



Basic Assessment Report in terms of the NEMA Environmental Impact Assessment Regulations, 2014

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by DEA&DP in terms of the EIA Regulations, 2014 and must be completed for all Basic Assessment applications.
 2. This report must be used in all instances for Basic Assessment applications for an environmental authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended, and the Environmental Impact Assessment Regulations, 2010, and/or a waste management licence in terms of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM: WA), and/or an atmospheric emission licence in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM: AQA).
 3. This report from the template of 2 August 2010. It could not be established whether new versions of the report have been published or produced by the competent authority.
 4. The required information must be typed within the spaces provided in the report. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided. It is in the form of a table that will expand as each space is filled with typing.
 5. Incomplete reports will be rejected. A rejected report may be amended and resubmitted.
 6. The use of "not applicable" in the report must be done with circumspection. Where it is used in respect of material information that is required by the Department for assessing the application, this may result in the rejection of the report as provided for in the regulations.
 7. **While the different sections of the report only provide space for provision of information related to one alternative, if more than one feasible and reasonable alternative is considered, the relevant section must be copied and completed for each alternative.**
 8. Unless protected by law all information contained in, and attached to this report, will become public information on receipt by the competent authority. If information is not submitted with this report due to such information being protected by law, the applicant and/or EAP must declare such non-disclosure and provide the reasons for the belief that the information is protected.
 9. This report must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. No faxed or e-mailed reports will be accepted. **Please note that for waste management licence applications, this report must be submitted for the attention of the Department's Waste Management Directorate (tel: 021-483-2756 and fax: 021-483-4425) at the same postal address as the Cape Town Office Region A.**
 10. Unless indicated otherwise, two electronic copies (CD/DVD) and three hard copies of this report must be submitted to the Department.
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DEPARTMENTAL DETAILS

CAPE TOWN OFFICE REGION A (Cape Winelands, City of Cape Town: Tygerberg and Oostenberg Administrations)	CAPE TOWN OFFICE REGION B (West Coast, Overberg, City of Cape Town: Helderberg, South Peninsula, Cape Town and Blaauwberg Administrations)	GEORGE OFFICE (Eden and Central Karoo)
Department of Environmental Affairs and Development Planning Attention: Directorate: Integrated Environmental Management (Region A2) Private Bag X 9086 Cape Town, 8000 Registry Office 1 st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Integrated Environmental Management (Region A2) at: Tel: (021) 483-4793 Fax: (021) 483-3633	Department of Environmental Affairs and Development Planning Attention: Directorate: Integrated Environmental Management (Region B) Private Bag X 9086 Cape Town, 8000 Registry Office 1 st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Integrated Environmental Management (Region B) at: Tel: (021) 483-4094 Fax: (021) 483-4372	Department of Environmental Affairs and Development Planning Attention: Directorate: Integrated Environmental Management (Region A1) Private Bag X 6509 George, 6530 Registry Office 4 th Floor, York Park Building 93 York Street George Queries should be directed to the Directorate: Integrated Environmental Management (Region A1) at: Tel: (044) 805 8600 Fax: (044) 874-2423

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DEPARTMENTAL REFERENCE NUMBER(S)

File reference number (EIA):	16/3/3/1/F4/17/3014/17
File reference number (Waste):	
File reference number (Other):	

PROJECT TITLE

Molapong Aquaculture project, Saldanha Bay
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DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

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EAP Registrations/Associations	Pr Sci Nat (M Sasman) IWMSA (Ecosense) Greenstar (C Rabie) IAIASA (K Myburgh, M Sasman), ELA (K Myburgh)		

Details of the EAP's expertise to carry out Basic Assessment procedures

<p>Ecosense has been involved in undertaking impact assessments since its establishment in 1998. Our experience in Environmental Authorisation applications is therefore over 15 years. Our staff is adequately qualified to conduct environmental assessment, social assessment and environmental monitoring and auditing, with postgraduate qualifications in the environmental and development fields, as well as professional scientific registration.</p> <p>Selected Statutory Applications undertaken include:</p> <p>Community, Government Housing and Sporting Facilities:</p> <ul style="list-style-type: none"> • Maroela North development, Kraaifontein (S&EIR) current • Garies Landfill site waste license (Scoping EIR) current • Matjiesfontein Geodessy station (Basic assessment) current • Kalkfontein Informal Settlement Upgrade (EA Amendment) completed 2015 • Kalkfontein Informal Settlement Upgrade (Basic Assessment) completed 2014
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- Jack Muller and Danie Uys Park – revitalisation and wetland rehabilitation (Basic Assessment) completed 2012.
- Blue Downs Housing Development (Nuwe Begin - WCape Provincial housing pilot project), Blue Downs, Cape Town (EIA and Social Impact Assessment) completed 2009.

Commercial/Industrial/Educational Developments:

- Brocsand sand mine, Atlantis (Scoping EIR) current
- SOILL Canola Plant, Klapmuts (Basic Assessment) current
- Fair Cape Biodigester, Durbanville, Cape Town (Waste License) completed 2013
- Journeys End Wine Cellar and effluent treatment plant (S24G application) completed 2012
- Consol Glass Cullet Processing Plant (Waste License Application) completed 2010
- Meerlust Bottling and storage facility, Stellenbosch (Basic Assessment) completed 2009
- Synergy school, Sunnydale, Cape Town (Basic Assessment) completed 2009

Infrastructure Developments:

- Haute Gabriere Flood damage repairs and maintenance (Maintenance Management Plan and Water Use License) current
- Soetrivier Weir (S24G application / Maintenance Management Plan) completed 2015
- Greenways Stormwater (Setback Line Application) completed 2015
- Penhill sewer system installation (Basic Assessment) completed 2015
- Ceres Nduli new reservoir and Groenplaatjies water pipeline upgrade (Basic Assessment) completed 2015
- Scholtz River flood attenuation, Greyton (Basic Assessment) completed 2013
- Department of Public works 2 Prisons WWTW (Waste License) completed 2011

Agriculture / Aquaculture Developments:

- Molapong Aquaculture development (Basic Assessment) current
- Bela Bela Farnyard Estate, Bela Bela, Limpopo Province (Social Context Study) completed 2010
- Hondeklipbaai Abalone Farm (Basic Assessment) completed 2014
- Spier berms and wetland rehabilitation (Basic Assessment) completed 2013
- Vergenoegd Agricultural Development (S24G application) completed 2013
- Woodlands Farm Dam (S24G application) completed 2013
- Lakenvlei Farm Dam (S24G Application) completed 2011

Residential Developments:

- Welgegund Estate Paradyskloof (Basic Assessment) current
- Sommervale Ph 4 Residential Development (Screening and Basic Assessment) current
- Erf 12132&12130 Kuilsriver affordable housing development (Construction Environmental Management Plan and GA Registration) current
- Kompanjiesuin Vineyard Estate (EA Amendment) current
- Faure wine farms hotel and residential development (Basic Assessment) current
- Duyker Eiland 5 St Helena Bay – rehabilitation of dunes on private property (S24G) completed 2016
- Avignon Estate (EA/OEMP compliance audit) completed 2014
- Soralia Village (EA/OEPM compliance audit) completed 2014
- Clifton 404, Cape Town (Setback line application) Completed 2013
- Clifton Bungalow (erf 367 and 364), Cape Town (Basic Assessment) completed 2009

EIA applicability checklists:

- Erf 12132&12130 Kuilsriver affordable housing development completed 2016
- Telkom cables Pringle Bay, completed 2015
- Maroela South housing development, Kraaifontein completed 2015
- New Street Sewer, Stellenbosch completed 2015
- Blue Rock residential development, Sri Lowry's Pass completed 2014
- Erf 7593 house expansion, Gordons Bay completed 2014
- Greenways storm water infrastructure, Strand completed 2014
- Morgenster furrow repairs, Somerset West completed 2013
- Potsdam Infill, Bloubergstrand completed 2013

We have the required knowledge of applicable legislation, as we need to incorporate various pieces into different applications. We also regularly attend the information and training workshops on the EIA Regulations to ensure our knowledge is up to date.

We are confident that our personnel have the individual and combined experience to fulfil the requirements for registration as Environmental Practitioner as is reflected in the continued acceptance of our submissions to National and Provincial Departments of Environmental Affairs.

Short CVs of the EAPs involved in this application have been included in Appendix J.

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EXECUTIVE SUMMARY OF THE CONTENT OF THE BASIC ASSESSMENT REPORT:

Section A – Activity Information

This section includes a description of the proposed project and activities. Specific activities which are being applied for are those listed activities triggered for sea based aquaculture. The supporting site plans to illustrate the proposed infrastructure has been included in this section, as well as Appendix B.

Section B – Description of Receiving Environment

This section provides information on the site, location in the landscape, and land use character of the surrounding area. Because it is in the sea, some categories are not applicable. It further describes the Regional planning context, socio-economic context and cultural and historical features.

Section C – Public Participation Information

According to Chapter 6 of the NEMA EIA Regulations and the Department's guideline on Public Participation, there are a number of requirements which should be adhered to. Confirmation of these requirements is indicated under this section. Proof of public participation documents, i.e. letters, notices, comments etc. have been included in the Comments and Responses report, Appendix F to this document. Comment received on the final document, as well as proof of any further public participation or comments received will be submitted to the authorities for a decision.

Section D - Need and Desirability

The need and desirability of the project is described in the context of the available planning tools, i.e. the Provincial Spatial Development Framework, Local municipality Spatial Development Framework and Integrated Development Plan. This Section includes the Applicant's motivation for why the proposed project is needed in this locality in this point in time.

Section E – Alternatives

This section describes the alternatives that were considered to achieve the project goals. Although a number of alternatives were considered, the only reasonable and feasible alternatives would be in terms of site selection within the available areas for aquaculture in Saldanha Bay. The applicant has identified three sites, which has the best potential for aquaculture, as indicated in Appendix A and B. Area 3 is included in all three alternatives. The current experimental site needs to stay operational until the other sites have been authorised. It is therefore part of all three alternatives also. The alternatives that are considered to be reasonable and feasible are thus based on the location of sites.

Alternative 1(A1S1) -

Sea cages for farming finfish and long lines for mussels/sea weed covering approximately 28,5ha within a sea space lease area of 45ha, distributed between two sites, i.e. a 15ha site near Jutten Island (expansion of existing lease area) and a 30ha site in Big Bay, which would be an extension of the current experimental site with suitable water depth and proven environmental conditions. The site however may be in conflict with other water users and a potential hazard for navigation.

Alternative 2 (A1S2) –

Sea cages for farming finfish and long lines for mussels/sea weed covering approximately 28,5ha within a sea space lease area of 49ha, distributed between two sites, i.e. a 15ha site near Jutten Island (expansion of existing lease area) and a new site in Big Bay. The current experimental site of 4ha would remain operational until this alternative has been approved (should it be approved). This site would be the preferred area due to greater water depth. This area however is in conflict with commercial shipping.

Alternative 3 (S3A1)

Sea cages for farming finfish and long lines for mussels/sea weed covering approximately 28,5ha within a sea space lease area of 59ha, distributed between two sites, i.e. a 15ha site near Jutten Island (expansion of existing 1ha lease area) and a new 40 ha site in Big Bay North. The current experimental site of 4ha would remain operational until this alternative has been approved (should it be approved). This alternative is based on being located in / next to already allocated areas, which are also outside major recreational areas / military training areas providing safer navigation for other water users. Water surface area increase is to accommodate for loss in water depth.

Alternative 4 – no-go option

This alternative would entail no change. The applicant would continue to operate the experimental project on the current lease site. It would not provide additional economic or job opportunities, and would remain as is. It would further provide no opportunity for the realisation of positive socio-economic impacts. Should the development not go ahead (No-go alternative), none of the above positive benefits would realise.

Other alternatives

Alternatives such as a s technology, operational and species alternatives were considered, but are not regarded as reasonable or feasible alternatives and have therefore not been assessed

Section F – Impact Assessment

Figure 1 below summarises the main interactions between cage aquaculture and the marine environment. More details of associated actions and impacts are given in Section F.

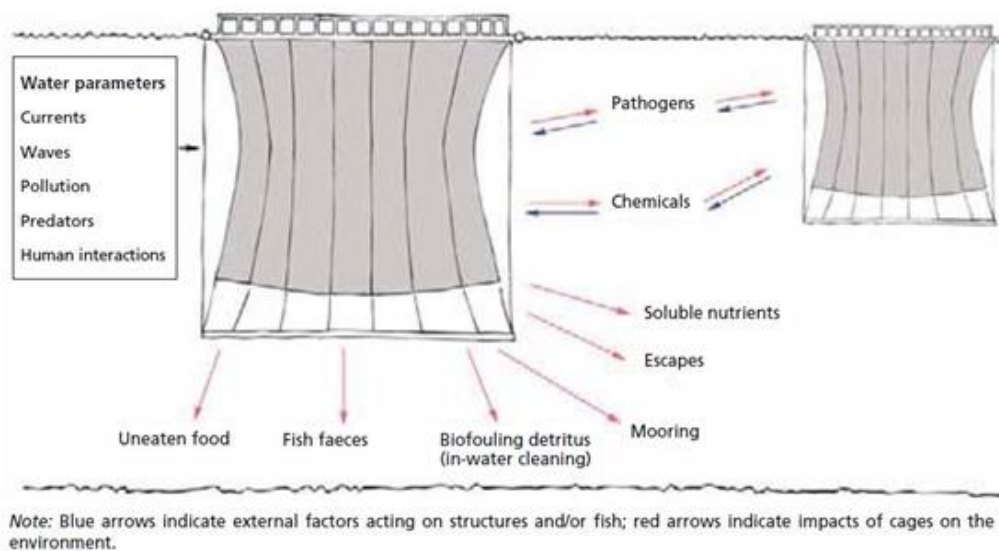


Figure 1: Main interactions between environment and cages (Source FAO, 2015)

The **construction phase** of the project would entail the assembly of cages on land, after which they would be towed to the project site. As it involves movable structures to be put together from pre-fabricated parts, the impacts associated with this phase would be minimal and very short term (few weeks). In addition, disturbing biota in sediments during placement of anchor blocks or subsequent movements of mooring chains and ropes may cause mortalities and or disturbance to benthic communities. This can be mitigated through preventing or limiting movement of anchors and chains over the sea floor; or by leaving mooring anchors or blocks in place when undertaking cage net maintenance or following sites to avoid repetitive impacts of the same activity at each site.

Positive impacts arising are limited job opportunities and skills development.

Risk assessments undertaken for the experimental project, identified a number of risks and impacts, which have been considered in this report. Most of the anticipated impacts would occur during the **operational phase**, and are those normally associated with projects of this nature. Main possible impacts that have been identified are:

- Incubation and transmission of fish disease and parasites from captive to wild populations.
 - Although the risk significance was high, no significant impact expected as salmonids do not naturally occur in the area and although wild fish pose a threat of disease transfer to farmed fish there are very few cases of the reverse contamination recorded. Mussel culture also acts as a probable barrier by filtering possible parasitic larvae. The above has been proven through the experimental project, which have not experienced any sea lice infestations to date. In addition, ova imports are certified as Disease free and disease monitoring takes place on the fingerling/smolt farms where stock for sea cages are obtained from. Fish undergo a health check before being transferred to the sea cages and there is continuous commercial industry vaccine development to prevent disease. There is a comprehensive health monitoring program on the farm.
- Pollution of coastal waters due to the discharge of organic wastes.
 - Insignificant impact as it is predicted to be at acceptable levels. Mussel and sea weed culture in close proximity to finfish cages would serve as natural de-nitrification mitigation. Biomass and densities would be limited. Environmental monitoring programme to assess impact is in place and have protocols to respond to variants accordingly, through strict management practices and quality feed use to reduce impact. In addition, the EMPr, which contains MOMs, ASC and a liaison forum would be implemented to ensure early detection and appropriate reaction.
- Escape of genetically distinct fish that compete and interbreed with wild stocks that are often already depleted.
 - Negligible impact for trout and salmon species - no interbreeding would take place, as there are no suitable fresh water systems that can provide suitable breeding ground for salmonids. In addition only single sex all female stock is used.
- Chemical pollution of marine food chains (& potential risk to human health) due to the use of therapeutic chemicals in the treatment of cultured stock and antifouling treatment of infrastructure.
 - Low impact, but can be mitigated through adherence to ASC standards¹. The focus will be more on prevention through genetics and vaccinations against possible diseases. All treatments are by veterinary direction only.
- Physical hazard to cetaceans and other marine species that may become entangled in ropes and nets, although there

¹ **ASC** is the acronym for Aquaculture Stewardship Council, an independent not for profit organisation. The ASC was founded in 2009 by the WWF (World Wildlife Fund) and IDH (The Sustainable Trade Initiative) to manage the global Standards for responsible aquaculture. ASC's Standards were first developed by the Aquaculture Dialogues, a series of roundtables initiated and coordinated by the WWF. The ASC's aquaculture certification programme and logo recognise and reward responsible aquaculture. The ASC is a global organisation working internationally with aquaculture producers, seafood processors, retail and foodservice companies, scientists, conservation groups, social NGO's and the public to promote the best environmental and social choice practices in aquaculture. Working with partners, the ASC runs a programme to transform the world's aquaculture markets by promoting the best environmental and social aquaculture performance. The ASC seeks to increase the availability of aquaculture products certified as sustainable and responsibly produced. The ASC's credible consumer logo provides third party assurance of conformity with production and chain of custody standards and makes it easy for everyone to choose ASC certified products. The ASC is transforming aquaculture practices globally through: Credibility: Standards developed according to ISEAL guidelines, multi-stakeholder, open and transparent, science-based performance metrics. Effectiveness: Minimising the environmental and social footprint of commercial aquaculture by addressing key impacts. Added value: Connecting the farm to the marketplace by promoting responsible practices through a consumer logo. (ASC Salmon Standard Version 1.0 June 2012 - See Annexure to EMPr.)

has been no entanglement recorded in the pilot project to date.

