

EXECUTIVE SUMMARY: FINAL BASIC ASSESSMENT REPORT

BA PROCESS FOR A PROPOSED SEA-BASED AQUACULTURE DEVELOPMENT ZONE IN SALDANHA BAY

SRK Project Number: 499020

DEA Project Number: 14/12/16/3/3/1/1728

May 2017

1 INTRODUCTION

The Department of Agriculture, Forestry and Fisheries (DAFF) aims to develop and facilitate aquaculture (the sea-based or land-based rearing of aquatic animals or the cultivation of aquatic plants for food) in South Africa to supply food, create jobs in marginalised coastal communities and contribute to national income.

Saldanha Bay is a highly productive marine environment and has an established aquaculture industry, with potential for growth.

Operation Phakisa was launched in 2014 to unlock the economic potential of South Africa's oceans through innovative programmes that bring together many stakeholders to plan major economic projects. Aquaculture was identified as a key priority of Operation Phakisa, as it is considered a sustainable strategy to contribute to job creation and South African Gross Domestic Product.

Operation Phakisa has triggered increased interest in starting new aquaculture projects and expanding existing projects within Saldanha Bay.

DAFF proposes to establish a sea-based Aquaculture Development Zone (ADZ) in Saldanha Bay, Western Cape to encourage investor and consumer confidence, create incentives for industry development, provide marine aquaculture services, manage the risks associated with aquaculture and provide skills development and employment for coastal communities.

SRK Consulting (Pty) Ltd (SRK) has been appointed as the independent consultant to undertake the Environmental Impact Assessment (EIA) process required in terms of the National Environmental Management Act 107 of 1998, as amended (NEMA) and the EIA Regulations, 2014.

See page 12 for details on how you can participate in the process.



Figure 1: (Partial) View of Saldanha Bay

Note: Changes to the Final BAR executive summary relative to the draft BAR executive summary are indicated in italic underlined font.

2 GOVERNANCE FRAMEWORK

Sections 24 and 44 of NEMA make provision for the promulgation of regulations that identify activities which may not commence without an Environmental Authorisation (EA) issued by the competent authority, in this case, the national Department of Environmental Affairs (DEA). The Environmental Impact Assessment (EIA) Regulations, 2014 (Government Notice (GN) R982, which came into effect on 8 December 2014), promulgated in terms of NEMA, as amended by GN R326 of 2017, govern the process, methodologies and requirements for the undertaking of EIAs in support of EA applications. The EIA Regulations are accompanied by Listing Notices (LN) 1-3 that list activities that require EA.

The EIA Regulations, 2014 lay out two alternative authorisation processes. Depending on the type of activity that is proposed, either a Basic Assessment (BA) process or a Scoping and Environmental Impact Reporting (S&EIR) process is required to obtain EA. LN 1 lists activities that require a BA process, while LN 2 lists activities that require S&EIR. LN 3 lists activities in certain sensitive geographic areas that require a BA.

SRK has determined that the proposed project triggers activities listed in terms of LN 1 of the EIA Regulations, 2014, requiring a BA.

Table 1: Listed activities triggered by the project

No	Description (abbreviated)
LN 1 (requiring BA)	
7	The development and related operation of facilities, infrastructure or structures for aquaculture of sea-based cage culture of finfish, molluscs and aquatic plants of more than 50 000 kg per annum.
17	Development in the sea in respect of infrastructure <u>and structures</u> with a development footprint of 50 m ² or more.
42	The expansion and related operation of facilities, infrastructure or structures for aquaculture of sea-based cage culture of finfish, molluscs and aquatic plants with an increase of more than 50 000 kg per annum.
54	Expansion in the sea in respect of infrastructure <u>and structures</u> with a development footprint of 50 m ² or more.

3 ENVIRONMENTAL PROCESS

The EIA Regulations, 2014 define the detailed approach to the BA process (see Figure 2).

The objectives of the BA process are to:

- Identify relevant authorities and key stakeholders to engage in the stakeholder engagement process;
- Facilitate the dissemination of information to the relevant authorities and stakeholders and provide them with an opportunity to raise issues or concerns related to the project;

- Identify potential issues and environmental impacts;
- Assess the significance of the potential environmental impacts identified;
- Describe and investigate alternatives that have been and / or could be considered; and
- Provide feasible mitigation measures to address any significant impacts identified.

The above objectives are achieved through the technical evaluation of the proposed activity, the undertaking of the stakeholder engagement process and the submission of the relevant information and documentation to DEA.

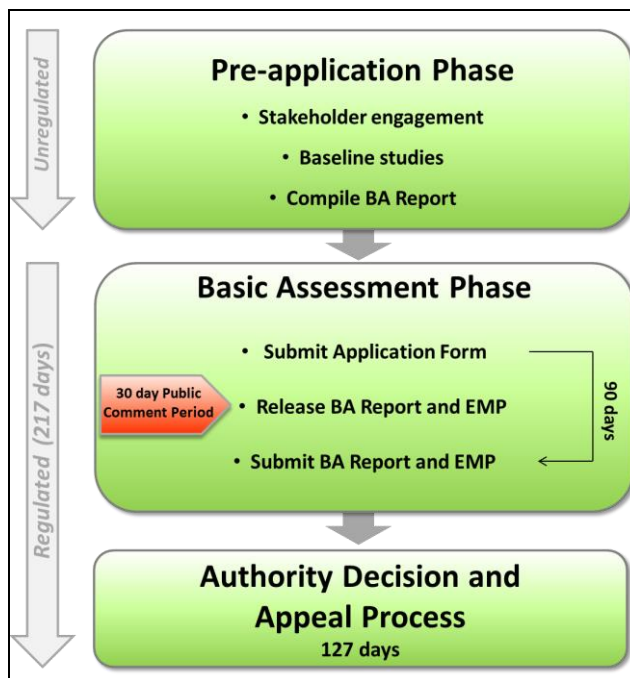


Figure 2: BA Process

4 OVERVIEW OF THE SITE AND ENVIRONMENT

Saldanha Bay is located on the semi-arid West Coast of South Africa, in the Western Cape, approximately 120 km north of Cape Town. The Port of Saldanha is the main iron ore export terminal in South Africa. A number of other vessel types, primarily oil tankers, also frequent the port.

Saldanha Bay supports many economic activities. An aquaculture industry (mostly mussels and oysters) has been established in Saldanha Bay for decades. Fishing is also a historically important activity and a number of fish processing plants are located in Saldanha.

