word deur die vissery ondersteun?

21. Hoeveel mense is direk in diens van die vissery?

22. Hoeveel mense is indirek in diens van die vissery?

23. Wat behels indirekte indiensneming?

24. Is die werknemers ook elders in diens wanneer hulle nie visvang nie?

25. Indien jy ja geantwoord het op die vorige vraag, waar is werknemers in diens?

Impakte van voorgestelde ontwikkeling

26. Gebaseer op jou ervaring, dink jy die bou van die Boegoebaai-hawe sal 'n positiewe of negatiewe impak op kus(lewens)bestaan aktiwiteite hê?

Positief/Negatief/Neutraal (kies een)

27. Lys die impakte.

28. Gebaseer op jou ervaring, sal die bou van die SES 'n positiewe of negatiewe impak op kus(lewens)bestaan hê?

Positief/Negatief/Neutraal (kies een)

29. Lys die impakte.

30. Gebaseer op jou ervaring, sal die bou van die Boegoebaai-hawe 'n positiewe of negatiewe impak op visserye hê?

3

Positief/Negatief/Neutraal (kies een)

31. Lys die impakte.

32. Gebaseer op jou ervaring, wat sal die impak wees van die bou van die SES op kus visserye? Sal dit 'n positiewe of negatiewe impak hê?

Positief/Negatief/Neutraal (kies een)

33. Lys die impakte.

Menings oor potensiële versagting maatreëls

34. Hoe kan positiewe impakte (voordele) benut word?

35. Hoe kan negatiewe impakte verminder word?

4

2B. Consent form (English and Afrikaans)

Proposed Boegoebaai Port and Special Economic Zone (SEZ) development

Fisheries and Coastal Livelihoods Study: Informed Consent Form

Invitation to participate and benefits: You are invited to participate in a study being conducted with key experts on fisheries and coastal livelihoods in the southern Benguela (Northern Cape area). The study aims to understand current fisheries and livelihood activities that may be impacted by the proposed Boegoebaai Port Development and adjacent Special Economic Zone (SEZ) and forms part of a Strategic Environmental Assessment (SEA) being conducted by The Council of Scientific and Industrial Research (CSIR).

Procedures: During this study, you will be asked to complete a semi-structured survey with the assistance of an interviewer.

Recording: We may record audio to capture your detailed responses. If you object to this, please indicate below. Objections to being recorded will not eject you from participating in the study. All personal information and data will be treated in line with the Protection of Information Act (POPIA).

Risks: There are no potentially harmful risks related to your participation in this study.

Feedback: The study's results will be part of the SEA report published by the CSIR. Once finalised, the final report will be available and shared on request. Any queries on the project can be directed to Lizande Kellerman (Lkellerman@csir.co.za).

Disclaimer/Withdrawal: Your participation is completely voluntary; you may refuse to participate and withdraw at any time without having to state a reason and without any prejudice or penalty against you. Should you withdraw, the interviewer commits not to use any of the information you provided without your consent. Note that the interviewer may also withdraw you from the study at any time.

Confidentiality: Your participation in the study will be kept anonymous and pseudonyms will be used if you wish to do so.

What signing this form means: You agree to participate in this research study by signing this consent form. The aim, procedures to be used, as well as the potential risks and benefits of your participation, have been explained verbally to you in detail using this form. Refusal to participate in or withdraw from this study at any time will have no effect on you in any way.

I agree to participate in this research (tick one box)	☐ Yes	☐ No	_____ (Initials)
I agree to be audio-recorded (tick one box)	☐ Yes	☐ No	_____ (Initials)
I which to preserve my anonymity (tick one box)	☐ Yes	☐ No	_____ (Initials)

_____	_____	_____
Name of Participant	Signature of Participant	Date
_____	_____	_____
Name of Interviewer	Signature of Interviewer	Date

Voorgestelde Boegoebaai Hawe en Spesiale Ekonomiese Sone (SES) Ontwikkeling

Vissery en kus- (lewens) bestaan studie: Ingeligte Toestemmingsvorm

Uitnodiging om deel te neem en voordele: U word uitgenooi om deel te neem aan 'n studie wat uitgevoer word met kenners oor visserye en kus lewensbestaan aktiwiteite in die suidelike Benguela (Noord-Kaap gebied). Die studie poog om huidige vissery- en kus lewensbestaan te verstaan wat moontlik deur die voorgestelde Boegoebaai Hawe-ontwikkeling en aangrensende Spesiale Ekonomiese Sone (SES) geraak kan word en vorm deel van 'n Strategiese Omgewings Analise (SOA) wat deur Die Raad vir Wetenskaplike en Nywerheidsnavorsing (WNNR) uitgevoer word.

Prosedures: Tydens hierdie studie sal u gevra word om 'n semi-gestruktureerde opname te voltooi met die hulp van 'n onderhoudvoerder.

Opname: Ons mag klank opneem om u antwoorde vas te lê. As u hierteen beswaar het, dui dit asseblief hieronder aan. Besware teen opname sal u nie van deelname aan die studie uitsluit nie. Alle persoonlike inligting en data sal volgens die Wet op Beskerming van Persoonlike Inligting (POPIA) hanteer word.

Risiko's: Daar is geen potensiële skadelike risiko's verbonde aan u deelname aan hierdie studie nie.

Terugvoer: Die resultate van die studie sal deel wees van die SOA-verslag wat deur die WNNR gepubliseer word. Sodra dit gefinaliseer is, sal die finale verslag beskikbaar wees en op versoek gedeel word. Enige navrae oor die projek kan gerig word aan Lizande Kellerman (Lkellerman@csir.co.za).

Vrywaring/Onthouding: U deelname is heeltemal vrywillig; u mag weier om deel te neem en kan enige tyd onttrek sonder om 'n rede daarvoor te verskaf en sonder enige vooroordeel of straf teen u. Indien u onttrek, verbind die onderhoudvoerder hom/haar daartoe om geen van die inligting wat u verskaf het, sonder u toestemming te gebruik nie. Neem kennis dat die onderhoudvoerder u ook enige tyd uit die studie kan onttrek.

Vertroulikheid: U deelname aan die studie sal anoniem gehou word en skuilname sal gebruik word indien u dit verkies.

Wat dit beteken om hierdie vorm te teken: U stem in om aan hierdie navorsingstudie deel te neem deur hierdie toestemmingsvorm te teken. Die doel, prosedures wat gebruik gaan word, asook die potensiële risiko's en voordele van u deelname, is mondelings aan u verduidelik in detail met behulp van hierdie vorm. Weiering om deel te neem of om te onttrek uit hierdie studie enige tyd sal geen effek op u hê nie.

Ek stem in om aan hierdie navorsing deel te neem (merk een blokkie) ☐ Ja ☐ Nee_____ (Voorletters)

Ek stem in om klankopgeneem te word (merk een blokkie) ☐ Ja ☐ Nee_____ (Voorletters

Ek wil my anonimiteit behou (merk een blokkie) ☐ Ja ☐ Nee_____ (Voorletters

_____	_____	_____
Naam van deelnemer	Handtekening van deelnemer	Datum
_____	_____	_____
Naam van onderhoudvoerder	Handtekening van onderhoudvoerder	Datum