- Low impact, through implementation of mitigation.

- Piscivorous marine animals (including mammals, sharks, bony fish and birds) attempt to eat fish from the cages and may become tangled in nets, damage nets leading to escapes and stress or harm the cultured stock. The project aims to deal with marine predators by exclusion, rather than by engaging problem predators by making use of high tensile strength. Dynema nets to make sure the predators cannot get to the fish. Bird nets are also installed. Daily checks/removal for mortalities with can attract predators. Behavioural changes would be reported to relevant authorities for scientific investigation.
- Low impact, but can be mitigated.
- User conflict by the exclusion of other users in the mariculture zones for security reasons or that infrastructure are obstructions of sailing / paddling / boating routes.
- low impact due to location within area allocated for aquaculture and outside known recreational routes. The current experimental site will be relocated to accommodate other users in the future.
- Negative impacts on tourism and coastal real estate value due to negative aesthetic impacts of cages and longlines.
-Med- Low impact. It is not denied that the project would have visual impact. The scale of visual impact of the Molapong project vs the ADZ in full operation must, however, not be confused. The Molapong project would only be a small component of the ADZ area, which has already considered the cumulative visual impact for the ADZ and further increased the distance from shore. Also to be considered are the existing aquaculture operations within the Bay, and the backdrop of a highly industrialised harbor, iron ore jetty, container ships etc.). Mitigation includes spreading mooring grids over two sites as far as possible to avoid larger concentrations of cages, of which the bulk would be more visible. Reducing height of bird net supports and the use of only one low visibility colour on netting (e.g. grey based hues), downward pointing shaded lights and marking of equipment for retrieval purposes.

The precautionary principle supporting NEMA is very strongly emphasised in that the conservative estimate for finfish production carrying capacity for Saldanha Bay is approximately 24600 t (Table 6 of SRK ADZ final BAR within Section A 1 a) D2) Studies used for the ADZ application recommends that production is further capped at 15% of the calculated capacity for the Bay being approximately 5 150 t pa. The Molapong application requesting a maximum of 2000 t, therefore equates to less than 40% of an already very conservative 15% estimated carrying capacity. The significant reduction of production considering estimated overall carrying capacity, indicates responsible and precautionary principles being applied to support early detection of impacts. If required, modifications to operational management, reduction in biomass through either increased following requirements or even curtailment of operations, will be implemented.

Existing Specialist studies that address some of the above issues have been largely used as a source to determine mitigation. (See references and Appendix G for risk assessments for Trout, King and Coho salmon).

SECTION A: ACTIVITY INFORMATION

1. PROJECT DESCRIPTION

(a) Is the project a new development?	YES	NO ✓
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(b) Provide a detailed description of the development project and associated infrastructure.

The project involves the phased installation of sea cages for the production of finfish, mussels and sea weed in Saldanha Bay up to 2000 t/year. The identification of marine aquaculture sites is a complex process that must take into consideration a number of factors. These include physical (e.g. sea surface temperatures, currents), biophysical (e.g. harmful algal blooms, optimal culture temperatures), infrastructural (e.g. road access, airports), and existing resource-use issues (e.g. urbanisation, parks and recreational areas). Saldanha Bay was identified as a suitable site as it meets the necessary requirements to successfully farm finfish especially, Salmonid species as well as mussels and sea weed. The Saldanha Bay area is one of a very few areas where sea cages can be installed successfully as it is one of the few protected bay areas along the exposed Western seaboard of the South African coast line where cage culture can safely be practiced.

Cages for finfish would be assembled on land and then towed to the project site in the sea. Mooring of the cages at the project site would be done through a grid system with a number of configurations possible to provide optimum conditions for the fish production. These configurations would be changeable to allow for fallowing (a concept similar to rotational grazing, to allow the natural environment to rest and clean). Thus no specific site plan is proposed, rather a total area to be utilised interchangeably. Examples of mooring plans and cage configurations are provided below. The configurations for cage numbers must be flexible for stocking production density. The sizes would need be changed as required to mitigate sea conditions, visual impacts and to allow for fallowing. Configurations will not exceed a total coverage of approximately 50% of the total area of 55 ha or 30% of any one area.

Longlines for mussels and seaweed would be installed next to cages in the same lease area. These lines would cover a total area of approximately 15 ha. There would be approximately 30 lines, each about 200 m in length. The marine infrastructure would consist of a longline which runs almost on the surface of the water attached to floats of consistent designs, low impact colour and secured to the longline to prevent any possible drift. The longline is held in position by anchors of suitable weight and design to keep the lines in position (see Figure 5 below for reference).



Figure 2: Example of six cage grid (source: FAO, 2015)

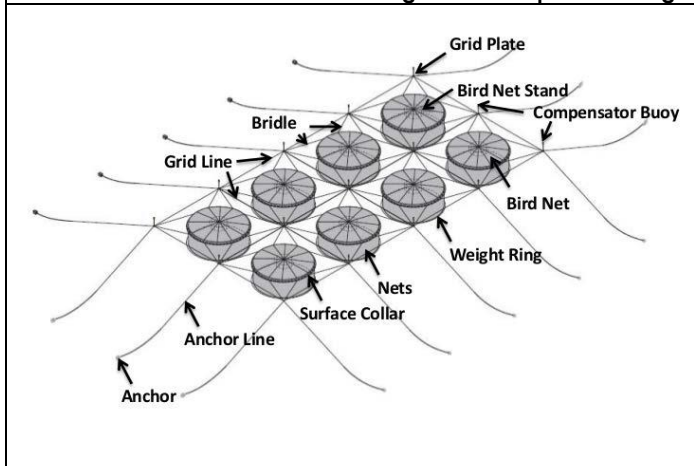


Figure 3: Grid system components (source: FAO, 2015)

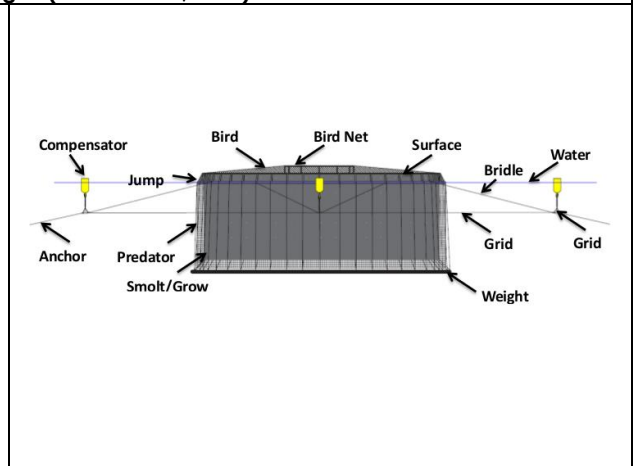


Figure 4: Side view of typical cage structure (source: FAO, 2015)

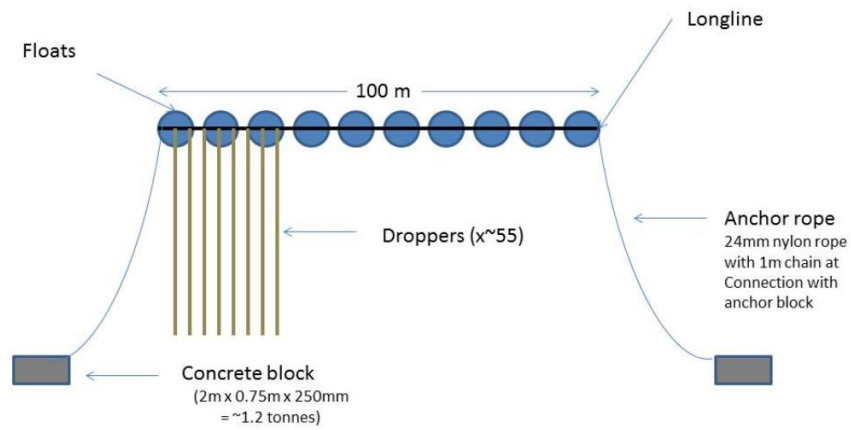


Figure 5: Typical mussel longline layout (source: FAO, 2015)

Species:

Molapong currently has a Marine Aquaculture Right for five species of salmonids i.e. Rainbow trout (*Oncorhynchus mykiss*), Atlantic salmon (*Salmo Salar*), Brown trout (*Salmo trutta*), King salmon (*Oncorhynchus tshawytscha*) and Coho salmon (*Oncorhynchus kisutch*). Molapong is in the process of amending this Right to include Mediterranean mussels (*Mytilus galloprovincialis*) and seaweed.

The first two species, Rainbow trout and Atlantic salmon, have been tested in a previous research phase / pilot project in Saldanha and are considered to be also the most suitable species to the South African and export markets. King and Coho salmon have not been farmed in South Africa; but the applicant will test their viability in an experimental project to test if they are viable species to farm in this area.

Molapong has a NEMBA permits for all these species, even though, it is no longer required. Smolts would be obtained from the applicant's certified land based facilities in Soetfontein, Ceres and Fisantekraal outside Cape Town and transported to the project site in Saldanha Bay to be grown out in seawater for the market. Mediterranean mussels (*Mytilus galloprovincialis*) and seaweed will be cultured to mitigate nutrient loading from finfish culture. Mussels will be marketed for human consumption and seaweed has various uses, but would be mainly use for abalone feed.

Note that none of the finfish species proposed requires permits under National Environmental Management Biodiversity Act 10 of 2004's restricted activities for alien invasive species. All of these species are exempted on the National Environmental Management Biodiversity Act 10 of 2004 list of alien and invasive species (102 - Brown trout and Atlantic salmon and 72 - Rainbow trout, Coho and King Salmon).

Due to Mediterranean Mussels occurring in the area already, Molapong would only harvest and sell them, for which they are exempted from obtaining a permit.

Production process summary for finfish at full production scale (note - all figures represent approximates and are not fixed) is as follows (see also Figure 6 below):

- Approximately 115,000 (100g size) Smolts would be taken to the smaller sea cages every 45 days (10% transfer mortality loss), i.e. approximately 10 t.
- Smolts would be transferred to larger grow out cages when they reach 330 g, which would allow counting and grading.
- Cyclic harvesting would take place every 22 days, alternating 67 tons (Cohort split harvest) of 2 kg fish with 240 tons of 3.5 kg fish.
- Maximum Biomass in all cages at any time would be approximately 790 tons to produce the end target of 2000 tons
- A maximum of 2000 tons of 2-3.5 kg size fish would be harvested per year (with a 10% production mortality loss per year).

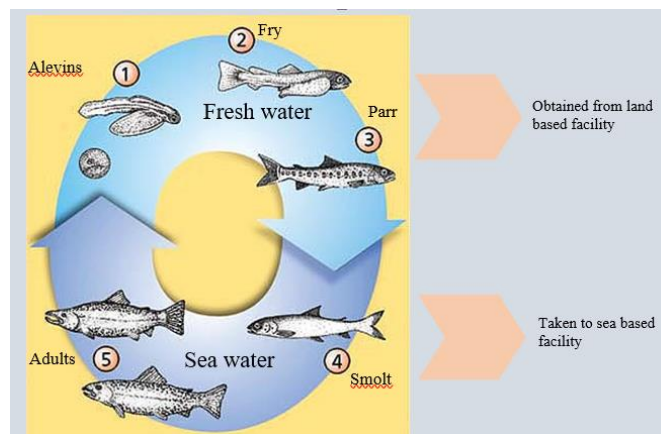


Figure 6: Life cycle of salmonids (adapted for this report from illustrations by Lisa Thompson and Michelle Babione in Meadows R, 2005)

Production process summary for mussels and seaweed:

- Approximately 2000 tons of mussels will be cultured using the continuous double longline method
- Approximately 15 hectares will be utilized by 30 lines, 200 m in length each.
- Mussel culture will rely on natural seed collection/settlement and re-seeding of production lines
- Mussel spat will naturally settle on the anchor lines and as they grow, are hand stripped, collected and given to the mussel farm.
- Mussel culture will be used next to the cages to mitigate nutrient loading from finfish.
- Seaweed will be in experimental phase and no production forecast can be made .

Phased approach:

While dealing with nature and environmental and climate changes, the responsible way forward would be to deal with this project in phases:

- Phase 1 (Experimental) – The current level of finfish project (50 tons/annum – duration 12 -14 months).
- Phase 2 – early commercial phase finfish project (100 t/annum 12 -14 months). Establish seaweed lines. Establishment of mussel settlement lines
- Phase 3 – 500 t/annum finfish project (12/14 months). Seeding mussel production lines.
- Phase 4 – 1200 t/annum finfish project (12-14 months). Harvesting mussels and possibly reducing numbers.
- Phase 5 – 2000 t/annum finfish project (12-14 months). Harvesting mussels and possibly reducing numbers.

The precautionary principle supporting NEMA is very strongly emphasised in that the conservative estimate for finfish production carrying capacity for Saldanha Bay is approximately 24600 t (Table 6 of SRK ADZ final BAR within Section A 1 a) D2) Studies used for the ADZ application recommends that production is further capped at 15% of the calculated capacity for the Bay being approximately 5 150 t pa. The Molapong application requesting a maximum of 2000 t, therefore equates to less than 40% of an already very conservative 15% estimated carrying capacity. The significant reduction of production considering estimated overall carrying capacity, indicates responsible and precautionary principles being applied to support early detection of impacts. If required, modifications to operational management, reduction in biomass through either increased following requirements or even curtailment of operations, will be implemented.

(c) List all the activities assessed during the Basic Assessment process:

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 (GN No. R. 983, as amended)	Describe the portion of the proposed project to which the applicable listed activity relates.
7	The development and related operation of facilities, infrastructure or structures for aquaculture of sea-based cage culture of finfish, crustaceans, reptiles, amphibians, molluscs, echinoderms and aquatic plants, where the facility, infrastructure or structures will have a production output exceeding 50 000 kg per annum (wet weight).	The project involves aquaculture of more than 50 t of finfish, molluscs and aquatic plants within the sea in Saldanha Bay. One site would be a new site. The project involves the farming of finfish (salmonids) of 2000 t production output in the sea. The proposed development therefore entails the expansion of an existing sea-based cage culture facility at the Jutten Island site from 1 ha to 15 ha and the development of an additional sea-based cage culture facility at the Big Bay site. Cyclic harvesting would take place every 22 days, alternating 67 tons (Cohort split harvest) of 2 kg fish with 240 tons of 3.5 kg fish. Maximum Biomass in all cages at any time would be approximately 790 tons to produce the end target of 2000 tons. A maximum of 2000 tons of 2-3.5 kg size fish would be harvested per year (with a 10% production mortality loss per year). Mussels and seaweed would be used next to the cages to mitigate nutrient loading from finfish and may exceed 50 t pa.
42	The expansion and related operation of facilities, infrastructure or structures for aquaculture of sea-based cage culture of finfish, crustaceans, reptiles, amphibians, molluscs, echinoderms and aquatic plants where the annual production output of such facility, infrastructure or structures will be increased by 50 000 kg (wet weight) or more.	The project involves aquaculture of more than 50t of finfish, molluscs and aquatic plants within the sea in Saldanha Bay. One site would be expansion of an existing site (Jutten Island site and current experimental site in Big Bay).
17	Development; (i) in the sea; in respect of (f) infrastructure or structures with a development footprint of 50 square metres or more	Aquaculture infrastructure (cages, mooring lines etc) will cover an area of approximately 50% of 55ha, of which the Big Bay site one would be a new site. The area covered at any time would be more than 50m ² .
54	The expansion of facilities; (i) in the sea; in respect of f) infrastructure or structures where the development footprint is expanded by 50 square metres or	Aquaculture infrastructure (cages, mooring lines etc) will cover an area of approximately 50% of 59ha of which the Jutten Island site and existing experimental site would be expanded; the area covered at any time would be more than 50m ² .

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 (GN No. R. 985)	Describe the portion of the proposed project to which the applicable listed activity relates.
13	The development and related operation of facilities of any size for any form of aquaculture d) In Western Cape: iii). In an aquatic critical biodiversity area.	The project locality is within Saldanha Bay. The Big Bay north site falls within a marine critical biodiversity area (threat status - vulnerable)
24	The expansion and related operation of facilities of any size for any form of aquaculture. d) In Western Cape: iii). In an aquatic critical biodiversity area.	The project locality is within Saldanha Bay. The Jutten Island site falls within a marine critical biodiversity area (threat status - endangered)
Activity No(s):	Provide the relevant Scoping and EIR Activity(ies) as set out in Listing Notice 2 (GN No. R. 984)	Describe the portion of the proposed project to which the applicable listed activity relates.
	n.a.	

If the application is also for activities as per Listing Notice 2 and permission was granted to subject the application to Basic Assessment, also indicate the applicable Listing Notice 2 activities:

GN No. R. 984 Activity No(s):	If permission was granted in terms of Regulation 20, describe the relevant Scoping and EIA Activity(ies) in writing as per Listing Notice 2 (GN No. R. 984)	Describe the portion of the development as per the project description that relates to the applicable listed activity.
Not applicable – this option is no longer possible under the 2014 Regulations.		

Waste management activities in terms of the NEM: WA (Government Gazette No. 32368):

GN No. 718 - Category A Activity No(s):	Describe the relevant <u>Category A</u> waste management activity in writing.	
	Not Applicable	

Please note: If any waste management activities are applicable, the **Listed Waste Management Activities Additional Information Annexure** must be completed and attached to this Basic Assessment Report as **Appendix I**.

If the application is also for waste management activities as per Category B and permission was granted to subject the application to Basic Assessment, also indicate the applicable Category B activities:

GN No. 718 – Category B Activity No(s):	Describe the relevant <u>Category B</u> waste management activity in writing.	
	Not Applicable	

Atmospheric emission activities in terms of the NEM: AQA (Government Gazette No. 33064):

GN No. 248 Activity No(s):	Describe the relevant atmospheric emission activity in writing.	
	Not applicable	

(d) Please provide details of all components of the proposed project and attach diagrams (e.g. architectural drawings or perspectives, engineering drawings, process flow charts etc.).