Tourism is an important income source in the area. Numerous recreational activities attracting tourists are water-based and take place in Saldanha Bay and Langebaan Lagoon (e.g. sailing, kiting, kayaking and recreational fishing).

The Port of Saldanha is South Africa’s premier iron ore export port and also supports a number of industrial operations in the area, including the ArcelorMittal steel plant and Tronox smelter. The Saldanha Bay Industrial

Development Zone (SBIDZ) has been established at the back of the Port and aims to provide services to the oil and gas sector and marine repair cluster.

Saldanha Bay falls within the Cape West Coast Biosphere Reserve. Langebaan Lagoon, located south of and connected to Saldanha Bay, has been declared a RAMSAR wetland of international importance. Langebaan Lagoon, as well as a number of islands in Saldanha Bay, form part of the West Coast National Park located south of Saldanha Bay. Freshwater is scarce and the marine environment is regarded as sensitive.

Saldanha Bay is regularly monitored as part of the State of the Bay reporting. The 2016 report concludes that developments in Saldanha Bay and Langebaan Lagoon during the past 30 years have inevitably impacted on the environment. Long-term decreases in populations of fish (e.g. white sturgeon) and many bird species most likely reflect long-term changes in exploitation levels (fish), habitat quality (sediment and water quality and increasing levels of disturbance) and important forage species (e.g. benthic macrofauna). Recent improvements in some of these underlying indicators (e.g. sediment quality and macrofauna abundance and composition) are encouraging and will hopefully translate into improvements in the higher order taxa as well. Considerable work remains to be done in maintaining and restoring the health of the Bay, especially in respect of the large volumes of effluent that are discharged to the Bay, very little of which is compliant with the existing effluent quality standards.

5 PROJECT DESCRIPTION

Saldanha Bay presently supports a number of aquaculture operations, mostly mussel and oyster farms. Research has determined that the Bay can support additional aquaculture production. To facilitate investment and development of additional aquaculture in the Bay, DAFF proposes to establish and obtain EA for an ADZ in Saldanha Bay for sea-based aquaculture.

Potentially suitable areas for aquaculture were identified based on oceanographic conditions such as depth, waves and swell. Aspects such as nutrients and dissolved oxygen in any one area were not taken into account in the selection of areas, but will have to be considered by prospective farmers in relation to individual operations.

The potential **ADZ areas that were (originally) assessed in the BA** process comprise five precincts, totalling 1 404 ha of **new** aquaculture areas in Saldanha Bay for a total ADZ comprising 1 872 ha (see Table 2, Figure 3):

- Small Bay: no additional aquaculture areas are proposed (though allocated areas are not fully utilized);
- Big Bay North: north of Mykonos entrance channel;

- Big Bay South: south of Mykonos entrance channel – two alternative layouts are proposed for this area;
- Outer Bay North: north of Port entrance channel, near Malgas Island; and
- Outer Bay South: south of Port entrance channel, near Jutten Island.

Currently farmed areas will be incorporated into the ADZ.

Table 2: ADZ precincts assessed in the BA

Precinct	Currently allocated	Currently farmed	New areas	Total future
Small Bay	163	125	-	163
Big Bay North	254	25	271	525
Big Bay South	4	1	517	521
Outer Bay North	37	1	299	336
Outer Bay South	10	-	317	327
Total	468	152	1 404	1 872

The following **species** are considered for the ADZ:

- Currently cultivated bivalve species:
 - Pacific oyster (*Crassostrea gigas*)
 - Mediterranean mussel (*Mytilus galloprovincialis*)
 - Black mussel (*Choromytilus meridionalis*)
- Indigenous shellfish species not currently cultivated:
 - Abalone (*Haliotis midae*)
 - South African scallop (*Pecten sulcicostatus*)
- Indigenous finfish species:
 - White Sturgeon (*Rhabdosargus globiceps*)
 - Silver Kob (*Argyrosomus inodorus*)
 - Yellowtail (*Seriola lalandi*)
- Alien finfish species:
 - Atlantic salmon (*Salmo salar*)
 - Coho salmon (*Oncorhynchus kisutch*)
 - King/Chinook salmon (*Oncorhynchus tshawytscha*)
 - Rainbow trout (*Oncorhynchus mykiss*)
 - Brown trout (*Salmo trutta*)¹
- Seaweed:
 - *Gracilaria gracilis*

The following **production methods** are considered most viable for farming in the ADZ:

- Longlines for bivalve culture (and abalone barrels);
- Rafts for bivalve culture (and abalone barrels); and
- Cages for finfish production.

The ADZ **bivalve production volumes** assessed in the BA were determined based on:

- Estimated ecological carrying capacity for bivalves;
- Discussion with industry and industry proposals submitted to DAFF for fish farming.

¹ Note: *S. trutta* was added to the list of species that form part of this application on request of DAFF as it has very similar characteristics to Rainbow trout (*O. mykiss*) already included in this application.