Buildings	YES	NO ✓
Provide brief description:		
Not applicable		
Infrastructure (e.g. roads, power and water supply/ storage)	YES ✓	NO
Provide brief description:		
Sea cages, mooring equipment, anchors, ropes and buoys. See figures 2-5 above.		
Processing activities (e.g. manufacturing, storage, distribution)	YES	NO ✓
Provide brief description:		
No processing will be done at sea.		
Storage facilities for raw materials and products (e.g. volume and substances to be stored)	YES ✓	NO
Provide brief description		
There would be no storage of materials or produce at sea. The location of the proposed cages only requires a week's storage		

of products, because all of the suppliers are located near the Cape Town area. Existing cold storage facilities are available at the property leased from the Department of Public Works, located in Pepper Bay, Saldanha.		
Storage and treatment facilities for solid waste and effluent generated by the project	YES	No✓
Provide brief description		
Not required. Mortalities are expected to be a maximum of 10tons per year, which would be transported on ice and supplied to fish meal producers in the area. All other waste would be disposed of at a licensed landfill.		
Other activities (e.g. water abstraction activities, crop planting activities)	Yes	No
Provide brief description		
Not applicable		

2. PHYSICAL SIZE OF THE ACTIVITY

	Size of the property:
(a) Indicate the size of the property (cadastral unit) on which the activity is to be undertaken.	Not applicable – total sea space 55 ha (current 4ha site to be phased out)
	Size of the facility:
(b) Indicate the size of the facility (development area) on which the activity is to be undertaken.	In full production: 27,5 ha
	Size of the activity:
(c) Indicate the physical size (footprint) of the activity together with its associated infrastructure:	In full production: 27,5 ha
(d) Indicate the physical size (footprint) of the activity:	In full production: 27,5 ha
(e) Indicate the physical size (footprint) of the associated infrastructure: and, for linear activities: <i>Not applicable</i>	Not applicable
(f) Indicate the length of the activity: not a linear activity	Length of the activity: m

3. SITE ACCESS

(a) Is there an existing access road?	YES	NO✓
Not applicable. The proposed development would be accessed by boat from Saldanha as it would be located in the sea.		
(b) If no, what is the distance over which a new access road will be built?		N.a. m
(c) Describe the type of access road planned:		
Not applicable		

Please Note: indicate the position of the proposed access road on the site plan.

4. DESCRIPTION OF THE PROPERTY ON WHICH THE ACTIVITY IS TO BE UNDERTAKEN AND THE LOCATION OF THE ACTIVITY ON THE PROPERTY

(a) Provide a description of the property on which the activity is to be undertaken and the location of the activity on the property.

Molapong has a lease agreement with the National Ports Authority for the use of two areas totalling 5 hectares of sea space for their current experimental project. The areas are located in Saldanha Bay in the Big Bay (Big Bay South) and near Jutten Island. The proposed new lease areas are depicted on the draft lease agreement plan (see appendix B).

Molapong was proposing to extend one area near Jutten Island and extent their current site which is 2.8km West of Langebaan or obtain a different site which lies approximately 700m west of the existing lease site. Another site, approximately a further 700m west has also been considered, but the latest Aquaculture Development Zone (ADZ) plan indicates that only sites to the north of the approach channel to Langebaan would be approved for allocation. A 40 ha site located approximately 2.5km west of Mykonos and 2.6km northwest of Langebaan and the entrance to the lagoon is therefore the preferred alternative. The options considered have been described in Section E (Alternatives).

The site where cages would be assembled, would be located within a harbour or industrial area within Saldanha Bay. These areas are generally owned by The Department of Public Works and are controlled by the Harbour Master. The site would be rented for a short term, as required for cage assembly, through mutual agreement with Harbour Master as to not be in conflict with of other users.

The following are cage assembly site requirements:

- (a) Maximum workspace required for assembly of cages will be +/- 500 m².
- (b) The work area will be demarcated and enclosed with ready fencing or similar barrier.
- (c) The site will be in proximity of ablution facilities and if not available, chemical toilets will be made available on site.
- (d) Vehicle, crane and forklift access and level hard surface for operation
- (e) Suitable electricity supply is preferred above the use of generators.
- (f) Access to the sea for cage deployment and suitable depth for vessel to access cage.

It should be noted that a bay wide assessment process is underway for the authorisation of an Aquaculture Development Zone (ADZ), which was initiated by the Department of Agriculture Forestry and Fisheries (under project Phakisa). In this process, new and existing aquaculture areas are being investigated. Molapong's proposed sites fall within these areas, as per latest basic assessment report, dated June 2017.

The two sites that have the best potential for increased production for Molapong and which takes into consideration possible user conflict mitigation are the site in the Big Bay (where current site will be relocated) together with the Jutten site (see figure 7 below).

- 1) Site one (1) (MA) is in the Big Bay North area. The current cages in Big Bay South will be relocated once stock is harvested. The water depth is slightly less than at the current site and therefore a larger sea space lease is required to increase the surface area from 30 Ha to 40 Ha (refer to other alternatives considered).
- 2) Site Two (2) is an extension of the site near Jutten Island from 1ha to 15 ha.



Figure 7: Preferred sites for Molapong Aquaculture

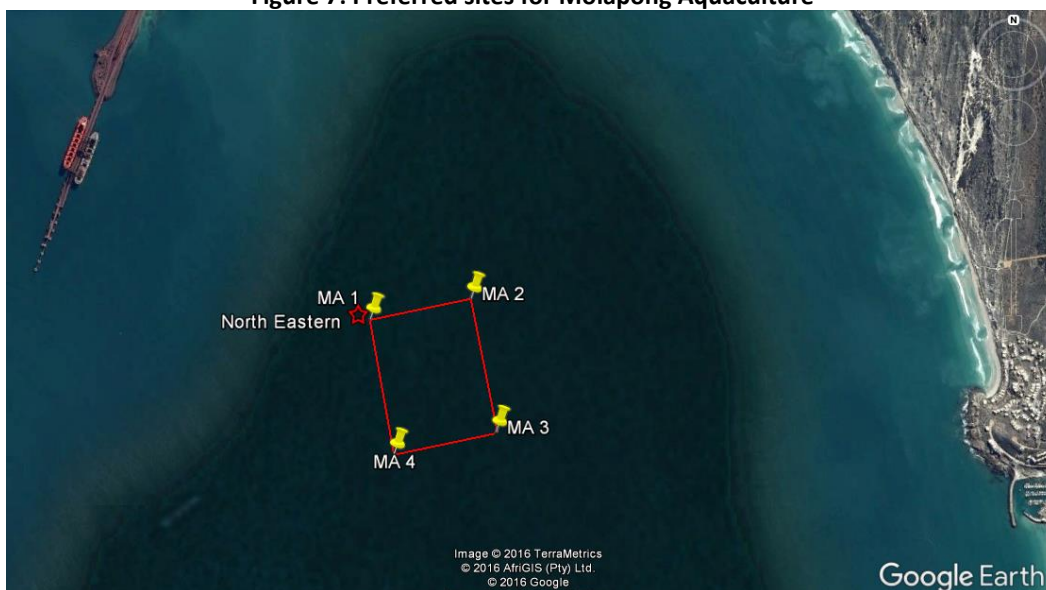


Figure 8: Site 1 (MA)

Site One Coordinates

- MA 1 - 33° 2.279'S, 18° 0.102'E
- MA 2 - 33° 2.218'S, 18° 0.448'E
- MA 3 - 33° 2.603'S, 18° 0.535'E
- MA 4 - 33° 2.668'S, 18° 0.184'E

North Eastern corner is the navigational buoy in the area; the site's boundary is 50m to the East and 50m to the North of it.

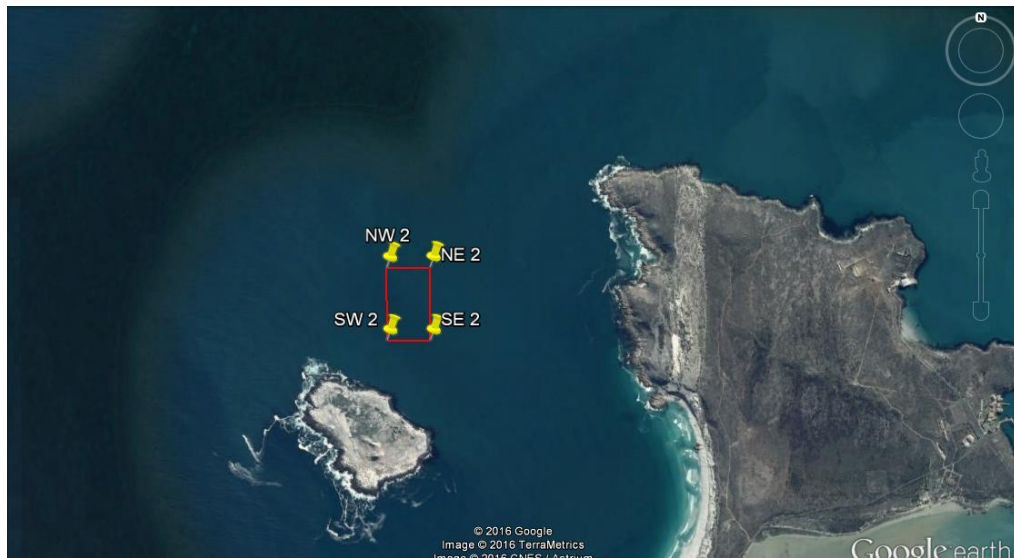


Figure 9: Site 2 near Jutten Island

Site Two coordinates

NW 2 - 33° 4.399'S 17° 57.409'E

NE 2 - 33° 4.398'S 17° 57.601'E

SE 2 - 33° 4.668'S 17° 57.601'E

SW 2 - 33° 4.668'S 17° 57.409'E

The lease agreements have not been finalized for the two sites and Molapong has requested alterations to their current lease to facilitate relocation as below:

- 1) The site towards Langebaan in Big Bay, Big Bay South, is to be reduced from 4 ha to 1 ha. This site will only be operational for a maximum of 14 months from date of approval. See figure 4 below.
- 2) Site Two of 1 ha at Jutten Island would be temporarily suspended until such time as the new 15 ha lease is granted (refer to Figure 9 above).
- 3) It has been requested that 4 ha is granted within the pending 40 ha site in Big Bay North, Saldanha to relocate the existing pilot project in Big Bay South. See figure 10 and 11 below.



Figure 10: Reduced size temporary site in Big Bay South

Temporary site coordinates:

2 NW- 33° 3.380'S 18° 0.680'E

2 NE- 33° 3.382'S 18° 0.747'E

2 SE- 33° 3.435'S 18° 0.746'E

2 SW- 33° 3.435'S 18° 0.680'E

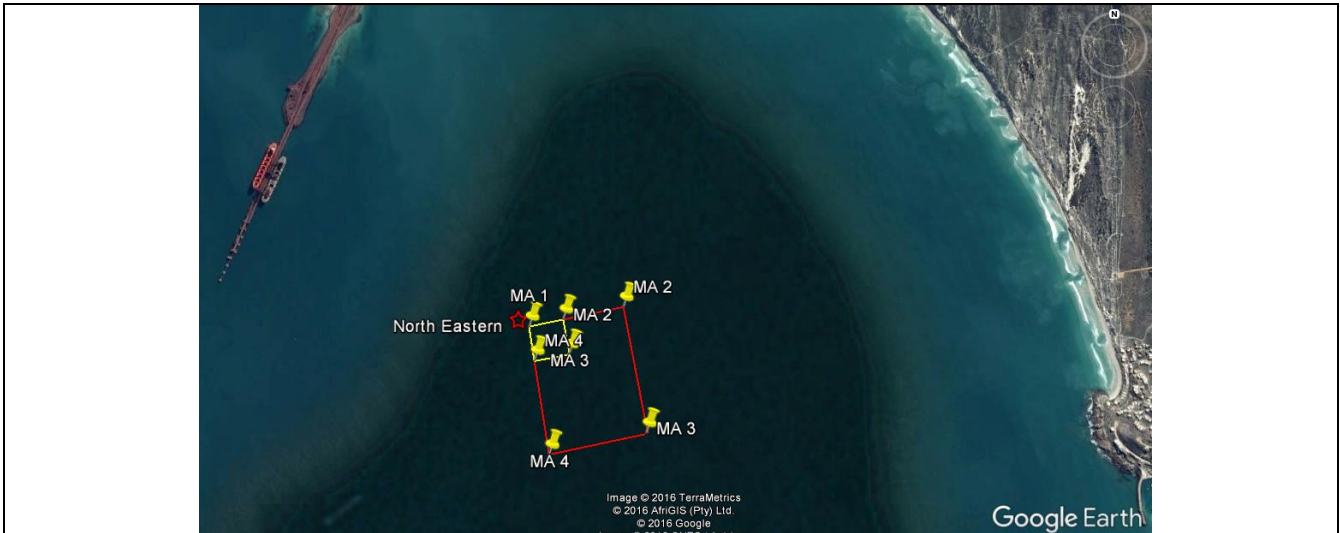


Figure 11: Site 1 in Big Bay North with 1ha allocation to relocate the current 1ha pilot project from Big Bay South

Coordinates:

- MA 1- 33° 2.279'S 18° 0.102'E
- MA 2- 33° 2.256'S 18° 0.226'E
- MA 3- 33° 2.364'S 18° 0.251'E
- MA 4- 33° 2.384'S 18° 0.124'E

Please provide a location map (see below) as **Appendix A** to this report which shows the location of the property and the location of the activity on the property; as well as a site map (see below) as **Appendix B** to this report; and if applicable all alternative properties and locations.

<p>Locality map:</p>	<p>The scale of the locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following:</p> <ul style="list-style-type: none"> • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; • the prevailing wind direction (during November to April and during May to October); and • GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).
<p>Site Plan:</p>	<p>Detailed site plan(s) must be prepared for each alternative site or alternative activity. The site plan must contain or conform to the following:</p> <ul style="list-style-type: none"> • The detailed site plan must be at a scale preferably at a scale of 1:500 or at an appropriate scale. The scale must be indicated on the plan. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be indicated on the site plan. • The position of each element of the application as well as any other structures on the site must be indicated on the site plan. • Services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the development must be indicated on the site plan. • Servitudes indicating the purpose of the servitude must be indicated on the site plan. • Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): <ul style="list-style-type: none"> ○ Rivers. ○ Flood lines (i.e. 1:10, 1:50, year and 32 meter set back line from the banks of a river/stream). ○ Ridges. ○ Cultural and historical features. ○ Areas with indigenous vegetation (even if it is degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, then a contour map of the site must be submitted.
<p>Note: As the proposed project would be located in the sea, the normal site layout plan is not practical. The site plan in Appendix B contains the proposed areas for sea space lease, as has been applied for to Portnet. The positioning of the cage grids and longlines may vary at any given time within these lease areas, depending on water conditions. Basic cage grids and mussel longlines have been indicated in figures 2-5 above.</p>	

(c) For a linear activity, please also provide a description of the route.

Not applicable.

<p>Indicate the position of the activity using the latitude and longitude of the centre point of the site. The co-ordinates must be in degrees, minutes and seconds. The minutes should be given to at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.</p>	Latitude (S):	Longitude (E):
<p><i>For the three sites' coordinates, please refer to Section 4a above.</i></p>		

(d) or: Not applicable

For linear activities:	Latitude (S):			Longitude (E):		
• Starting point of the activity	°	'	"	°	'	"
• Middle point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"

Please Note: For linear activities that are longer than 500m, please provide an addendum with co-ordinates taken every 100 meters along the route.

5. SITE PHOTOGRAPHS

Colour photographs of the site and its surroundings (taken of the site and from the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached as **Appendix C** to this report. It should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.

Note - As the site is located in the sea, photos will show mostly sea water. There are no unique features in the immediate vicinity of any of the proposed sites. Photos of the existing site and cages used are included in Appendix C.

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

1. SITE/AREA DESCRIPTION

For linear activities (pipelines, etc.) as well as activities that cover very large sites, it may be necessary to complete copies of this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area which is covered by each copy No. on the Site Plan.

2. GRADIENT OF THE SITE

Indicate the general gradient of the sites (highlight the appropriate box).

Flat ✓	Flatter than 1:10	1:10 – 1:4	Steeper than 1:4
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3. LOCATION IN THE LANDSCAPE

(a) Indicate the landform(s) that best describes the site (highlight the appropriate box(es)).

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
Other: ✓	The project would be located in the sea							

(b) Please provide a description of the location in the landscape.

The site is located in the sea, see photos in Appendix C. Monteiro and Largier (1999: 879) provides a description of location in the Saldanha Bay, distinguishing between Small Bay, Big Bay, the Lagoon and the 5m depth contour, which marks an important hydrodynamical and ecological boundary – see Figure 12 below.