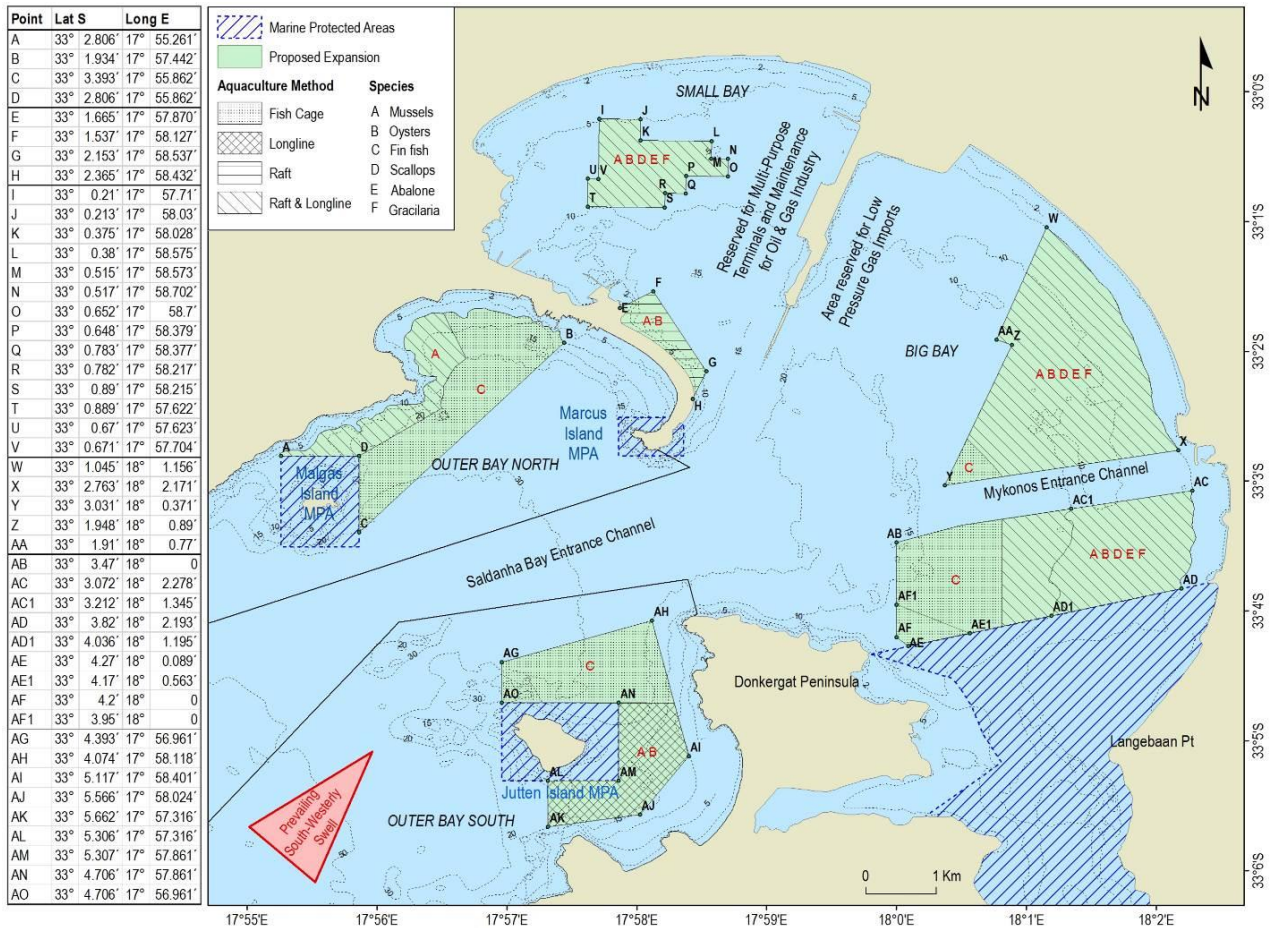


Figure 3: Assessed Saldanha Bay ADZ areas, species and production methods

Based on estimates, the full ADZ could support total annual graded aquaculture bivalve production of up to 15 203 t, more than a six-fold increase over current graded production of ~2 000 tpa.

The ADZ finfish production volumes assessed in the BA were determined based on:

- The area available for finfish farming, with an assumed average farming density of 40 t of fish per ha based on current proposals by the industry; and
- Estimated generation of nutrients from waste as Nitrate (N) as a proportion of overall estimated N in Saldanha Bay.

As a precautionary measure, DAFF has accepted that finfish production be initially capped so that estimated N produced by finfish farming does not exceed 15% of the estimated N load in the Bay. This equates to a finfish production limit of ~5 150 tpa.

Research on cultivating seaweed commercially in southern Africa is limited, and realizing the potential of this resource will require cooperation between research agencies and industry. In the Saldanha ADZ, potentially suitable areas for *Gracilaria* production are likely located in Small Bay and Big Bay in areas shallower than 6 m.

Sea-based activities associated with the ADZ include:

- Servicing and maintenance of aquaculture structures;

- Harvesting of cultivated species;
- Initial processing of bivalves, including de-clumping and grading, typically on a raft or support vessel;
- Vessel trips between the shore and aquaculture areas, e.g. to service structures or harvest species.

No land-based facilities that require EA are included in this assessment, and obtaining authorisation will be the responsibility of individual operators/farmers.

6 ALTERNATIVES

The EIA Regulations, 2014, require that all EIA processes must identify and describe feasible and reasonable alternatives.

The project relates to the establishment of a marine ADZ in Saldanha Bay, and no site alternatives were investigated. DAFF advises that South Africa has a very exposed coastline and a limited number of sheltered bays that allow for sea based aquaculture. Saldanha Bay has been producing shellfish since the 1980s, and large portions of the bay were, and continue to be, zoned for aquaculture. Saldanha Bay is a prime existing site for aquaculture due to the sheltered conditions and high primary productivity. The area accounts for some 50% of current marine aquaculture production in South Africa.

Since the launch of Operation Phakisa Oceans Economy in October 2014, the number of registered Operation Phakisa

aquaculture projects in Saldanha Bay has increased from four to fifteen due to the economic potential of salmon, oysters and mussels culture and progress achieved in unlocking water space and leases for aquaculture through Operation Phakisa. No projects have registered or expressed interest in equivalent new seawater lease areas that would require an EA in other parts of South Africa, and from this perspective there is no (demand for) alternative sites.

A feasibility study conducted for DAFF in 2016 identified Saldanha Bay as the primary site available for mussel and oyster culture in South Africa. When read together, a financial feasibility study commissioned by DAFF (2016) and a national Strategic Environmental Assessment (SEA) for finfish culture (2012) identified Saldanha Bay as the only area suitable for cage-based salmon production in South Africa based on environmental conditions, specifically temperature and sea conditions. The experimental salmon and trout cage farming currently underway in Saldanha Bay (independently from the ADZ) has yielded promising results to date, with industry indicating their interest in further investment and commercialisation of the operation.

The West Coast north of Saldanha Bay does not provide appropriate cage culture opportunities due to the frequency and intensity of harmful algal blooms (HAB) in the area and the exposed shoreline. The South and East Coasts of South Africa are not suitable for salmon production due to the warmer sea temperatures, which exceed 20°C.

St Helena Bay, specifically, is unsuitable for both finfish and shellfish culture due to the frequency and intensity of HAB that affect the animals and food safety of the products. Saldanha Bay is less susceptible to HAB due to the hydrodynamics of the bay.

Two **layout alternatives** were considered:

- Full Big Bay South Alternative, which extends from the Mykonos harbour entrance channel towards the Langebaan Lagoon MPA, and from the 5 m depth contour towards the Donkergat Peninsula; and
- Reduced Big Bay South Alternative, which extends from the Mykonos harbour entrance channel towards the Langebaan Lagoon MPA, and from the 10 m depth contour towards the Donkergat Peninsula.