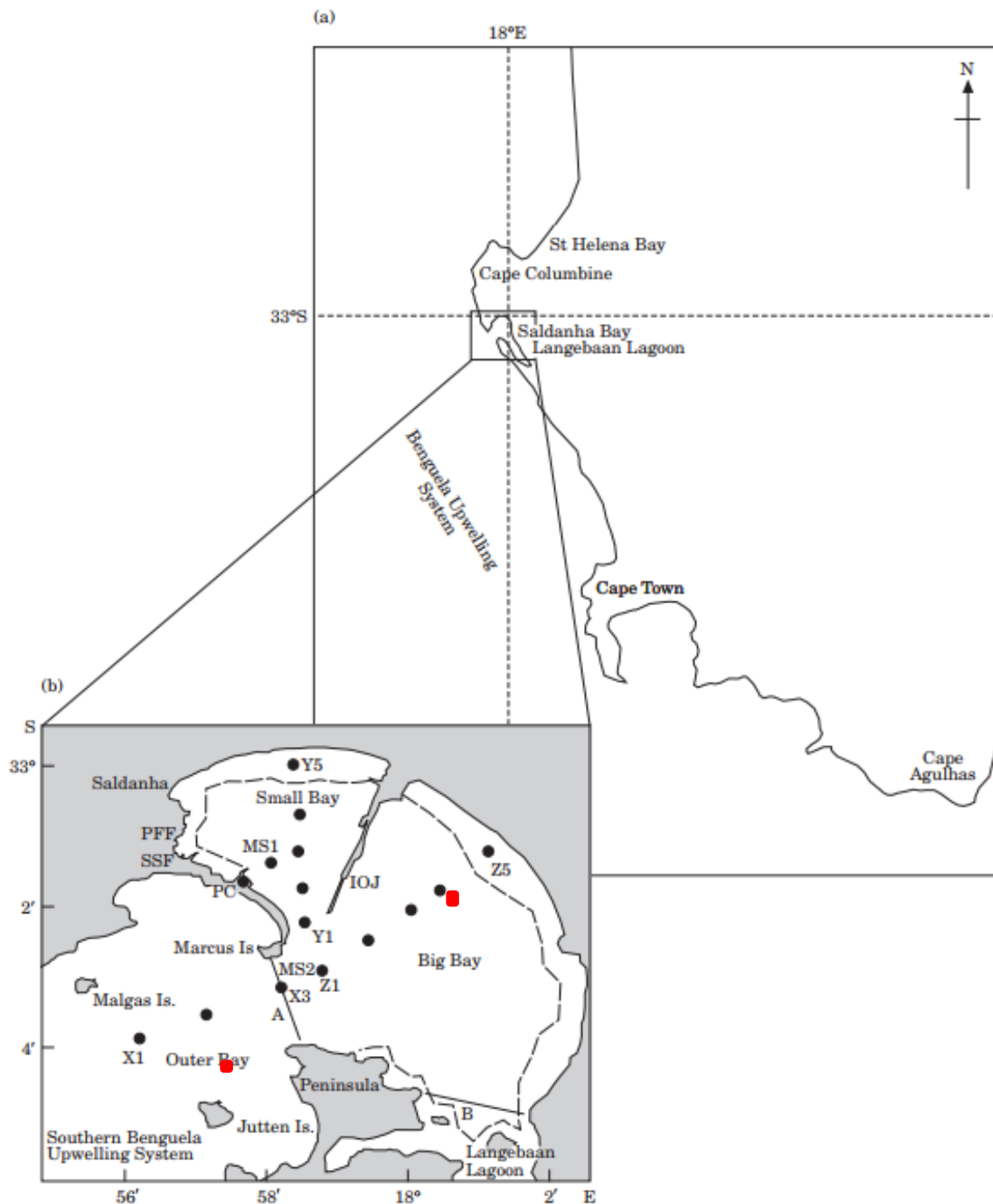


FIGURE 1. Map of the layout of Saldanha Bay. Saldanha Bay is located poleward of an important upwelling centre (Cape Columbine) in the southern Benguela upwelling system. The bay system comprises an Outer Bay of largely coastal upwelling domain character and an Inner Bay which was physically divided into two hydrodynamically distinct sections: Big Bay and Small Bay by a 4 km long iron ore jetty (IOJ). The boundary into Langebaan Lagoon to the south is shown (b). Also shown are the positions of the CTD temperature section stations (X, Y and Z lines) as well as the time series moorings in Small Bay (MS1) and the boundary (X3). Wind data were measured at the Port Control site (PC). The 5 m-depth contour, which marks an important hydrodynamical and ecological boundary, is also shown.

Figure 12: Map of Saldanha Bay, extracted from Monteiro and Largier, 1999. Approximate position of Big Bay and Jutten site indicated by red squares – note that these are not to scale and serves as indication only.

Note that section 4-8 is not applicable to the proposed development as it would be located in the sea. Surrounding areas include shipping lanes, recreational areas and a Marine reserve. A map indicating Marine Protected Areas and national marine layers (threat status for coastal and benthic habitat) has been included in Appendix D.

On biodiversity aspects, the following is noted after consideration of Section 8 the Environmental Management Framework, 2015²:

- The site near Jutten Island falls within an area indicated with endangered ecosystem status. Risks and impact of identified developments or activities on the environmental attributes of Environmental Management Zone (EMZ) 1 –Keep Assets Intact, specifically applicable to the marine and coastal environment of Saldanha Bay. Aquaculture activities are not excluded and can be undertaken in this zone.
- The sites in Big Bay falls within an area indicated with Vulnerable ecosystem status. Risks and impacts of identified developments or activities on the natural resource attributes of Environmental Management Zone (EMZ) 2 – Develop with Care: Valued Resources, specifically applicable to the marine and coastal environment. Aquaculture activities are not excluded and can be undertaken in this zone.

4. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE – not applicable

(a) Is the site(s) located on or near any of the following (highlight the appropriate boxes)?

Shallow water table (less than 1.5m deep)	YES	NO	UNSURE
Seasonally wet soils (often close to water bodies)	YES	NO	UNSURE
Unstable rocky slopes or steep slopes with loose soil	YES	NO	UNSURE
Dispersive soils (soils that dissolve in water)	YES	NO	UNSURE
Soils with high clay content	YES	NO	UNSURE
Any other unstable soil or geological feature	YES	NO	UNSURE
An area sensitive to erosion	YES	NO	UNSURE
An area adjacent to or above an aquifer.	YES	NO	UNSURE
An area within 100m of the source of surface water	YES	NO	UNSURE

(b) If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department. (Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

(c) Please indicate the type of geological formation underlying the site.

Granite	Shale	Sandstone	Quartzite	Dolomite	Dolorite	Other (describe)
Please provide a description.						

5. SURFACE WATER – not applicable

(a) Indicate the surface water present on and or adjacent to the site and alternative sites (highlight the appropriate boxes)?

Perennial River	YES	NO	UNSURE
Non-Perennial River	YES	NO	UNSURE
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO	UNSURE

(b) Please provide a description.

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6. BIODIVERSITY – not applicable

This information is not available for marine areas, but a map indicating Marine Protected Area and biodiversity on land has been included in Appendix D.

² Note that this EMF has not been formally adopted, but is a useful reference, relevant to this application.

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bajis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as **Appendix D** to this report.

(a) Highlight the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category).

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	

(b) Highlight and describe the habitat condition on site.

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing/harvesting regimes etc).
Natural	%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	%	

(c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened							
		YES	NO	UNSURE	YES	NO	YES	NO

(d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

7. LAND USE OF THE SITE – not applicable

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies.

Untransformed area	Low density residential	Med density residential	High density residential	Informal residential
Retail	Commercial & warehousing	Light industrial	Med industrial	Heavy industrial
Power station	Office/consulting room	Military or police base/station/compound	Casino/entertainment complex	Tourism & Hospitality facility
Open cast mine	Underground mine	Spoil heap or slimes dam	Quarry, sand or borrow pit	Dam or reservoir
Hospital/medical center	School	Tertiary education facility	Church	Old age home
Sewage treatment plant	Train station or shunting yard	Railway line	Major road (4 lanes or more)	Airport

Harbour	Sport facilities	Golf course	Polo fields	Filling station
Landfill or waste treatment site	Plantation	Agriculture	River, stream or wetland	Nature conservation area
Mountain, koppie or ridge	Museum	Historical building	Graveyard	Archeological site
Other land uses (describe):	No land uses.			

(a) Please provide a description.

There are no land uses immediately abutting the sites.

8. LAND USE CHARACTER OF SURROUNDING AREA – not applicable

(a) Highlight the current land uses and/or prominent features that occur within +/- 500m radius of the site and neighbouring properties if these are located beyond 500m of the site.

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies.

Untransformed area	Low density residential	Med density residential	High density residential	Informal residential
Retail	Commercial & warehousing	Light industrial	Med industrial	Heavy industrial
Power station	Office/consulting room	Military or police base/station/compound	Casino/entertainment complex	Tourism & Hospitality facility
Open cast mine	Underground mine	Spoil heap or slimes dam	Quarry, sand or borrow pit	Dam or reservoir
Hospital/medical center	School	Tertiary education facility	Church	Old age home
Sewage treatment plant	Train station or shunting yard	Railway line	Major road (4 lanes or more)	Airport
Harbour	Sport facilities	Golf course	Polo fields	Filling station
Landfill or waste treatment site	Plantation	Agriculture	River, stream or wetland	Nature conservation area
Mountain, koppie or ridge	Museum	Historical building	Graveyard	Archaeological site
Other land uses (describe):	No land uses			

(b) Please provide a description, including the distance and direction to the nearest residential area and industrial area.

9. SOCIO-ECONOMIC ASPECTS

Describe the existing social and economic characteristics of the community in order to provide baseline information:

Saldanha Bay supports mainly the fishing, industrial and tourist industries. The Saldanha Bay SDF provides comprehensive information and statistics on socio-economic factors, of which the following is represented in Fig 12 and 13 below:

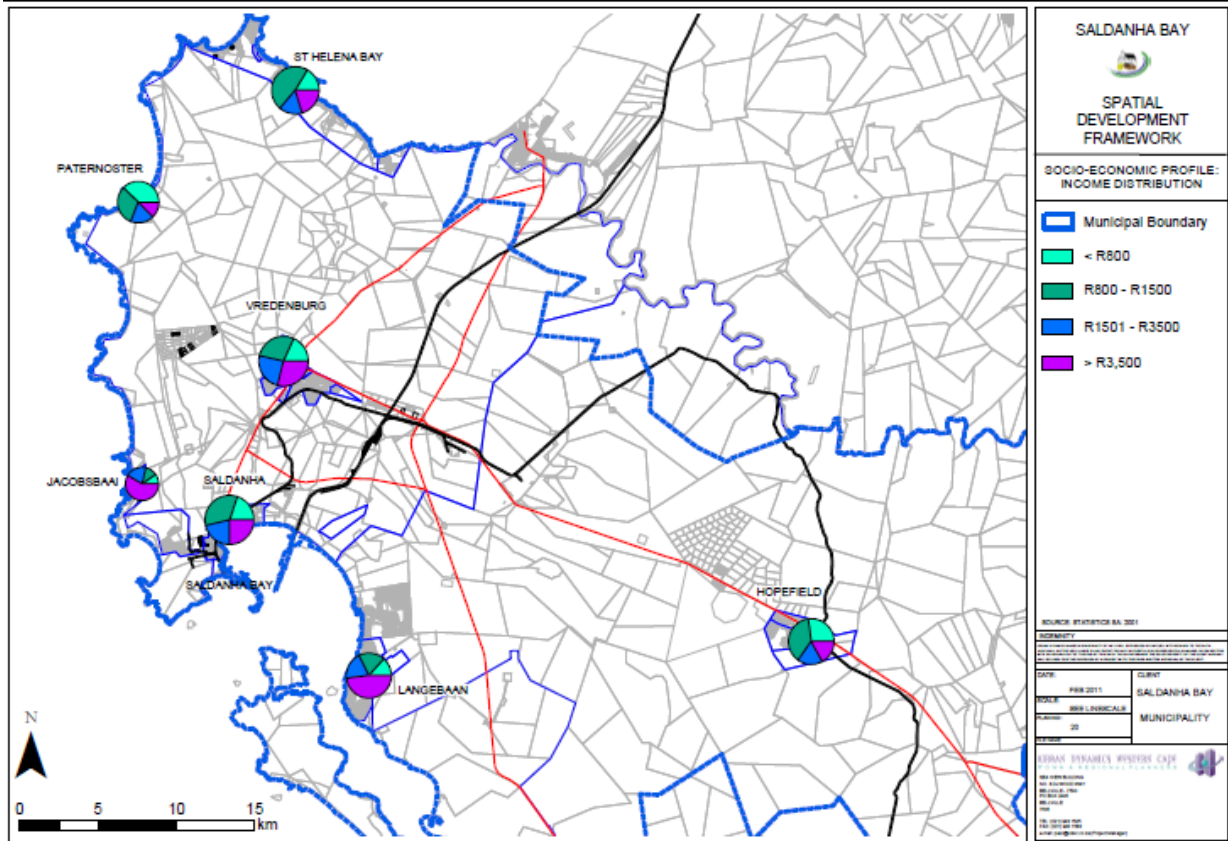


Figure 13: Income distribution (source: Saldanha Bay Municipality SDF 2011)

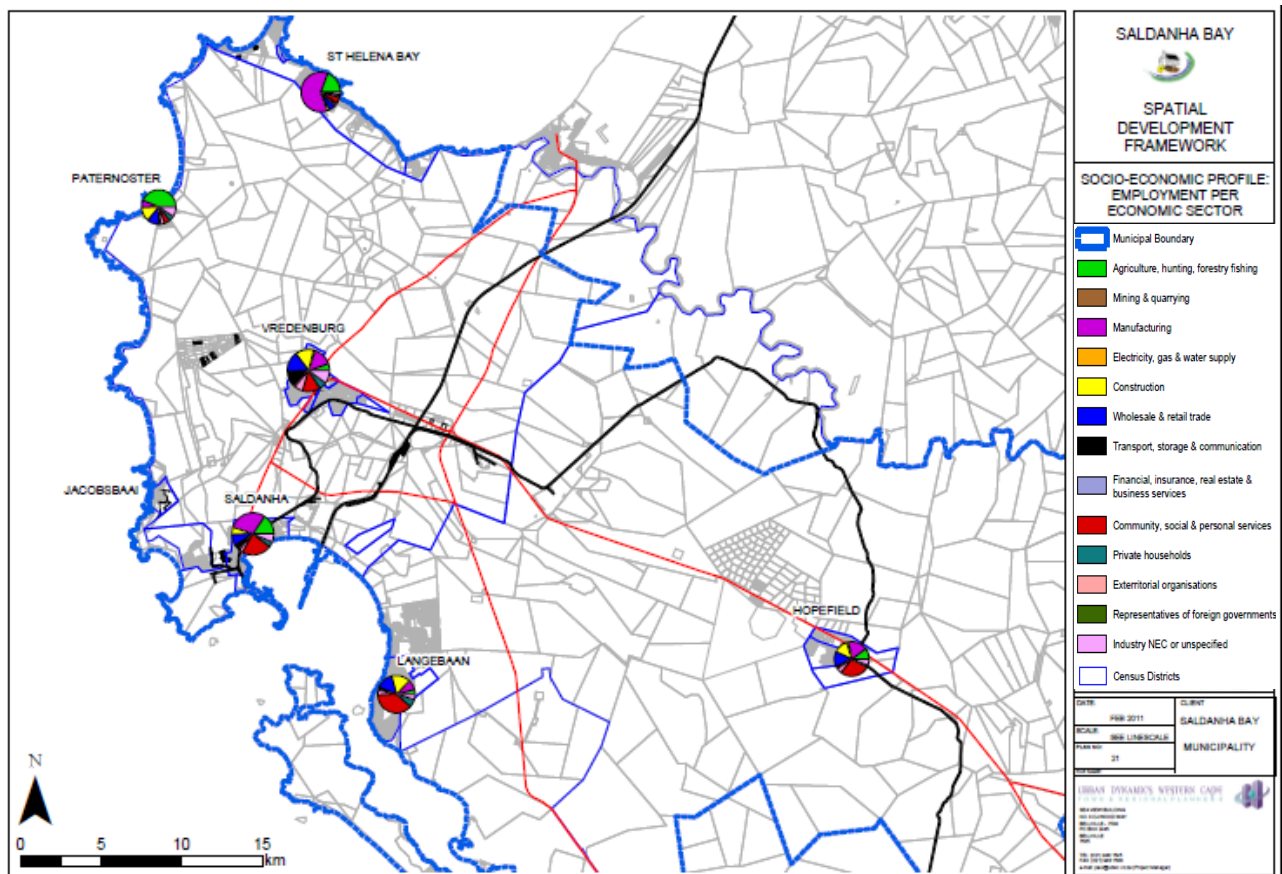


Figure 14: Employment per sector (source: Saldanha Bay Municipality SDF 2011)

The tourism sector, which includes boating, fishing, sailing, kite surfing, paddling etc, has identified certain areas of significance, which should preferably be excluded from having aquaculture activities, due to the potential user conflicts that may occur. The main areas of concerns have been pointed out during the first round of public participation for the ADZ (information was available during public comment periods for the ADZ application). The positioning of the Molapong project has taken the main recreational routes (e.g. Downwind dash) into account.

The Military has reacted to the specific areas not to be utilised for aquaculture in an Sunday Times article, "Don't mussel in on training zone, military warns" – September 4th 2016

10. HISTORICAL AND CULTURAL ASPECTS

- (a) Please be advised that if section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), is applicable to your proposed development, then you are requested to furnish this Department with written comment from Heritage Western Cape as part of your public participation process. Section 38 of the Act states as follows: "38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-
- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
 - (b) the construction of a bridge or similar structure exceeding 50m in length;
 - (c) any development or other activity which will change the character of a site-
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - (d) the re-zoning of a site exceeding 10 000 m² in extent; or
 - (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development."
- (b) The impact on any national estate referred to in section 3(2), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii), of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), must also be investigated, assessed and evaluated. Section 3(2) states as follows: "3(2) Without limiting the generality of subsection (1), the national estate may include—
- (a) places, buildings, structures and equipment of cultural significance;
 - (b) places to which oral traditions are attached or which are associated with living heritage;
 - (c) historical settlements and townscapes;
 - (d) landscapes and natural features of cultural significance;
 - (e) geological sites of scientific or cultural importance;
 - (f) archaeological and palaeontological sites;
 - (g) graves and burial grounds, including—
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;
 - (iv) graves of individuals designated by the Minister by notice in the Gazette;
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
 - (h) sites of significance relating to the history of slavery in South Africa;
 - (i) movable objects, including—
 - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - (ii) objects to which oral traditions are attached or which are associated with living heritage;
 - (iii) ethnographic art and objects;
 - (iv) military objects;
 - (v) objects of decorative or fine art;
 - (vi) objects of scientific or technological interest; and
 - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)."