The **No-Go alternative** was also assessed. It implies that existing aquaculture production in Saldanha Bay will continue while lease agreements / authorisations are valid (and aquaculture remains viable). Management measures recommended as part of the ADZ development would, however, not become binding on existing aquaculture operations.

7 **STAKEHOLDER ENGAGEMENT**

Stakeholder engagement is a key component of the BA process and is undertaken in accordance with Chapter 6 of the EIA Regulations, 2014. The key stakeholder engagement activities during the BA process are summarised in Table 3 below.

Table 3: Stakeholder engagement activities

Activity	Date
Pre-application phase	
<u>Notification (adverts and emails)</u>	<u>9 June 2016</u>
<u>Release of a Background Information Document (BID)</u>	<u>9 June 2016</u>
<u>Placement of notices</u>	<u>Week of 13 June 2016</u>
<u>TNPA focus group meeting</u>	<u>17 May 2016</u>
<u>Technical workshop</u>	<u>20 July 2016</u>
<u>Release of the Project Definition Summary</u>	<u>5 August 2016</u>
Basic Assessment phase	
<u>Release of draft BAR for comment</u>	<u>8 February – 31 March 2017</u>
<u>Focus group meetings</u>	<u>23 February 2017</u>
<u>Public open day</u>	<u>23 February 2017</u>
<u>Release of Final BAR for comment</u>	<u>18 May – 19 June 2017</u>

Some 185 people attended the public open day. SRK received 60 comments and some 1 600 petitions in response to the draft BAR. Key comments and concerns raised by stakeholders relate to:

- The extent of the ADZ relative to Saldanha Bay;
- Potential impacts on watersports due to spatial overlap and associated impacts on tourism and businesses;
- Potential visual impacts and associated impacts on tourism and property values;
- Creation and loss of jobs as a result of the ADZ;
- Potential impacts on water quality;
- Management and monitoring of the ADZ;
- Potential impacts of fish farming, including introduction of aliens and diseases;
- The need for modelling of potential impacts; and
- Lack of alternative sites.

Comprehensive answers to these and other comments are provided in the Comments and Responses Table in BAR Appendix E10. Summarised responses are given in the BAR.

8 **ASSESSMENT OF POTENTIAL IMPACTS**

Potential impacts associated with the project were assessed according to SRK's impact assessment methodology. For all potentially significant impacts, the significance of the anticipated impact was rated without

and with recommended mitigation measures. These impacts are presented in Table 4 which summarises:

- The impacts assessed in the BA Report;
- Their significance before and after the implementation of essential mitigation measures; and
- The key mitigation measures on which the significance rating is based (where applicable).

Impact Significance Ratings Legend:

Rating	+ve	-ve
Insignificant	I	I
Very Low	VL	VL
Low	L	L
Medium	M	M
High	H	H
Very High	VH	VH

The following specialists were consulted to identify and assess potential issues and impacts within their particular field of study and to identify practicable mitigation and optimisation measures to avoid or minimise potential negative impacts and/or enhance any benefits:

- Pisces – Marine Ecology;
- SRK – Socio-economic
- African Centre for Heritage Activities - Heritage; and
- SRK – Visual.

An independent review of the visual impact assessment supports the findings, recommendations and conclusions of the VIA.

Table 4: Summary of Impacts

Impact	Significance rating		Key mitigation/optimisation measures <i>(abbreviated, without repetition where mitigation measures apply to more than one impact)</i>
	Without	With	
CONSTRUCTION PHASE IMPACTS			
Crushing of biota in sediments during placement of mooring infrastructure	L	L	<ul style="list-style-type: none"> • Avoid potentially sensitive and valuable habitats such as conservation areas, biogenic habitats and reefs. • Ensure mooring systems are well designed to prevent / limit movement of anchors and chains over the sea floor.
Investment in the economy	L	L	<ul style="list-style-type: none"> • Procure goods and services from local, provincial or South African suppliers as far as possible, with an emphasis on Black Economic Empowerment (BEE) suppliers where possible.
Increased employment, income and skills development	VL	VL	<ul style="list-style-type: none"> • Procure goods and services from local, provincial or South African suppliers as far as possible, with an emphasis on BEE suppliers where possible.
Destruction, damage or alteration of heritage material or sites	L	VL	<ul style="list-style-type: none"> • Do not place mooring blocks within 200 m of the Merestein site. • Undertake diver surveys prior to placing anchors / moorings, and do not place mooring blocks on visible shipwreck features (above the seabed). • Contact archaeologists should shipwreck material be identified to agree on any interventions required. • Provide the location and nature of any identified maritime and underwater cultural heritage resources to a maritime archaeologist and SAHRA for inclusion on their shipwreck database.
OPERATIONS PHASE IMPACTS			
Modification of seabed characteristics by:			
- Shellfish farming	M	L	<ul style="list-style-type: none"> • Select sites favouring well-flushed, deep and productive areas. • Avoid potentially sensitive and valuable habitats. • Leave mooring anchors or blocks in place when undertaking structure maintenance or following sites to avoid repetitive impacts of the same activity at each site. • Avoid high density culture (overcrowding). The recommended density is one raft of 800 droppers per ha; 11 longlines of 832 droppers per ha. • Implement recommended monitoring in seabed properties at farming sites and compile annual monitoring reports.
- Finfish farming	H	M	<ul style="list-style-type: none"> • Select suitably deep sites that allow cages to be suspended at least 5 m above the seabed. • Implement buffers and a phased-in development of finfish farms. • Ensure that finfish cages do not occupy more than 30% of the total area allocated for finfish farming at any one time. • Manage stocking densities at levels to ensure that environment health is maintained, as determined by the environmental sampling and monitoring programme (see EMPr). • Monitor and manage feeding regimes to minimise feed wastage and chemical usage. • Rotate cages within a production area to allow recovery of benthos. • Limit annual increases in finfish production to no more than 1 000 t, and only if monitoring results indicate that environment health has been maintained and impacts remain manageable, up to 5 000 tpa ungraded production. • Only exceed finfish production of 5 000 tpa (after at least 5 years) to a maximum of 10 000 tpa if a precautionary approach is applied, involving strict and intensified monitoring programmes and adherence to environmental quality standards. Should standards or precautionary limits be approached or exceeded, the sampling and