Is section 38 of the National Heritage Resources Act, 1999, applicable to the development?		YES✓	NO
		UNCERTAIN	
If YES, explain:	Development or other activity which will change the character of a site exceeding 5 000 m ²		
Will the development impact on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999?		YES	NO✓
		UNCERTAIN	
If YES, explain:			
Will any building or structure older than 60 years be affected in any way?	YES	NO✓	UNCERTAIN
If YES, explain:			

Please Note: If uncertain, the Department may request that specialist input be provided.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

(a) Please list all legislation, policies and/or guidelines that have been considered in the preparation of this Basic Assessment Report.

LEGISLATION	ADMINISTERING AUTHORITY	TYPE Permit/ license/ authorisation/comment / relevant consideration (e.g. rezoning or consent use, building plan approval)	DATE (if already obtained):
LUPA	Saldanha Bay Municipality	None required	
National Environmental Management Act (No 107 of 1998) (as amended) and associated regulations and notices	DEA&DP	Triggering listed activities requiring Basic Assessment.	In process
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	South African Heritage Resources Agency	Any development or other activity which will change the character of a site- exceeding 5 000 m ² in extent;	Uncertain if required
Marine Living Resources Act (Act 18 of 1998)	DAFF	Mariculture Right for on-growing of salmonids in the sea	8 June 2016
Marine Living Resources Act (Act 18 of 1998)	DAFF	Mariculture Permit	Most recent approved January 2017 (attached in Appendix E)
National Ports Act (Act No. 12 of 2005)	TNPA	Granting of lease space	In process, current lease approved (as per map in Appendix E)
POLICY/ GUIDELINES		ADMINISTERING AUTHORITY	
<i>DEA&DP Guideline on Alternatives</i>		<i>DEA&DP</i>	
<i>DEA&DP Guideline on Need and Desirability</i>		<i>DEA&DP</i>	
<i>DEA&DP Guideline on Public Participation</i>		<i>DEA&DP</i>	
<i>DEA&DP Guideline for Environmental Management Plans</i>		<i>DEA&DP</i>	
<i>DEA&DP Guideline on Alternatives</i>		<i>DEA&DP</i>	
<i>DEA&DP Circular: EADP 0028/2014, One Environmental Management System</i>		<i>DEA&DP</i>	
Western Cape Provincial Spatial Development Framework ("PSDF")		<i>DEA&DP</i>	

(b) Please describe how the legislation, policies and/or guidelines were taken into account in the preparation of this Basic Assessment Report.

LEGISLATION / POLICY / GUIDELINE	DESCRIBE HOW THE LEGISLATION / POLICY / GUIDELINE WERE TAKEN INTO ACCOUNT (e.g. describe the extent to which it was adhered to, or deviated from, etc).
<i>DEA&DP EIA guidelines</i>	The guidelines were consulted to meet the requirements of the NEMA and EIA Regulations
National Environmental Management Act, 1998 (Act 107 of 1998)	This application is being undertaken according to the requirements of this Act.

Please note: Copies of any permit(s) or licences received from any other organ of state must be attached this report as **Appendix E**.

SECTION C: PUBLIC PARTICIPATION

The public participation process must fulfil the requirements outlined in NEMA, the EIA Regulations, and if applicable the NEM: WA and/or the NEM: AQA. This Department's *Guideline on Public Participation* (August 2010) and *Guideline on Exemption Applications* (August 2010), both of which are available on the Department's website (<http://www.capegateway.gov.za/eadp>), must also be taken into account.

Please highlight the appropriate box to indicate whether the specific requirement was undertaken or whether there was a deviation that was agreed to by the Department.

EAP's NOTE:

- The DRAFT BASIC ASSESSMENT REPORT was first circulated to commenting authorities for feedback in September 2016.
- According to the 2014 regulations, as amended, deviation from public participation requirements is no longer possible.
- The required public participation actions as indicated below have all been undertaken and in total four 30 day comment periods will have been undertaken before submission (including the authority commenting period noted above).

1. Were all potential interested and affected parties notified of the application by –			
(a) fixing a notice board at a place conspicuous to the public at the boundary or on the fence of – Note that the sites are in the sea. A notice board was fixed at the experimental project site			
(i) the site where the activity to which the application relates is to be undertaken; and	YES	DEVIATED	
(ii) any alternative site mentioned in the application; Not possible	YES	DEVIATED	
(b) giving written notice to –			
(i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;	YES	N/A	
(ii) the occupiers of the site where the activity is to be undertaken and to any alternative site where the activity is to be undertaken; Not applicable – the site is not occupied	YES	DEVIATED	
(iii) owners and occupiers of land adjacent to the site where the activity is to be undertaken and to any alternative site where the activity is to be undertaken;	YES	DEVIATED	
(iv) the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;	YES	DEVIATED	
(v) the municipality which has jurisdiction in the area;	YES	DEVIATED	
(vi) any organ of state having jurisdiction in respect of any aspect of the activity; and	YES	DEVIATED	
(vii) any other party as required by the competent authority;	YES	DEVIATED	
1 placing an advertisement in –			
(i) one* local newspaper; and	YES	DEVIATED	
(ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	YES	DEVIATED	N/A ✓
(d) placing an advertisement in at least one* provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken.	YES	DEVIATED	N/A ✓

* **Please note:** In terms of the NEM: WA and NEM: AQA a notice must be placed in at least two newspapers circulating in the area in which the activity applied for is to be carried out.

2. Provide a list of all the state departments that were consulted: Please see Appendix F, Comments and responses report section 2 for complete list.		
DEA&DP Development Management Region 1	S Abrahams Taryn Dreyer	Safwaan.abrahams@westerncape.gov.za Taryn.dreyer@westerncape.gov.za
DEA&DP Coastal Impact Management	I Bekko	ieptieshaam.bekko@westerncape.gov.za
South African Heritage Resources Agency	Lesa la Grange	llagrange@sahra.org.za
Relevant Departments at the Saldanha Bay Municipality	Nazeema Duarte	Nazeema.Duarte@sbm.gov.za
Department of Agriculture Forestry and Fisheries	Michelle Pretorius	MichellePR@daff.gov.za
Department of Environmental Affairs: Oceans and Coasts	Funanani Ditinti	FDitinti@environment.gov.za
SANParks	Marné van der Westhuizen	marné.vanderwesthuizen@sanparks.org
CapeNature	Dean Impson	dimpson@capenature.co.za

3. Please provide an overall summary of the Public Participation Process that was followed. (The detailed outcomes of this process must be included in a comments and response report to be attached to the final Basic Assessment Report (see note below) as **Appendix F**). See comments and responses report - Appendix F

Pre-application Public Participation:

A draft Basic Assessment Report (BAR) was distributed to relevant authorities for initial comment in September 2016. The only comments received was from the Department of Agriculture, Forestry and Fisheries (DAFF) and the Saldanha Bay Municipality (SBM)- see Section 5 and 6 of the Comments and Responses Report. The comments received from authorities were taken into consideration in the compilation of the pre-application draft BAR.

In December 2016, a pre-application BAR was made available to identified stakeholders for the period from 21 December 2016 until 6 February 2017 (30 days, with 15 December-5 January excluded from the reckoning of days, as per the EIA Regulations) Background information letters with an indication of the available comment period, an invitation to register as an interested and affected party (IAP) and to comment were sent to a list of identified stakeholders (see section 2 of the Comments and Responses Report). The period was chosen over the December holiday period so people who are not permanent residents (holiday goers, landlords, etc.) would also be informed of the proposed project.

Posters were put up in public places to notify potential stakeholders of the availability of the pre-application Basic Assessment Report for comment. A copy of the poster, as well as photos of notices is included in Section 4 of the Comments and Responses Report.

Since the site is in the sea, the reports were made available for comment to known recreational users and other possible affected parties, as per information provided by DAFF.

Comments received during the pre-application Basic Assessment Report comment period were incorporated into the BAR as applicable. Comments received were collated in the issues trail, section 5 of the Comments and responses report, which includes responses to comments.

A site visit was conducted with the Department of Environmental Affairs, Oceans and Coasts on 10 February 2017. The Department indicated that they would provide comment, if any, on the final Basic Assessment report. Comment was received from them on the draft.

Public participation after application submission:

An IAP register was opened and comments recorded (see Comments and responses - section 2 for list of registered stakeholders and section 5 for comments recorded, section 6 for copies of comments). Registered IAPs were informed of the availability of the BAR for comment.

A notice was placed in the local newspaper, Weslander, to inform the public of the availability of the BAR for comment on Thursday 16 March 2017. The comment period: 20 March 2017 until 21 April 2017. Copies of these have been included in section 4 of the Comments and Responses Report.

A site notice was placed on the cages at the current site, as well as other public places to notify interested and affected parties of the availability of the documents for comment. Proof of the above actions is included in section 3 of the Comments and Responses Report.

A Focus group meeting was held with registered organisations on 22 May 2017, where to members of the local press were also invited (Weslander and Weskusontheline). A panel of experts was asked to provide feedback at this meeting regarding the main issues raised, which included water quality, disease, socio-economic considerations, as well as public participation. The proceedings from this meeting were recorded and have been included in section 4 of the Comments and Responses Report. In addition to the focus group meeting, meetings were held with the Saldanha Bay Water Quality Forum Trust (27 June 2017), as well as BirdLife South Africa (30 June), notes from the discussions at these meetings, as well as follow-up correspondence, are also included in section 4 of the Comments and Responses Report.

The project has received further exposure through the media in national television (Focus on SABC3) and DSTV (Carte Blanche on M-Net) and various newspaper articles including in the Sunday times, Weslander, and online community, social media and news sites (Weskusontheline, SavetheLangebaanLagoon, PeopleAgainstAquacultureinSaldanha).

Please note:

Should any of the responses be "No" and no deviation or exemption from that requirement was requested and agreed to /granted by the Department, the Basic Assessment Report will be rejected.

A list of all the potential interested and affected parties, including the organs of State, notified and a list of all the register of interested and affected parties, must be submitted with the final Basic Assessment Report. The list of registered interested and affected parties must be opened, maintained and made available to any person requesting access to the register in writing.

The draft Basic Assessment Report must be submitted to the Department before it is made available to interested and affected parties, including the relevant organs of State and State departments which have jurisdiction with regard to any aspect of the activity, for a 30-day commenting period. With regard to State departments, the 30-day period commences the day after the date on which the Department as the competent/licensing authority requests such State department in writing to submit comment. The applicant/EAP is therefore required to inform this Department in writing when the draft Basic Assessment Report will be made available to the relevant State departments for comment. Upon receipt of the Draft Basic Assessment Report and this confirmation, this Department will in accordance with Section 24O(2) and (3) of the NEMA request the relevant State departments to comment on the draft report within 30 days.

All comments of interested and affected parties on the draft Basic Assessment Report must be recorded, responded to and included in the Comments and Responses Report included as **Appendix F** to the final Basic Assessment Report. If necessary, any amendments in response to comments received must be effected in the Basic Assessment Report itself. The Comments and Responses Report must also include a description of the public participation process followed.

The final Basic Assessment Report must be made available to registered interested and affected parties for comment before submitting it to the Department for consideration. Unless otherwise indicated by the Department, a final Basic Assessment Report must be made available to the registered interested and affected parties for comment for a minimum of 21-days. Comments on the final Basic Assessment Report does not have to be responded to, but the comments must be attached to the final Basic Assessment Report.

The minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants must also be submitted as part of the public participation information to be attached to the final Basic Assessment Report as **Appendix F**.

Proof of all the notices given as indicated, as well as of notice to the interested and affected parties of the availability of the draft Basic Assessment Report and final Basic Assessment Report must be submitted as part of the public participation information to be attached to the final Basic Assessment Report as **Appendix F**.

SECTION D: NEED AND DESIRABILITY

Please Note: Before completing this section, first consult this Department's *Guideline on Need and Desirability* (August 2010) available on the Department's website (<http://www.capegateway.gov.za/eadp>).

1. Is the activity permitted in terms of the property's existing land use rights?	YES✓	NO	Please explain
<p>The site is located in the sea and according to the proposed Aquaculture Development Zone (ADZ), as driven by the Department of Agriculture, Forestry and Fisheries (DAFF) within an area where aquaculture can be allowed. Molapong has obtained a right for mariculture for their current approved lease spaces, although the right would need to be amended if another space is approved.</p>			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES✓	NO	Please explain
<p>The Western Cape Provincial Spatial Development Framework (PSDF) was approved as a 4(6) Structure Plan in terms of the Land Use Planning Ordinance, 1985 on 24 June 2009 by the Minister of Local Government, Environmental Affairs and Development Planning. Its purpose is to guide provincial and municipal planning and decision-making, to help prioritise and align investment and infrastructure plans, and to provide clear guidance on the direction of desired public and private sector investment in order to put the Western Cape on a sustainable development path. The PSDF states that policy support and particularly social, economic and infrastructural investment should be carefully assessed to ensure that the maximum economic growth and employment benefits are created without compromising environmental sustainability imperatives.</p> <p>Although marine areas are not included in the PSDF, the proposed aquaculture project will create employment opportunities for skilled and unskilled labour and will therefore assist in addressing the unemployment rate in Saldanha and surrounding area. This will stimulate economic growth and will positively impact on the socio-economic status of the local community.</p>			
(b) Urban edge / Edge of Built environment for the area	YES	NO✓	Please explain
<p>Not applicable. The site is not within the urban built-up area, but in the sea.</p>			
(c) Integrated Development Plan and Spatial Development Framework of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?)	YES	NO	Please explain
<p>Marine areas are not included in the Municipal IDP and SDF, although the 2015/16 Saldanha Bay IDP includes Aquaculture as a labour growth industry for promotion. The 2011 Saldanha Bay SDF promotes the growth of alternative agro-sector industries, which would include Aquaculture.</p>			
(d) Approved Structure Plan of the Municipality	YES	NO	Please explain
<p>Marine areas are not included in the Municipal Structure Plan</p>			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES✓	NO	Please explain
<p>The EMF holds draft status at the time of drafting of this BAR and has not been formally adopted from the final draft of Feb 2015. The zoning of the area within which the Molapong project would fall (Zone 2) indicated Aquaculture consideration - development with care. The project takes sustainability considerations into account, especially in terms of the Aquaculture Stewardship Council (ASC) standards that would be implemented for certification. The ASC manages global standards for responsible aquaculture.</p>			
(f) Any other Plans (e.g. Guide Plan)	YES	NO✓	Please explain
<p>No applicable land use plans. However, currently a bay wide Aquaculture Development Zone is being investigated through a basic assessment process to provide a blanket authorisation for aquaculture projects in Saldanha Bay. The South African Cabinet commissioned an economic potential study for the ocean areas off South Africa in 2013 and this indicated that this Ocean sector could significantly increase its GDP contribution to the economy and to job creation. The Aquaculture industry sector was identified as one of the sectors high potential growth vectors and is included under the National Operation Phakisa development to support the NDP 2030.</p>			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved Spatial Development Framework (SDF) agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES✓	NO	Please explain

Not applicable in terms of land-use, as the project would be in the sea. However, the 2015/16 Saldanha Bay IDP includes Aquaculture as a labor growth industry for promotion. The 2011 Saldanha Bay SDF promotes the growth of alternative agro-sector industries, which would include Aquaculture.

4. Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?	YES✓	NO	Please explain
<p>The area in which Molapong would like to establish a sea-cage fish culture and seaweed/mussel cultivation operation forms part of the area which were earmarked by DAFF and National Ports Authority as marine aquaculture area, available for lease from Transnet Ports Authority (TNPA). Saldana Bay was identified as a suitable site to successfully farm aquaculture species as it meets the necessary requirements in terms of physical (e.g. sea surface temperatures, currents), biophysical (e.g. harmful algal blooms, optimal culture temperatures), infrastructural (e.g. road access, airports), and existing resource-use issues (e.g. urbanisation, parks and recreational areas). The Saldanha Bay area is one of a very few areas where sea cages can be installed successfully.</p>			
5. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES✓	NO	Please explain
<p>Phakisa has identified such at National and Provincial level in the local context to promote aquaculture as additional industry to stimulate job creation and food security.</p>			
6. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix E.)	YES	NO	Please explain
<p>No services are required for the proposed development.</p>			
7. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix E.)	YES	NO✓	Please explain
<p>The development is in the sea, which does not fall under the jurisdiction of the municipality.</p>			
8. Is this project part of a national programme to address an issue of national concern or importance?	YES✓	NO	Please explain
<p>The project will tie in with Operation Phakisa, which is the promotion of aquaculture projects in order to stimulate job creation and food security. The National Development Plan 2030 identifies aquaculture role as central to contributing to food security, poverty relief, unemployment and inequality and reinforces this objective in the New Growth Path (2020).</p>			
9. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES✓	NO	Please explain
<p>The proposed development is located in an area earmarked for aquaculture, as is currently being investigated though an Aquaculture Development Zone (ADZ) basic assessment application. The area in which Molapong would like to establish a sea-cage fish culture and seaweed/mussel cultivation operation forms part of this area. Historically a large area in Saldanha Bay was identified as marine aquaculture area, available for lease from Transnet Ports Authority (TNPA) as indicated on navigational maps (INT2673SAN 1011 refers).</p>			
10. How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	YES✓	NO	Please explain
<p>The Molapong sites are located within the Port of Saldanha, which is demarcated by the TNPA – hence the necessity for a lease application to obtain sea space. The Big Bay site falls within an area indicated as vulnerable in terms of biodiversity and the Jutten site in an area indicated as Endangered. The preferred site for the Molapong project in Big Bay is located approximately 2.8km from the Langebaan Lagoon MPA border within which the Langebaan lagoon is situated. The Jutten Island site would be next to the Jutten MPA. In that there is relatively low technical / empirical data on cage culture of salmonids in the South African coastal waters and in the Western Cape in particular, this application has certainly encouraged the need to apply the precautionary principal as envisaged in section 24 of the Constitution and Section 2(4)(a)(vii) NEMA, which requires a risk-averse and cautious approach to limit the chance of impacts occurring. Impacts that could have an effect on sensitive environments has been assessed in Section F.</p>			
11. How will the development impact on people's health and wellbeing (e.g. in terms of noise, odours, visual character and sense of place, etc)?	YES✓	NO	Please explain
<p>A larger number of cages together would be more visible, although visibility is lower over a distance. In terms of visual impact, it is essential to consider the Bay as a shipping port and industrial harbour. Sea based vessels and structures are therefore commonplace and form part of the area's character.</p>			

12. Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?	YES	NO✓	Please explain
The proposed development will create jobs for the local community. This opportunity would be lost if the development is not approved.			
13. What will the cumulative impacts (positive and negative) of the proposed land use associated with the activity applied for, be?	YES✓	NO	Please explain
<p>On its own, the Molapong project would not have a significant cumulative impact, but in combination with other aquaculture projects (e.g. through the ADZ), impacts may be more significant.</p> <p>Possible positive cumulative impacts: South Africa relies on imports to supply its 4000 – 5000 t a year Atlantic salmon market. The proposed development would be able to supply this market at competitive prices and reduce South Africa's imports on salmon and trout. This will not only contribute to a reduction in the trade deficit, create jobs and capture value locally. South Africa would have a competitive advantage over imports, which are subject to: exchange rates, duties, transport cost, variable international prices and time delays. Mussel production would further service the South African market, making it less reliable on imports. Seaweed culture would create an industry where none currently exists. The entire value chain can be expanded on e.g. transport, cold storage, processing, packaging, wholesale, retail, harbour administration, feed production, monitoring services, net supply and repair etc. Farmed fish would further contribute to relieve the pressure on wild fish stocks.</p> <p>Possible negative cumulative impacts: The possible accumulation of waste under the cages. Eutrophication of surrounding water. Navigation hazard.</p>			
14. Is the development the best practicable environmental option for this land/site?	YES✓	NO	Please explain
Given the positive cumulative impacts above, coupled with the positive socio-economic impacts of job creation, it is believed that in the long term and the short term, benefits associated with the development are maximised and negative impacts are minimised (through appropriate mitigation and precautionary approach). As such, it is believed that the proposal is the best practicable environmental option for this particular site.			
15. What will the benefits be to society in general and to the local communities?			Please explain
The proposed development will provide jobs and skill development opportunities to the local community, contributing to the economic growth of the community.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
The project is an Operation Phakisa project, of which the focus is to unlock the economic potential of South Africa's oceans. Local recreational activities have been considered and largely accommodated in the site selection. The Port and maritime industry use would not be compromised by the proposed development. Mitigation measures, especially monitoring would reduce risk and add to the scientific knowledge base of such identified sectors.			