Impact	Significance rating		Key mitigation/optimisation measures <i>(abbreviated, without repetition where mitigation measures apply to more than one impact)</i>
	Without	With	
			<p>monitoring plans must include a response procedure that leads to appropriate downward adjustment of fish production.</p> <ul style="list-style-type: none"> Adopt the (relevant aspects of) MOM (Modelling-Outgrowing-Monitoring) management system (or similar) to monitor infaunal and epifaunal macrobenthic communities at farming sites.
Modification of water column characteristics	M	L	<ul style="list-style-type: none"> Undertake ongoing, detailed water quality monitoring; including baseline surveys at control and impact sites, and decrease the ADZ carrying capacity should the environmental quality indicator be exceeded outside of the accepted sacrificial footprint. Monitor for copper leachate from antifouling paint.
Creation of habitat	M	M	<ul style="list-style-type: none"> None
Alteration of behaviour and entanglement of seabirds and marine fauna:			
- Shellfish farming	M	L	<ul style="list-style-type: none"> Implement buffer zones at MPAs. Minimise the potential for litter entering the marine environment. Keep a log of all cetaceans, seabirds and predators recorded in the vicinity of fish farms, including behavioural observations.
- Finfish farming	H	L	<ul style="list-style-type: none"> Remove any injured or dead fish from cages promptly. Do not release any blood and/or offal (organic waste) from finfish into the bay. Keep a log of all cetaceans, seabirds and predators recorded in the vicinity of fish farms, including behavioural observations. Use predator exclusion nets as necessary. Develop disentanglement protocols in collaboration with DAFF, DEA and the SA Whale Disentanglement Network and establish a rapid response unit to deal with entanglements.
Risk of introduction of alien invasive species or spread of fouling pests	VH	M	<ul style="list-style-type: none"> Ensure that a high level of biosecurity management and planning is in place. Undertake routine surveillance on and around marine farm structures and associated vessels and infrastructure for indications of non-native fouling species. Maintain effective antifouling coatings and regularly inspect farm structures and farm vessels for pests. Clean structures and hulls regularly to ensure eradication of pests. If spat import cannot be avoided, only use spat from biosecure certified hatcheries and/or quarantine facilities. Adhere to veterinarian protocols to eliminate any pests, parasites and diseases.
Transmission of diseases to wild populations	H	VL	<ul style="list-style-type: none"> Use only prescribed veterinary chemicals.
Risk of genetic interaction with wild populations:			
- Shellfish farming	M	L	<ul style="list-style-type: none"> Ensure good physical and biological containment to limit the effects of escaped stocks.
- Finfish farming	H	L	<ul style="list-style-type: none"> Implement suitable management and planning measures to limit the possibility of genetic interactions. Implement the “Genetic Best Practice Management Guidelines for Marine Finfish Hatcheries” developed by DAFF. Implement annual genetic monitoring between wild caught and farmed fish. Use appropriate spawning regimes in the hatchery to maintain genetic diversity. Use all female or triploid salmonids in the farms. Use robust, well-maintained containment systems. Maintain cage integrity through regular maintenance and replacement. Ensure appropriate training of staff. Develop and implement recovery procedures should escapes occur.
Contamination by therapeutants and trace contaminants from finfish farming	M	L	<ul style="list-style-type: none"> Use only approved veterinary chemicals and antifoulants. Use the lowest effective doses of nutritional therapeutants. Use the most efficient drug delivery mechanisms. Establish and adhere to guidelines around the use of anti-fouling products. Do not apply antifoulants on site and use environmentally friendly alternatives.
Contribution to the economy	M*	M*	<ul style="list-style-type: none"> Procure goods and services from local, provincial or South African suppliers as far as possible, with an emphasis on BEE suppliers where possible. Procure ancillary services for goods purchased overseas, such as installation, customisation and maintenance, from South African companies as far as possible.
Increased employment, income and skills development	M*	M*	<ul style="list-style-type: none"> Utilise local labour (Saldanha Bay Municipality) as much as possible. Where non-local specialist staff is required, implement a training programme to upskill local labour to assume these positions over a period of 5 years. Collect monthly data on staff numbers, composition and origin and report these at least annually to the respective authorities (e.g. DAFF).
Possible reduction in water sport activities and associated decline in tourism and business	H	L	<ul style="list-style-type: none"> Avoid placing aquaculture structures in the Big Bay South precinct to allow continued access by watersports crafts. Avoid placing aquaculture structures in the section between Jutten Island and Dongergat Peninsula in the Outer Bay South precinct to allow continued access by watersports crafts.

Impact	Significance rating		Key mitigation/optimisation measures <i>(abbreviated, without repetition where mitigation measures apply to more than one impact)</i>
	Without	With	
activities			<ul style="list-style-type: none"> Invite the general public to register as stakeholders on a stakeholder database maintained by the ADZ Management Committee (AMC). Provide regular updates to all registered stakeholders on activities in the ADZ. Provide at least 2 months’ notice to registered stakeholders before installation of new farms commences. Provide detail on the proposed farm type and location. Ensure that all active aquaculture farms are accurately marked on navigational charts. Ensure that the outer boundaries of all active aquaculture areas are accurately marked day and night using markers compliant with SAMSA regulations. Monitor markers to ensure they are always fully functional.
Possible restrictions to military activities	H	L	<ul style="list-style-type: none"> As above
Pressures on resources and infrastructure due to an influx of people	VL	VL	<ul style="list-style-type: none"> Implement a local recruitment policy, to discourage an uncoordinated influx of outside workers.
Altered sense of place and visual intrusion from the proposed development	H	M	<ul style="list-style-type: none"> Use grey based hues for all project components (rafts, cages, barrels, buoys/flotation devices) visible above the surface of the water as far as possible. Ensure project components are of a similar style and scale to promote visual cohesiveness. Utilise the minimum number of safety / warning buoys as far as possible. Only demarcate the corner points of each precinct and the minimum interval distance along the precinct boundary to meet Ports Authority (Transnet) safety requirements. Maintain all project infrastructure in good working order. Incorporate a 1 km buffer from residents along the eastern shoreline in the design of the Big Bay North precinct.
Altered sense of place and visual quality caused by light pollution at night	L	VL	<ul style="list-style-type: none"> Restrict operations at night. Utilise the minimum number of safety/warning lights as far as possible. Only locate lights on the corner points of each precinct and the minimum interval distance along the precinct boundary to meet Ports Authority (Transnet) safety requirements. Confirm with key stakeholders (notably Port Captain, representatives of water users in the area and the South African Navy) whether certain boundaries of the ADZ located away from night-time traffic require lighting. If the Ports Authority requires flashing lights, ensure the lights flash simultaneously.