(17) Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account:

"The general objective of integrated environmental management is to -

- promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment;"
- identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximizing benefits, and promoting compliance with the principles of environmental management set out in section 2;"
- ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;"
- ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;"
- ensure the consideration of environmental attributes in management and decision making which may have a significant effect on the environment; and"
- identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2."

(18) Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account:

"NEMA Chapter 1 Section 2 (2) - Placing people and their needs at the forefront of environmental management "
"NEMA Chapter 1 Section 2 (4) (b) - integrated environmental management with best practical environmental solution "

SECTION E: ALTERNATIVES

Please Note: Before completing this section, first consult this Department's *Guideline on Alternatives* (August 2010) available on the Department's website (<http://www.capegateway.gov.za/eadp>).

"Alternatives", in relation to a proposed activity, means different means of meeting the general purposes and requirements of the activity, which may include alternatives to –

- (a) the property on which, or location where, it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

The NEMA prescribes that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment must, *inter alia*, with respect to every application for environmental authorisation –

- ensure that the general objectives of integrated environmental management laid down in NEMA and the National Environmental Management Principles set out in NEMA are taken into account; and
- include an investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity.

The general objective of integrated environmental management is, *inter alia*, to "identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management" set out in NEMA.

1. In the sections below, please provide a description of any identified and considered alternatives and alternatives that were found to be feasible and reasonable.

Please note: Detailed written proof of the investigation of alternatives must be provided and motivation if no reasonable or feasible alternatives exist.

(a) Property and location/site alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

The applicant has identified three sites, which has potential for aquaculture, as indicated in Figure 14 (Area 1, 2 and 3). Area 3 is included in all three alternatives. The alternatives that are considered to be reasonable and feasible are thus based on the location of sites.

Alternative 1 (A1S1) -

Area 2 (30 Ha) on Fig 14 would be an extension of the current experimental 4ha site with suitable water depth and proven environmental conditions. The site however may be in conflict with other water users and a potential hazard for navigation.

Alternative 2 (A1S2) –

Area 1 on Fig 14 would be the preferred area due to greater water depth. The existing allocation of sea 4ha (part of sea area 2 in figure 14) would need to remain operational until

the new sites become operational. This area

however is in conflict with commercial shipping. (See Appendix A for larger Map)

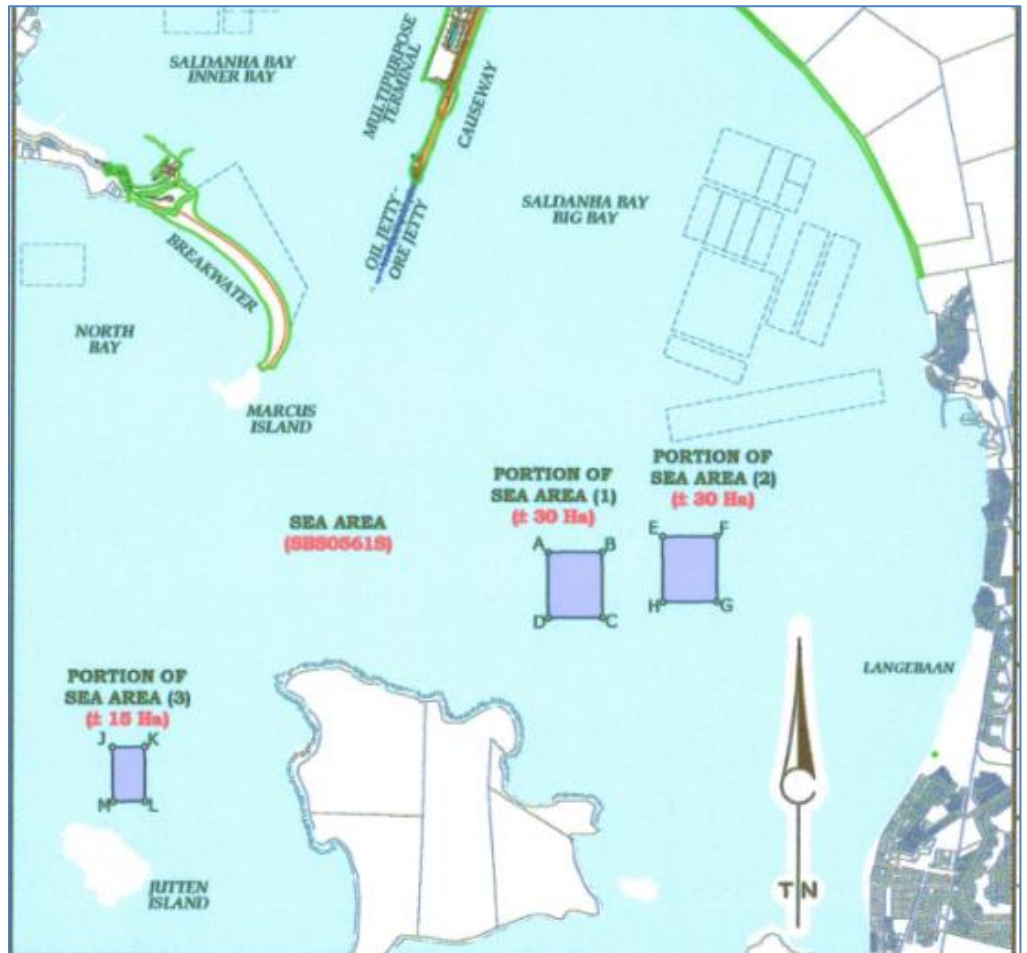


Figure 15: Alternative 1 and 2

Alternative 3 (A1S3) –

This alternative consist of two areas (1,2 as indicated on the plan in figure 15). The existing sea area 1 of 4ha would need to remain operational until the new sites become operational. Although this alternative entails a larger lease allocation due to shallower water depth, it is also feasible for production. Because this location would also be located furthest away from recreational routes and military activities, this alternative is preferred from a best practical environmental point of view. See figure 15.

(See Appendix A for larger Map)

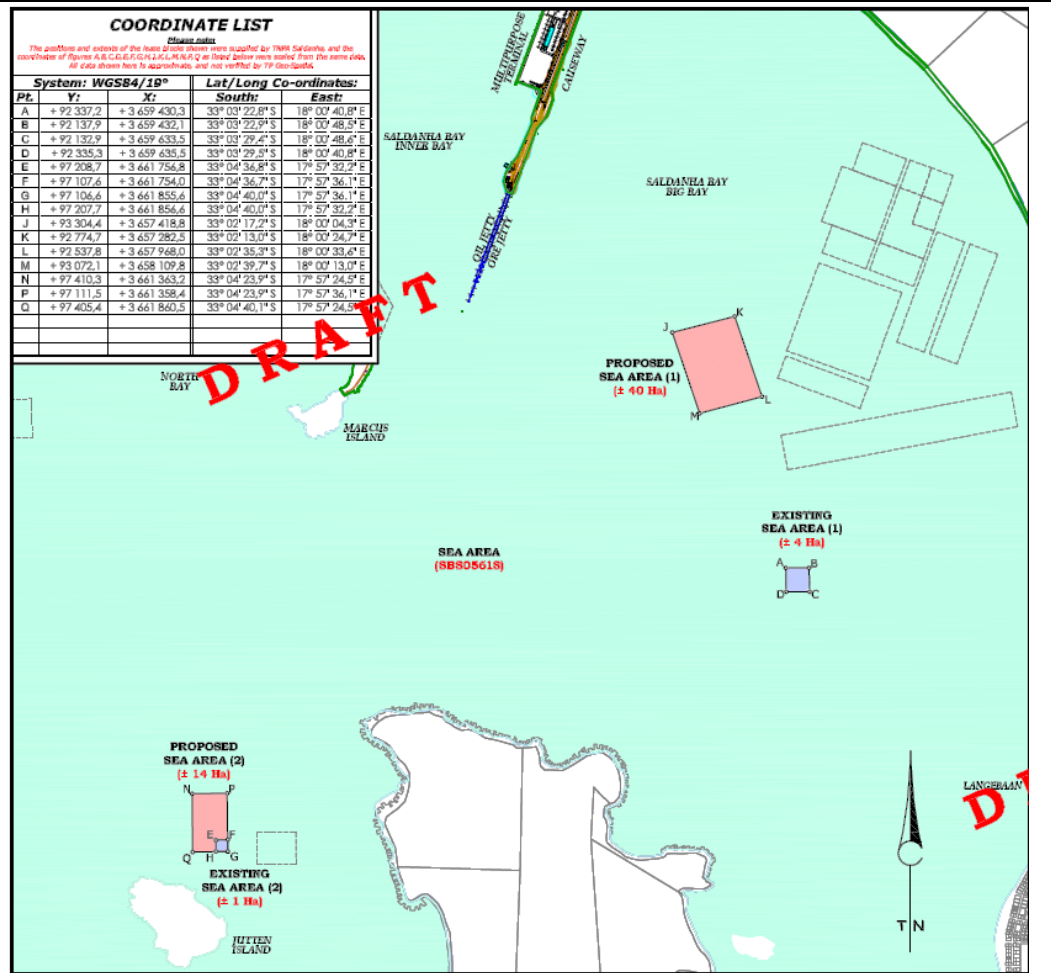


Figure 16: Alternative 3

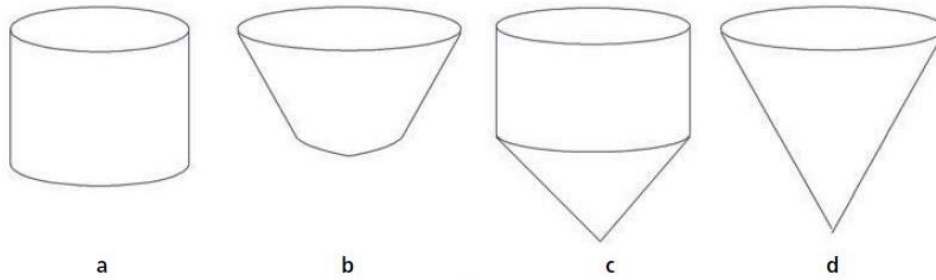
(b) Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

The activity being applied for is off-shore aquaculture. The alternative to this activity would be on-shore (land based) aquaculture in a recirculation system. This alternative activity is not regarded as viable, as land based site production costs are relatively high and the availability of services (water reticulation, electricity for pumping), maintenance, water quality etc. needs consideration. Thus infrastructure and running costs make economic and marketing options extremely limited. The energy inputs and use of resources to build and maintain such a recirculation facility is by its design and nature environmentally less acceptable.

Although feed conversion in closed systems can be better the energy consumption (and associated carbon footprint) in conversion and lifecycle can be higher. A study by Aubin et al (2009) compared freshwater raceways, sea cages and inland recirculation systems. The re-circulation system was a high energy-consumer compared to the raceway system (four times higher) and the sea cage system (five times higher). The conditions in Saldanha Bay are most favourable for production of salmonids to the 2000 t extent, therefore off-shore aquaculture is the preferred activity alternative.

(c) Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

The most feasible alternatives to consider in terms of design or layout would be the types and size of finfish cages to be used. Below are examples of cages:



Notes: cylindrical (a), truncated cone (b), cylindrical with a reverse cone base (c), and tapered conical shape (d).

Figure 17: Cage net shapes (source: FAO, 2015)

As impacts associated with these are similar, this is not presented and assessed as an alternative option. The circular and slightly conical shape is, however, the best option for conditions in Saldanha Bay as they are more robust. Daily mortality removal is also easier, as the cone shape localises the carcasses to a central point.

- (d) Technology alternatives (e.g. to reduce resource demand and resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Recirculation aquaculture was considered, which is land based and also an activity alternative. This technology, however requires high energy consumption, higher reliance on automated technology and therefore failure risk and higher maintenance costs. The use of seaside property with very high value is required and is therefore much costlier. It furthermore has a large carbon footprint due to construction materials and operational energy usage requirements. It is therefore not considered a viable alternative and has not been assessed.

- (e) Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Cages would be arranged in a grid system with a number of configurations possible to provide optimum conditions for the fish. These configurations must be flexible to mitigate sea conditions, visual impacts and to allow for fallowing. As the configurations will not exceed a total coverage of approximately 50% of the total area of 59 ha (spread between 3 sites -Jutten 15 ha, Big Bay South - 4 ha, and Big Bay North 40 ha, and the current experimental site until it becomes unoperational), impacts of different configurations would be similar and is therefore not assessed as separate alternatives.

- (f) The option of not implementing the activity (the No-Go Option):

Alternative 4 – no-go option

This alternative would entail no change. It would not provide economic or job opportunities. Should the development not go ahead (No-go alternative), none of the above positive benefits would realise. Import of salmonids which increase counties trade deficit. Food security decrease
Per requirement of the regulations, the Status Quo (no-go alternative) also needs to be assessed and have been included in Section F.

- (g) Other alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Species alternatives:

Molapong currently has a Marine Aquaculture Right for five species of salmonids i.e. Rainbow trout (*Oncorhynchus mykiss*), Atlantic salmon (*Salmo Salar*), Brown trout (*Salmo trutta*), King salmon (*Oncorhynchus tshawytscha*) and Coho salmon (*Oncorhynchus kisutch*). Molapong is in the process of amending this Right to include Mediterranean mussels (*Mytilus galloprovincialis*), and seaweed.

The first two species, Rainbow trout and Atlantic salmon, have been tested in a previous research phase / pilot project in Saldanha and are considered to be the most suitable species to the South African and export markets. King and Coho salmon have not been farmed in South Africa; but the applicant will test their viability in an experimental project. A separate risk assessment for both Coho and King salmon grow out has been conducted and the importation and grow out of both salmon species has been approved by DEA (See Appendix E).

Mediterranean mussels (*Mytilus galloprovincialis*) and seaweed will be cultured to mitigate nutrient loading from finfish culture. This practice also known as Integrated Multi-Trophic Aquaculture (IMTA) is known to reduce monoculture impacts. Mussels up to 2000 t will be cultivated.

Other species considered were white stumpnose and cob, but these species are not viable alternatives to the applicant as they already have a land based hatchery/fingerling production facility at Fisantekraal, which supplies salmonids. The water in Saldanha Bay is also too cold for cob. Economically these species are much less profitable and is therefore not a viable commercial alternative for the applicant as there are no established markets.

Note that none of the finfish species proposed requires permits under National Environmental Management Biodiversity Act 10 of 2004's restricted activities for alien invasive species. All of these species are exempted on the National Environmental Management Biodiversity Act 10 of 2004 list of alien and invasive species (102 - Brown trout and Atlantic salmon and 72 - Rainbow trout, Coho and King Salmon).

Due to Mediterranean Mussels them occurring in the area already, Molapong would only harvest and sell them, for which they are exempted from obtaining a permit.

(h) Please provide a summary of the alternatives investigated and the outcomes of such investigation:

Please note: If no feasible and reasonable alternatives exist, the description and proof of the investigation of alternatives, together with motivation of why no feasible or reasonable alternatives exist, must be provided.

Site alternatives:

Four sites are ideal for aquaculture activities from a production perspective. However, navigational and user conflict should be taken into account.

A1S1 -

would be an expansion of the existing experimental project, which has suitable water depth and proven environmental conditions in this location. However, the site in Big Bay South may be in conflict with other water users and a potential hazard for navigation.

A1S2 -

would be a new area, which is preferred from a production point of view due to greater water depth. This area however is in conflict with commercial shipping.