* High (+) if full production is ecologically sustainable.

9 CONCLUSIONS AND RECOMMENDATIONS

The ADZ in Saldanha Bay aims to create incentives for the further development of aquaculture in Saldanha Bay, thereby creating jobs, providing skills development and contributing to the economy under the umbrella of the Operation Phakisa initiative. Aquaculture is well-established in Saldanha Bay, and the bay is one of very few sheltered waterbodies off the South African coast deemed suitable for marine-based aquaculture.

The most significant potential negative impacts of the project (after mitigation) are related to marine ecology and visual aspects. Most notably, expanding shellfish aquaculture in Saldanha Bay, and introducing finfish aquaculture, is likely to:

- Modify seabed characteristics by deposition of fish waste (faeces and excess feed);
- Increase the risk of introducing alien invasive species or spread of fouling pests through the importation of seed stock and deployment of aquaculture structures on which fouling organisms establish; and
- Alter the sense of place and present a visual intrusion as a result of the aquaculture structures that will be visible on the water surface.

The above impacts are rated as having Medium (negative) residual significance. It is recommended that additional aquaculture production of shellfish and finfish in Saldanha Bay is gradually phased in, based on environmental monitoring, to avoid unacceptable impacts on the bay. While total shellfish and finfish production volumes have been stipulated for the ADZ, these may have to be revised if environmental (water and sediment quality) monitoring during early implementation phases indicates that impacts exceed acceptable thresholds with regards to marine ecology.

Other post-mitigation negative impacts related to marine ecology, socio-economic activities and the visual environment are rated as having Low or Very Low (negative) residual significance.

Implementation of mitigation measures is critical to achieve these ratings and include:

- Avoiding areas that are ecologically sensitive or significantly interfere with other uses in the bay (see *Figure 5 and Figure 6*), including²:

² These recommendations are now spelled out more clearly in the summary, and hence indicated as a change; however, the actual recommendation has not changed relative to the draft BAR.

- Reducing the Big Bay South area by 100% (i.e. not developing the area) due to socio-economic (user conflict) and ecological (proximity to Langebaan Lagoon) concerns;
- Reducing the Big Bay North area by 43%, to incorporate a 1 km buffer to residential areas at Club Mykonos and Paradise Beach;
- Reducing the Outer Bay North area by 40% to incorporate a 500 m - 1 km buffer to the Malgas Island MPA; and
- Reducing the Outer Bay South area by 73% to avoid all areas between Jutten Island and the coast.

In the post-mitigation scenario, the new proposed ADZ area has thus reduced by 70% from 1 404 ha in the pre-mitigation scenario to 420 ha. The total ADZ, including areas for which leases are currently held (not all of which are farmed) would be 884 ha in the post-mitigation scenario. This equates to approximately 10% of Saldanha Bay (Small, Big and Outer Bay) (see Figure 7 and Table 5);

- Implementing good biosecurity measures to prevent the introduction of alien invasive species and minimise the risk of diseases and genetic interaction with wild fish populations;
- Utilising aquaculture equipment and methods that are suitable for the conditions, notably maximum wave and swell heights, in the respective precincts; and
- Implementing good housekeeping at all times.

It is recommended that a **phased approach** to the expansion of aquaculture in the ADZ is implemented, notably:

- Limit annual ungraded **shellfish** production to 10 000 t for the first two years, increasing thereafter annually by 5 000 tpa only if monitoring results indicate that environment health has been maintained and impacts remain manageable, to a maximum of 27 600 tpa ungraded production; and
- Limit annual increases in **finfish** production to 1 000 t, and only if monitoring results indicate that environment health has been maintained and impacts remain manageable, up to 5 000 tpa. Split the allowable annual increase in production between Big Bay and Outer Bay. Finfish production beyond 5 000 tpa should only be pursued under specific conditions.

The Big Bay North ADZ area was subsequently amended to ensure that the Molapong application area, located adjacent to but outside of Big Bay North and subject of a separate BA process, is integrated into the ADZ to avoid an overall increase of the aquaculture area in Saldanha Bay.

The Big Bay North area was amended in such a way as to

retain the same 409 ha size of this area by excluding portions along the shore and the south-western point (see Figure 4 – green indicates the original post-mitigation area, pink indicates the amended post-mitigation area including the Molapong application area).



Figure 4: Amendment of Big Bay North area to integrate Molapong application area

This further reduces visual impacts and potential interference with watersports and also reduces potentially suitable seaweed farming areas.

Implementation of mitigation measures and phasing in of aquaculture expansion is deemed to effectively mitigate negative impacts of the ADZ.

It is recommended that an **ADZ Management Committee** (AMC), comprising DAFF, DEA, DEA&DP and TNPA representatives, is established to coordinate and supervise activities, environmental monitoring and environmental compliance of operators in the ADZ. Management measures will also apply to and improve management at existing aquaculture farms in Saldanha Bay.

It is further proposed that a **Consultative Forum**, constituted of other relevant government departments and local organisations, is established to review environmental monitoring data, advise on management and recommend measures.

Benefits of the project relate to development of the aquaculture industry in Saldanha Bay and the resultant contribution to the economy, increased employment (particularly at a low-skill level), income generation and skills development.

SRK believes that sufficient information is available for DEA to take a decision regarding the authorisation of the development. The BA has identified essential mitigation measures that will mitigate the impacts associated with this project to within acceptable limits.

In conclusion SRK is of the opinion that on purely 'environmental' grounds (i.e. the project's potential socio-economic and biophysical implications) the application as it is currently articulated, **with** the recommendations stipulated above and below, should be approved.

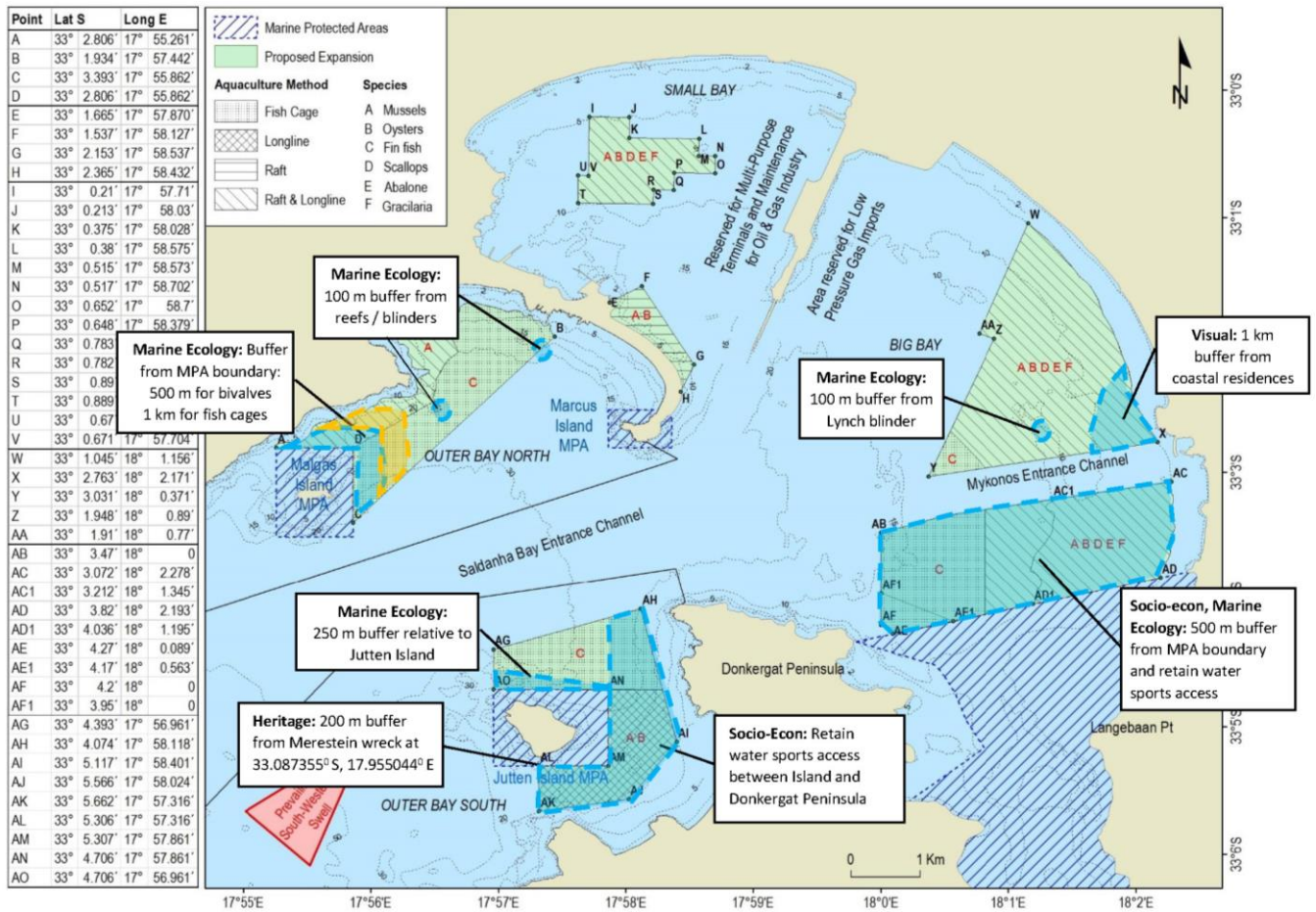


Figure 5: Areas of the pre-mitigation scenario to avoid in mitigation of impacts

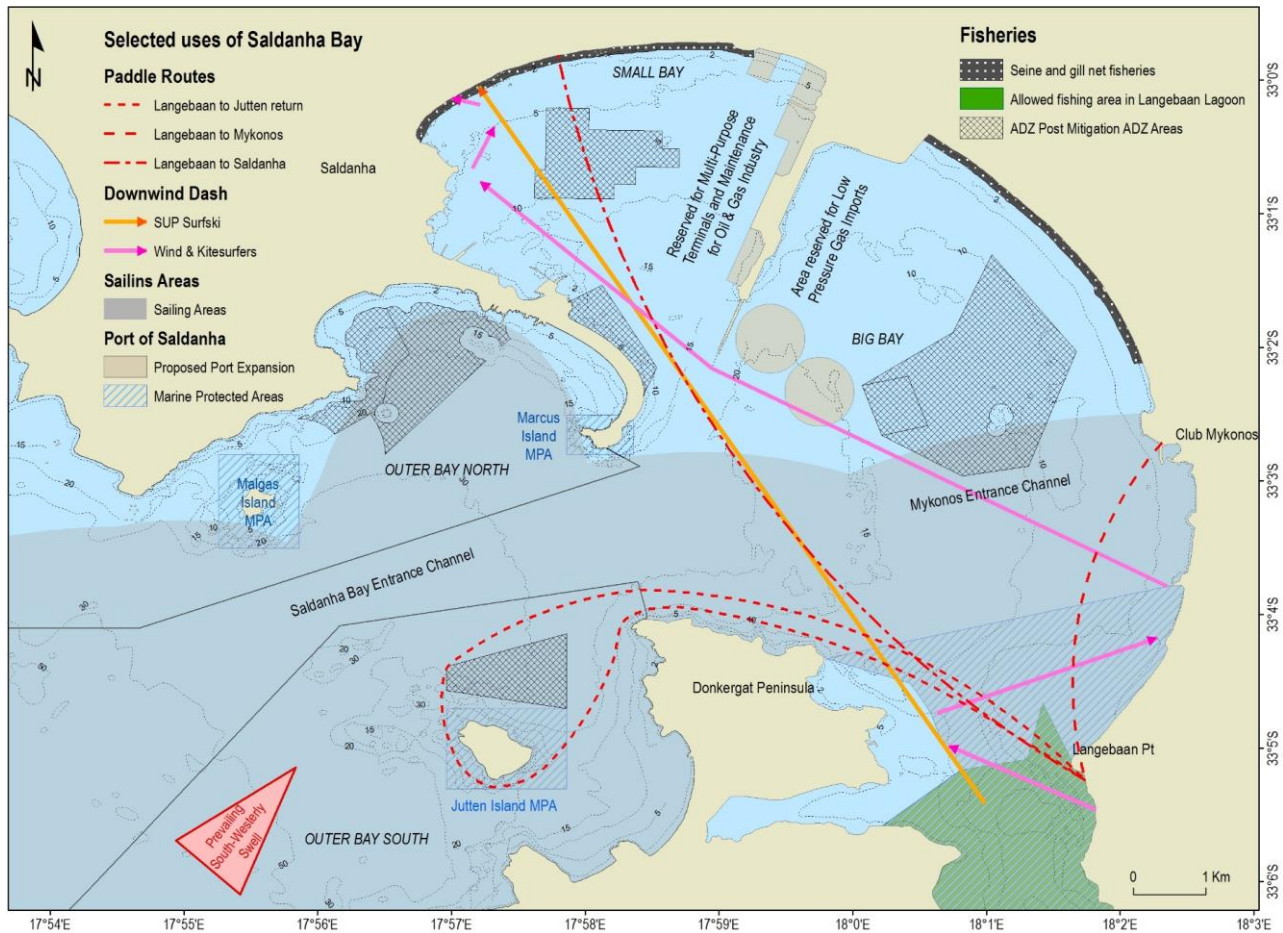


Figure 6: Other use areas in Saldanha Bay relative to the post-mitigation (recommended) ADZ areas