A1S3 -

Would be a new area, which would require a larger lease allocation due to shallower water depth but would still be feasible from a production point of view.

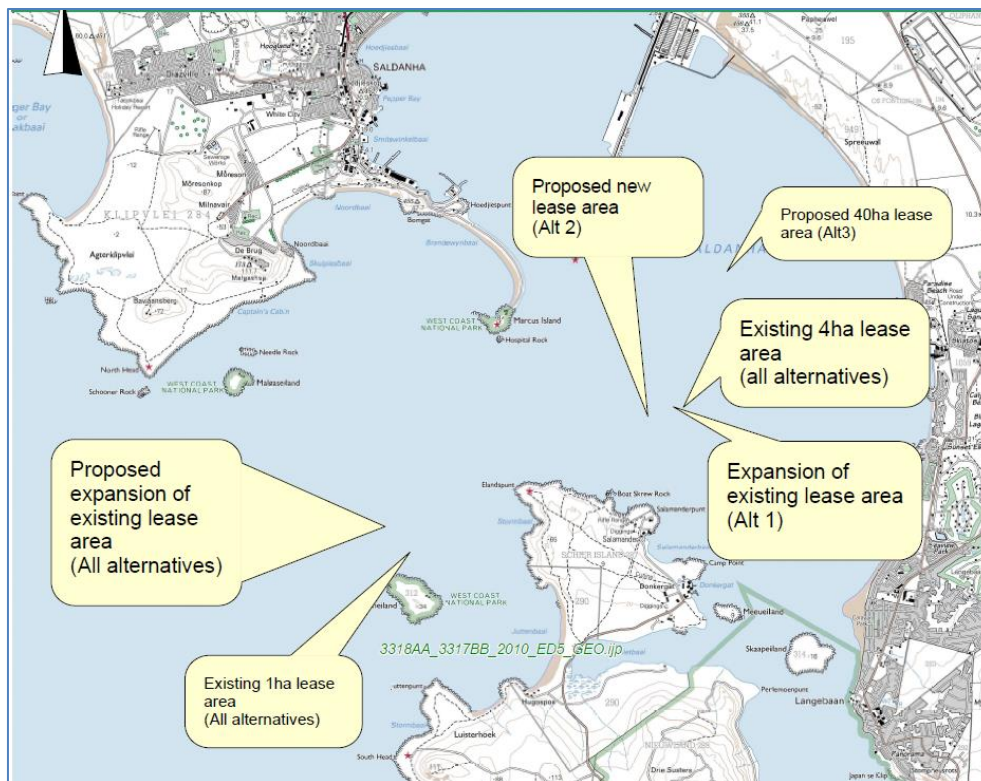


Figure 18: Composite map with considered alternatives (see Appendix 1 for larger map)

The following alternatives were considered, but are not regarded as reasonable or feasible alternatives and have therefore not been assessed:

Activity alternatives:

Land based vs sea based aquaculture was considered, but land based aquaculture is not regarded as economically feasible and will also have a greater carbon footprint. This alternative will not be pursued and have therefore not been assessed.

Layout alternatives:

These needs to be flexible to allow for following and accommodate rough sea conditions. No layout alternatives have therefore been assessed, as the activities would all take place within an area zoned for aquaculture.

Cage alternatives:

The finfish cages best suited for local site conditions are cylindrical and slightly conical design. As other cages will not be used, these have not been considered as alternatives.

Technical alternatives:

Recirculation plant vs sea based facility – see activity alternatives.

Species alternatives:

The five species of salmonids, as well as mussels and macro-algae to mitigate waste dispersal would be preferred as indigenous species are either not suited or not economically viable to farm commercially in Saldanha Bay.

No-go alternative:

An assessment of the no-go alternative has been included in Section F.

SECTION F: IMPACT ASSESSMENT, MANAGEMENT, MITIGATION AND MONITORING MEASURES

Please note: The information in this section must be duplicated for all the feasible and reasonable alternatives (where relevant).

1. PLEASE DESCRIBE THE MANNER IN WHICH THE DEVELOPMENT WILL IMPACT ON THE FOLLOWING ASPECTS:

(a) Geographical and physical aspects:

The sites are located in the sea, Saldanha Bay. Although the lease areas in total would be 59ha, the proposed cages will only cover a total area of 13,5 ha in the sea and mussel longlines would cover approximately 15 ha (for max 2000 t production), which brings the overall coverage to 28,5 ha. The first site (15ha) would be located 0,5 km from Jutten Island, the second site (40 Ha) approximately 3,5 km from Langebaan, only about 50% of the total area will be covered, spread over the two sites.

(b) Biological aspects:

Will the development have an impact on critical biodiversity areas (CBAs) or ecological support areas (CSAs)?	YES✓	NO
If yes, please describe:		
<p>According to the Western Cape Biodiversity Framework (WCBF, 2014), the subject property is not located within a Critical Biodiversity Area (CBA), obviously because the CBAs are terrestrial areas. The sites do however, fall within Endangered benthic habitat (Site 3) and Vulnerable benthic habitat. The subject property has been significantly degraded as a result of past harbour activities.</p> <p>The Marine Ecology specialist study undertaken for the ADZ application, have indicated the following positive and negative biodiversity impacts as a result of suspended cages: "Finfish farms provide a three-dimensional suspended reef habitat for colonisation by fouling communities and the aggregation of wild fish. Cage structures therefore play an important role in the pelagic ecosystem through enhancement of local biodiversity and productivity. Wild fish in the vicinity of fish farms may be attracted to the cages to feed on waste feed or the fouling community, or to seek shelter from predators. The role of aquaculture structures as reservoirs for the establishment of pest organisms (e.g. fouling pests) is also recognized" (Pisces 2017: 64).</p>		
Will the development have impacts on terrestrial vegetation, or aquatic ecosystems (wetlands, estuaries or the coastline)?	YES	NO✓
If yes, please describe:		
<p>The development would be in the sea and would not threaten terrestrial vegetation. Concerns have been raised that water quality through nutrient loading would affect the Langebaan Lagoon, but according to Dr Barry Clarke from Anchor Environmental, nutrient loading from Molapong on its own would not add significantly to the nutrient loading in the Bay.</p>		
Will the development have an impact on any populations of threatened plant or animal species, and/or on any habitat that may contain a unique signature of plant or animal species?	YES	NO✓
If yes, please describe:		
<p>It is unlikely that the Molapong project on its own would have significant impact on plants or animals such as marine mammals or birds. Possible other biological impacts below include interactions between cages and marine animals and birds.</p>		

Please describe the manner in which any other biological aspects will be impacted:

Refer to Section F 6 and F 7 below. Biological impacts would be associated with the benthic environment and interaction between cages and marine animals.

The following should also be noted:

The current experimental project has not experienced any sea lice infestations to date. In addition, ova imports are certified as Disease free and disease monitoring takes place on the fingerling/smolt farms where stock for sea cages are obtained from. Fish undergo a health check before being transferred to the sea cages and there is continuous vaccine development to prevent disease. There is also a health monitoring program on the farm.

The **risk** assessments completed by Anchor Environmental and Molapong for the experimental project noted the following, which have been considered in the impact assessments (these have been converted through the impact assessment criteria used in this report to the various impacts as set out in section F 6(b) (note that the assessment refers to **risk** specifically and not impact):

King Salmon –

Impact: Predation on local species if naturalised.

Impact without mitigation: medium

Impact with mitigation (using female ova only): insignificant

Impact: predation on local species by escapees

Impact without mitigation: medium

Impact with mitigation: medium due to high probability of occurrence, except if copper mesh netting is used, then impact significance: very low

Coho Salmon –

Impact: Predation on local species if naturalised.

Impact without mitigation: medium

Impact with mitigation (using female ova only) = insignificant

Impact: predation on local species by escapees

Impact without mitigation: low

Impact with mitigation: low due to Coho salmon not migrating extensively although still high probability of occurrence of net failure, except if copper mesh netting is used, then impact significance: very low

Trout

Benthic environment risks:

Depletion of dissolved oxygen in benthic environment – high

Alteration of benthic microbial and invertebrate community – medium

Alteration of physical properties of benthic environment – low

Accumulation of therapeutic chemicals in benthic environment – low

Water pollution risks:

Nutrient enrichment of coastal waters – medium

Depletion of dissolved oxygen in water – low

Increased ammonia levels in water – low

Accumulation of therapeutic chemicals in water- low

Navigational impact – medium

Impact on large vertebrates – medium

Genetic impact – none

Disease risk within contained area – high

For mussels, it must be noted that no spat will be introduced for farming purposes. Ropes will simply be installed and naturally occurring mussels (albeit alien species) will colonise ropes and be harvested. In some ways, it can be regarded as removal of alien species, which will be a positive impact.

Similarly, the seaweed that will be cultivated by Molapong (***Macrocystis angustifolia***) also occurs naturally in the area. It is assumed that the assessment by the ecological specialist would apply to most naturally occurring species. It is stated in the report that the effects of suspended subtidal ropes growing seaweed on the hydrodynamics of the water column (currents, waves, stratification) would be similar to other suspended aquaculture activities (long lines and cages). As a monoculture, the overall effects of seaweed cultivation are deemed of low intensity, would persist for as long as the structures are in place and are thus considered to be of **LOW** significance without mitigation. By integrating successfully seaweed cultivation with shellfish or finfish culture the impacts would reduce to **VERY LOW** significance. Any observed effects would persist only for as long as the farm is operational (Pisces Environmental 2017:70).

(c) Socio-Economic aspects:

What is the expected capital value of the activity on completion?					R n.a.
What is the expected yearly income or contribution to the economy that will be generated by or as a result of the activity?					R see below
	Year 1	Year 2	Year 3	Year 4	Year 5
Finfish tonnage R70/Kg	50 R 3 500 000	200 R 14 000 000	500 R 35 000 000	1000 R 70 000 000	2000 R 140 000 000
Mussel tonnage R22/Kg	0 R 0	80 R 1 760 000	320 R 7 040 000	800 R 17 600 000	2000 R 44 000 000
Algae tonnage R12/kg	0 R 0	50 R 600 000	100 R 1 200 000	500 R 6 000 000	1000 R 12 000 000
Total Gross	R 3 500 000	R 16 360 000	R 43 240 000	R 93 600 000	R 196 000 000
Will the activity contribute to service infrastructure?					YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
How many new employment opportunities will be created in the construction phase of the activity?					Not applicable
What is the expected value of the employment opportunities during the construction phase?					R n.a.
What percentage of this will accrue to previously disadvantaged individuals?					n.a. %
How will this be ensured and monitored (please explain):					
Contract conditions of the service provider would stipulate this.					
How many permanent new employment opportunities will be created during the operational phase of the activity?					See below
Year 1	Year 2	Year 3	Year 4	Year 5	
3	13	30	64	74	
What is the expected current value of the employment opportunities during the first 10 years?					R unknown at this stage
What percentage of this will accrue to previously disadvantaged individuals?					%
How will this be ensured and monitored (please explain):					
Maintain a minimum level 4 on BEE scorecard – this is to be audited annually					
Any other information related to the manner in which the socio-economic aspects will be impacted:					
Molapong has a staff Trust of 25% shareholding in Molapong for PDI staff.					

(d) Cultural and historic aspects:

<p>The site does not have any specific cultural or historic significance.</p> <p>Should any previously unknown shipwrecks be discovered during the installation of cages, SAHRA officials will be contacted.</p> <p>The heritage impact assessment for the entire bay that was undertaken for the Aquaculture Development Zone basic assessment process did not indicate any cultural and historic aspects of concern in the areas where the Molapong project is proposed. The only shipwreck in close proximity to the Jutten site, is of low significance. Refer to Underwater Heritage Impact assessment conducted for the ADZ study, available on http://www.srk.co.za/en/za-saldanha-bay-aquaculture-development-zone</p>

2. WASTE AND EMISSIONS

(a) Waste (including effluent) management

Will the activity produce waste (including rubble) during the construction phase?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
If yes, indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type?	M ³	
Minimum waste from packaging of materials.		
Will the activity produce waste during its operational phase?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
If yes, indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type?	M ³	
<p>Litter from cage maintenance (would mainly be packaging and would be kept to a minimum). Fish and mussel mortalities are estimated at 10 t per year and would be provided to fishmeal processing companies in the area. Good practice dictates good maintenance of equipment on site. Since Molapong's cages were deployed on the Big Bay South site and anchored as per their plan, none of their equipment has been lost, not even in the 30 year storm of June 2017.</p> <p>In a theoretical study done in Norway for the potential environmental impact on surrounding waters and the potential for integrated multi-trophic aquaculture (IMTA) driven by salmon aquaculture, it was found that of the total feed input, 70% Carbon (C), 62% Nitrogen (N) and 70% Phosphorus (P) wastes were released into the environment. It was predicted that 48% of feed C was respired as CO₂, 45% of feed N was excreted as dissolved inorganic N (DIN), and 18% of feed P was excreted</p>		

as dissolved inorganic P (DIP). Approximately 44% of feed P was released as particles, dominating solid wastes. The daily volumetric loading rates of DIN from salmon farms were <15% of the natural loading rate of nitrate from deep water, suggesting that the nutrient loading rate is within safe limits (Wang et al, 2012).

The feed Molapong will be using consist of the following:

- Raw Materials
- Wheat
- Fishmeal
- Poultry meal
- Soya oilcake
- MCP
- Vit/min - premix
- Techni-guard
- *Carophyll Pink (astaxanthin)
- *Carophyll red (canthaxanthin)
- Lysine
- Methionine
- salt
- mycotixin binder
- Canola/sunflower/fish oil mix
- Blood meal

* These are carotenoids which give Salmon and Trout a red/pink colour. They occur natural in the marine environment (red seaweed, prawns, crayfish). They are very powerful antioxidants, with many documented health benefits.

The feed that is currently used on the experimental farm in Saldanha has a 15% inclusion rate of fishmeal from a sustainable source. South African fishmeal is of too low standard to be used as fish feed, most of our fish meal is exported to the East for poultry feed. No local fish species is therefore used for feed. It is envisaged to trial out a new diet by the same producer which is 100 % free of marine proteins. Fish meal inclusion from a sustainable source is however only one of the fish feed ingredients that are audited in the ASC certification audit scheme. All ingredients included in the diet, including Soy and Palm oil need to be from certified sustainable sources.

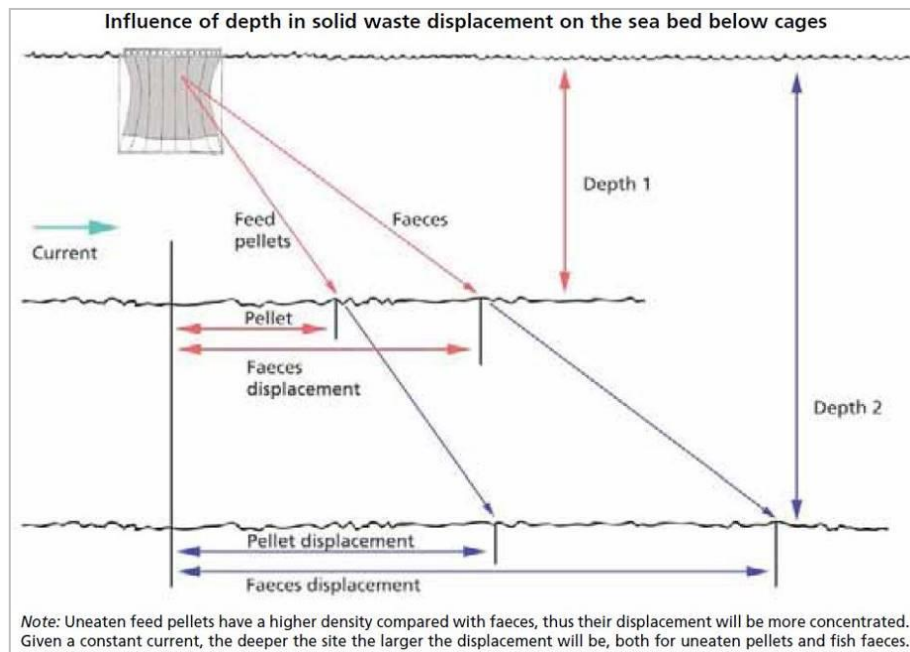


Figure 19: Solid waste displacement in sea cage aquaculture (source: FAO, 2015)

Net cleaning and antifouling treatment would not occur in the sea and would be undertaken by a separate commercial service provider on land.

Where and how will the waste be treated / disposed of (describe)? Not applicable		
If yes, indicate the types of waste (actual type of waste, e.g. oil, and whether hazardous or not) and estimated quantity per type per phase of the development?		
Not applicable		
Has the municipality or relevant authority confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by this activity(ies)? If yes, provide written confirmation from Municipality or relevant authority	YES	NO
Not applicable.		
Will the activity produce waste that will be treated and/or disposed of at another facility other than into a municipal waste stream?	YES	NO ✓

If yes, has this facility confirmed that sufficient capacity exist for treating / disposing of the waste to be generated by this activity(ies)? Provide written confirmation from the facility and provide the following particulars of the facility:	YES	NO
Does the facility have an operating license? (If yes, please attach a copy of the license.)	YES	NO
Facility name:		
Contact person:		
Postal address:		
	Postal code:	
Telephone:	Cell:	
E-mail:	Fax:	

Describe the measures that will be taken to reduce, reuse or recycle waste:
Fish mortalities would be used to produce fishmeal. Mortalities would be collected from nets and shipped to an independent service provider for processing. Fish production waste would be mitigated by cultivating mussels at the cages, as well as macro-algae. Monitoring of Feed conversion ratio and careful observation of demand feeding will reduce / minimise waste.