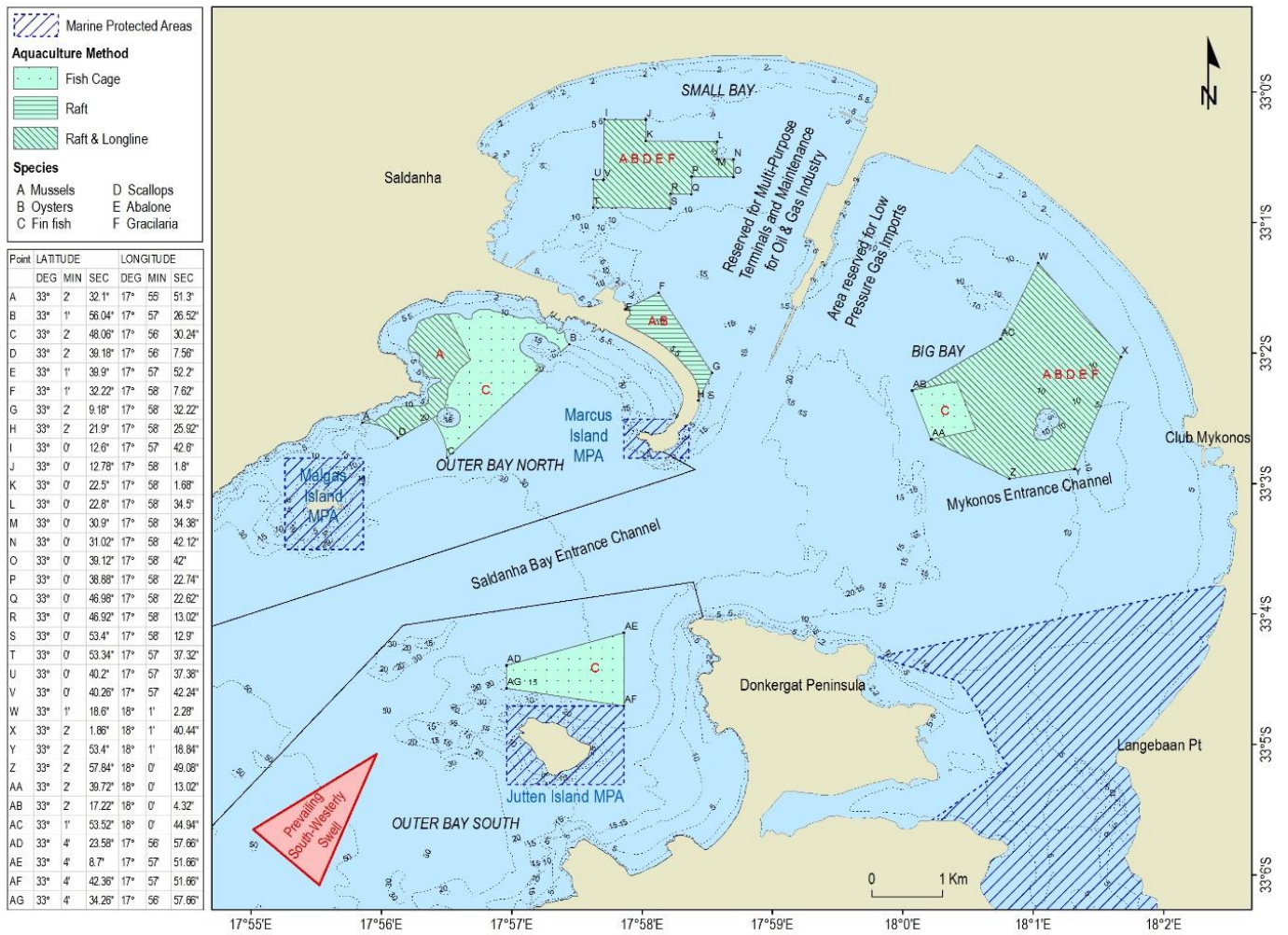


Figure 7: Post-mitigation (recommended) ADZ areas

Table 5: Post-mitigation (recommended) ADZ precincts (ha)

Precinct	Currently allocated	Currently farmed	New areas	Total future	Bivalves*	Finfish*
Small Bay	163	125	-	163	163	-
Big Bay North	254	25	155	409	367	42
Outer Bay North	37	1	179	216	76	140
Outer Bay South	10	-	86	96	-	96
Total	464	151	420	884	606	278

* Note that fish areas are also likely suitable for bivalves, but less vice versa.

HOW YOU CAN YOU PARTICIPATE IN THE BA PROCESS

This amended BAR is being released for a second comment period. Stakeholders can participate as follows:

REVIEW THE REPORT

Copies of the amended report are available for public review at the following locations:

- Saldanha Public Library;
- Langebaan Public Library;
- SRK's Cape Town office; and
- SRK's website: www.srk.co.za – click on the 'Library' and then 'Public Documents' links.

Interested and Affected Parties (IAPs) are invited to comment, and/or to register on the project database. IAPs should refer to the SRK project number, and must provide their comments together with their name, contact details (preferred method of notification, e.g. email), and an indication of any direct business, financial, personal or other interest which they have in the application, to the contact person below.

REGISTER OR PROVIDE YOUR OPINION

Register or send any additional written comment to:

Jessica du Toit

SRK Consulting

Tel: + 27 21 659 3060, Fax: +27 21 685 7105

Email: jedutoit@srk.co.za

Postnet Suite #206, Private Bag X18,
Rondebosch, 7701

Comments must reach SRK no later than **by 19 June 2017**. Only registered IAPs will be notified of future opportunities to comment.

Please note that all comments and petitions already received by SRK to date will be submitted to DEA with the Final BAR.