(b) Emissions into the atmosphere

Will the activity produce emissions that will be disposed of into the atmosphere?	YES	NO ✓
If yes, does it require approval in terms of relevant legislation?	YES	NO
Describe the emissions in terms of type and concentration and how it will be treated/mitigated:		
Not applicable		

3. WATER USE

Please indicate the source(s) of water for the activity by ticking the appropriate box(es)

Municipal	Water board	Groundwater	River, Stream, Dam or Lake	Other	The activity will not use water ✓	
If water is to be extracted from a groundwater source, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:					Not applicable m ³	
Please provide proof of assurance of water supply (e.g. Letter of confirmation from municipality / water user associations, yield of borehole) –						
Does the activity require a water use permit / license from DWAF?					YES	NO ✓
If yes, please submit the necessary application to Department of Water Affairs and attach proof thereof to this application.						
Describe the measures that will be taken to reduce water demand, and measures to reuse or recycle water:						
Not applicable						

4. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

The activity will not require power.
If power supply is not available, where will power be sourced from?
Not applicable

5. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:
Not applicable
Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:
Not applicable

6. DESCRIPTION AND ASSESSMENT OF THE SIGNIFICANCE OF IMPACTS PRIOR TO AND AFTER MITIGATION

PLEASE REFER TO ASSESSMENT CRITERIA, APPENDIX I

Please note: While sections are provided for impacts on certain aspects of the environment and certain impacts, the sections should also be copied and completed for all other impacts.

Alternatives:

A1S1 - Jutten site, plus expansion of the existing experimental project in Big Bay South

A1S2 - Jutten site, plus new site in Big Bay South with greater water depth, current experimental site will remain operational until other sites have become operational

A1S3 - Jutten site plus new area in Big Bay North, current experimental site will remain operational until other sites have become operational

A. Impacts that may result from the PLANNING, DESIGN AND CONSTRUCTION PHASE (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after SPECIALIST INPUTS/STUDIES AND RECOMMENDATIONS

Please note: Specialist inputs/studies must be attached to this report as **Appendix G**. Also take into account the Department's Guidelines on the Involvement of Specialists in EIA Processes available on the Department's website (<http://www.capegateway.gov.za/eadp>).

Note - Planning and design would be an ongoing part of the project, as varying sea conditions would influence where grids are to be moved within the approved sites and how it would be laid out. "Construction" will only entail the assembly of cages and installation of mooring grids and cages into the sea. Mooring grids are kept in place by anchors on the seabed. Cages would be assembled on land and towed to sea.

Potential impacts on the geographical and physical aspects:	Navigational impacts during setting up cages at sea (obstruction to boats)			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	Not applicable
Extent and duration of impact:	Local, short-term	Local, short-term	Local, short-term	
Probability of occurrence:	Low	Low	Low	
Degree to which the impact can be reversed:	Reversible	Reversible	Reversible	
Degree to which the impact may cause irreplaceable loss of resources:	Low	Low	Low	
Cumulative impact prior to mitigation:	Med	Med	Med	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Low	Low	Low	
Degree to which the impact can be mitigated:	Med	Med	Med	
Proposed mitigation:	Appropriate site selection and consultation with other users. Installation and maintenance of navigational and warning buoys with appropriate lighting at night	Appropriate site selection and consultation with other users. Installation and maintenance of navigational and warning buoys with appropriate lighting at night	Appropriate site selection and consultation with other users. Installation and maintenance of navigational and warning buoys with appropriate lighting at night	
Cumulative impact post mitigation:	Low	Low	Low	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Low	Low	Low	
<p>Although this impact is a possibility for any of the alternatives A1S1, A1S2, and A1S3, the likelihood of it occurring is lowest for A1S3 and no-go, as the site location would be outside the major boating / shipping routes and military training areas. The no-go alternative would entail status quo, i.e. only the 1ha site near Jutten Island and the 4ha site in Big Bay South.</p>				

Potential impact on biological aspects:	Harming biota in sediments during placement of anchor blocks or subsequent movements of mooring chains and ropes may cause further mortalities and or disturbance to benthic communities			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	Not applicable
Extent and duration of impact:	Local Short-term	Local Short-term	Local Short-term	
Probability of occurrence:	Likely	Likely	Likely	
Degree to which the impact can be reversed:	Reversible	Reversible	Reversible	
Degree to which the impact may cause irreplaceable loss of resources:	Med	Med	Med	
Cumulative impact prior to mitigation:	Med	Med	Med	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Low	Low	Low	
Degree to which the impact can be mitigated:	Med-High	Med-High	Med-High	
Proposed mitigation:	Prevent or limit movement of anchors and chains over the sea floor Leave mooring anchors or blocks in place when undertaking cage net maintenance or following sites to avoid repetitive impacts of the same activity at each site	Prevent or limit movement of anchors and chains over the sea floor Leave mooring anchors or blocks in place when undertaking cage net maintenance or following sites to avoid repetitive impacts of the same activity at each site	Prevent or limit movement of anchors and chains over the sea floor Leave mooring anchors or blocks in place when undertaking cage net maintenance or following sites to avoid repetitive impacts of the same activity at each site	
Cumulative impact post mitigation:	Low	Low	Low	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Low	Low	Low	
This impact would be similar for any of the alternatives (except no-go).				

Potential impacts on socio-economic aspects:	Employment creation during the construction phase to assemble and set up cages. This would be limited to possible new opportunities for sub-contractors and the project may not directly provide new opportunities			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Positive	Positive	Positive	No change, therefore no impact
Extent and duration of impact:	Local, short-term	Local, short-term	Local, short-term	Not applicable
Probability of occurrence:	Low	Low	Low	
Degree to which impact can be reversed:	Not applicable	Not applicable	Not applicable	

Degree to which the impact may cause irreplaceable loss of resources:	None	None	None	
Cumulative impact prior to mitigation:	Med	Med	Med	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med (positive)	Med (positive)	Med (positive)	
Degree to which the impact can be mitigated:	Med	Med	Med	
Proposed mitigation:	Employment of local BEE service providers and local labour as far as possible, without compromising construction activities and schedules.	Employment of local BEE service providers and local labour as far as possible, without compromising construction activities and schedules.	Employment of local BEE service providers and local labour as far as possible, without compromising construction activities and schedules.	
Cumulative impact post mitigation:	Low (transfer of skills may be possible)	Low (transfer of skills may be possible)	Low (transfer of skills may be possible)	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Med (positive)	Med (positive)	Med (positive)	
Employment creation would be the same for any of the Alternatives A1S1, A1S2, and A1S3, but no opportunities would be created through the no-go option.				

Potential impacts on socio-economic aspects:	Improvement of livelihoods (indirect impact as a result of employment creation)			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Positive	Positive	Positive	No change, therefore no impact
Extent and duration of impact:	Local, short-term	Local, short-term	Local, short-term	Not applicable
Probability of occurrence:	Low	Low	Low	
Degree to which the impact can be reversed:	Not applicable	Not applicable	Not applicable	
Degree to which the impact may cause irreplaceable loss of resources:	None	None	None	
Cumulative impact prior to mitigation:	Med	Med	Med	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med (positive)	Med (positive)	Med (positive)	
Degree to which the impact can be mitigated:	Not applicable	Not applicable	Not applicable	
Proposed mitigation:	Not applicable	Not applicable	Not applicable	
Cumulative impact post mitigation:	Not applicable	Not applicable	Not applicable	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Not applicable	Not applicable	Not applicable	
Livelihood improvement through Employment creation would be the same for any of the Alternatives A1S1, A1S2, and A1S3, but no opportunities would be created through the no-go option.				

Potential impacts on socio-economic aspects:	Skills development (indirect impact as a result of employment creation) limited to sub-contractors			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Positive	Positive	Positive	No change, therefore no impact
Extent and duration of impact:	Local, short-term	Local, short-term	Local, short-term	Not applicable
Probability of occurrence:	Low	Low	Low	
Degree to which the impact can be reversed:	Not applicable	Not applicable	Not applicable	
Degree to which the impact may cause irreplaceable loss of resources:	None	None	None	
Cumulative impact prior to mitigation:	Med	Med	Med	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Med	Med	Med	
Proposed mitigation:	Ensure appropriate training is provided where necessary to contribute to skills development	Ensure appropriate training is provided where necessary to contribute to skills development	Ensure appropriate training is provided where necessary to contribute to skills development	
Cumulative impact post mitigation:	Low-Med (transfer of skills may be possible)	Low-Med (transfer of skills may be possible)	Low-Med (transfer of skills may be possible)	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Med (positive)	Med (positive)	Med (positive)	
Skills development through Employment creation would be the same for any of the Alternatives A1S1, A1S2, and A1S3, but no opportunities would be created through the no-go option.				

Potential impacts on socio-economic aspects:	Inconvenience to recreational users			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	No change, therefore no impact
Extent and duration of impact:	Local, longer term	Local, longer term	Local, longer term	Not applicable
Probability of occurrence:	Med	Med	Med	
Degree to which the impact can be reversed:	High	High	High	
Degree to which the impact may cause irreplaceable loss of resources:	Not applicable	Not applicable	Not applicable	
Cumulative impact prior to mitigation:	Low	Low	Low	

Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Low	Low	Low	
Proposed mitigation:	Implement appropriate markers to avoid collisions (warning lights)	Implement appropriate markers to avoid collisions (warning lights)	Implement appropriate markers to avoid collisions (warning lights)	
Cumulative impact post mitigation:	Low	Low	Low	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Low	Low	Low	

Although this impact is a possibility for any of the alternatives A1S1, A1S2, and A1S3, the likelihood of it occurring is lowest for A1S3 and the no-go, as the site location would be outside the major recreational routes. The no-go alternative would entail status quo, i.e. only the 1ha site near Jutten Island and the 4ha site in Big Bay South.

Potential impacts on cultural-historical aspects:	Considering the Saldanha Bay Aquaculture Development Zone being a low impact expansion project that is unlikely to affect maritime and underwater cultural heritage resources, the Molapong proposed project is also regarded <u>not</u> to have significant impact on cultural-historical aspects. (African Centre for Heritage Activities 2016:20)
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Potential noise impacts:	Insignificant, as it would only be limited number of workers assembling cages without the need for noisy equipment. The assembly site would be located within an industrial area, which is noisy by nature.
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Potential visual impacts:	Limited during cage assembly and installation, refer to operational phase
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Potential dust impacts:	None. No disturbance of top soils etc., which can create dust.
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B. Impacts that may result from the OPERATIONAL PHASE (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the operational phase.

Potential impacts on the geographical and physical aspects:	Reduced carbon footprint due to lower import requirements of salmonids for local markets			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Positive	Positive	Positive	Not applicable
Extent and duration of impact:	Local Med-term	Local Med-term	Local Med-term	
Probability of occurrence:	Med	Med	Med	
Degree to which the impact can be reversed:	Med	Med	Med	
Degree to which the impact may cause	None	None	None	

irreplaceable loss of resources:				
Cumulative impact prior to mitigation:	Med	Med	Med	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	n.a	n.a.	n.a.	
Proposed mitigation:	None suggested	None suggested	None suggested	
Cumulative impact post mitigation:	Not applicable	Not applicable	Not applicable	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Not applicable	Not applicable	Not applicable	
As any of the alternatives, except the no-go alternative would have the same production output, the positive impact from reduced carbon footprint as a result of less dependence on imports, would be the same for A1S1, A1S2 or A1S3.				

Potential impacts on the geographical and physical aspects:	Navigational impacts (obstruction to boats)			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	Not applicable
Extent and duration of impact:	Local Med-term	Local Med-term	Local Med-term	
Probability of occurrence:	Likely	Likely	Likely	
Degree to which the impact can be reversed:	Med	Med	Med	
Degree to which the impact may cause irreplaceable loss of resources:	Not applicable	Not applicable	Not applicable	
Cumulative impact prior to mitigation:	Med-High	Med-High	Med-High	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Low-Med	Low-Med	Low-Med	
Proposed mitigation:	Appropriate site selection and consultation with other users. Install navigation buoys. markers/warning lights	Appropriate site selection and consultation with other users. Install navigation buoys. markers/warning lights	Appropriate site selection and consultation with other users. Install navigation buoys. markers/warning lights	
Cumulative impact post mitigation:	Med	Med	Med	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Although this impact is a possibility for any of the alternatives A1S1, A1S2, and A1S3, the likelihood of it occurring is lowest for A1S3 and no-go, as the site location would be outside the major boating / shipping routes and military training areas. The no-go alternative would entail status quo, i.e. only the 1ha site near Jutten Island and the 4ha site in Big Bay South.				

Potential impact on biological aspects:				
	Disease			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	Not applicable
Extent and duration of impact:	Local Med to Long-term	Local Med to Long-term	Local Med to Long-term	
Probability of occurrence:	Improbable	Improbable	Improbable	
Degree to which the impact can be reversed:	Med	Med	Med	
Degree to which the impact may cause irreplaceable loss of resources:	Low	Low	Low	
Cumulative impact prior to mitigation:	Med	Med	Med	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Med	Med	Med	
Proposed mitigation:	Mitigation relies on sound animal health management and biosecurity.	Mitigation relies on sound animal health management and biosecurity.	Mitigation relies on sound animal health management and biosecurity.	
Cumulative impact post mitigation:	Med	Med	Med	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
This impact would be related to disease among introduced animals in the cages, as disease would be species specific and not possible to spread to local indigenous populations. The risk would be similar for any of the locations for A1S1, A1S2 and A1S3.				

Potential impact on biological aspects:				
	Pollution of the benthic environment (dissolved oxygen depletion, nutrient loading and eutrophication of sediments)			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	Not applicable
Extent and duration of impact:	Local Med to High-term	Local Med to High-term	Local Med to High-term	
Probability of occurrence:	Likely	Likely	Likely	
Degree to which the impact can be reversed:	Reversible	Reversible	Reversible	
Degree to which the impact may cause irreplaceable loss of resources:	Med	Med	Med	
Cumulative impact prior to mitigation:	Med-High	Med-High	Med-High	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Med-High	Med-High	Med-High	

Proposed mitigation:	Use of species and system specific feeds in order to maximize food conversion ratios, rotation of cages within a site to allow recovery of benthos (fallowing), and sensible site selection (sufficient depth, current speeds and suitable sediment type). Use of poly-culture to mitigate nutrient load. Mussel culture as well as seaweed. The project would continue to use the MOM system for monitoring, as per EMPr. ASC certification and membership of the Saldanha Bay Water Quality Forum Trust to ensure checks and balances for early detection and appropriate reaction to impacts.	Use of species and system specific feeds in order to maximize food conversion ratios, rotation of cages within a site to allow recovery of benthos (fallowing), and sensible site selection (sufficient depth, current speeds and suitable sediment type). Use of poly-culture to mitigate nutrient load. Mussel culture as well as seaweed. The project would continue to use the MOM system for monitoring, as per EMPr. ASC certification and membership of the Saldanha Bay Water Quality Forum Trust to ensure checks and balances for early detection and appropriate reaction to impacts.	Use of species and system specific feeds in order to maximize food conversion ratios, rotation of cages within a site to allow recovery of benthos (fallowing), and sensible site selection (sufficient depth, current speeds and suitable sediment type). Use of poly-culture to mitigate nutrient load. Mussel culture as well as seaweed. The project would continue to use the MOM system for monitoring, as per EMPr. ASC certification and membership of the Saldanha Bay Water Quality Forum Trust to ensure checks and balances for early detection and appropriate reaction to impacts.	
Cumulative impact post mitigation:	Low	Low	Low	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Low-Med	Low-Med	Low-Med	

This impact would be similar for any of the alternatives (except no-go), but stronger currents and deeper water associated with A1S1, would have better flushing as a result. The difference between this alternative and the others is however insignificant at this scale.

Potential impact on biological aspects:	Pollution of the water column (nutrient leaching from fish waste / chemical pollution by medicines / antifouling treatment of infrastructure)			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	Not applicable
Extent and duration of impact:	Local Med to High-term	Local Med to High-term	Local Med to High-term	
Probability of occurrence:	Likely	Likely	Likely	
Degree to which the impact can be reversed:	Reversible	Reversible	Reversible	
Degree to which the impact may cause irreplaceable loss of resources:	Med	Med	Med	
Cumulative impact prior to mitigation:	Med-High	Med-High	Med-High	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Med-High	Med-High	Med-High	
Proposed mitigation:	The responsible storage and use of the minimum required quantities of (preferably biodegradable) chemicals. Limited biomass and densities. The project would continue to use the MOM system for monitoring, as per EMPr.	The responsible storage and use of the minimum required quantities of (preferably biodegradable) chemicals. Limited biomass and densities. The project would continue to use the MOM system for monitoring, as per EMPr.	The responsible storage and use of the minimum required quantities of (preferably biodegradable) chemicals. Limited biomass and densities. The project would continue to use the MOM system for monitoring, as per EMPr.	

	ASC certification and membership of the Saldanha Bay Water Quality Forum Trust to ensure checks and balances for early detection and appropriate reaction to impacts.	ASC certification and membership of the Saldanha Bay Water Quality Forum Trust to ensure checks and balances for early detection and appropriate reaction to impacts.	ASC certification and membership of the Saldanha Bay Water Quality Forum Trust to ensure checks and balances for early detection and appropriate reaction to impacts.	
Cumulative impact post mitigation:	Low	Low	Low	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Low-Med	Low-Med	Low-Med	
This impact would be similar for any of the alternatives (except no-go), but stronger currents and deeper water associated with A1S1, would have better flushing and dilution as a result. The difference between this alternative and the others is however insignificant at this scale.				

Potential impact on biological aspects:	Harm to marine animals (entanglement in nets / changes to habitat)			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	Not applicable
Extent and duration of impact:	Local Med to High-term	Local Med to High-term	Local Med to High-term	
Probability of occurrence:	Low-Med	Low-Med	Low-Med	
Degree to which the impact can be reversed:	Med	Med	Med	
Degree to which the impact may cause irreplaceable loss of resources:	Low	Low	Low	
Cumulative impact prior to mitigation:	Med	Med	Med	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Med	Med	Med	
Proposed mitigation:	Dynema netting assists with predator exclusion due to their strength. Proper feed storage and daily feeding and removal of dead fish from cages. Habitat alteration can only be mitigated by appropriate site selection, but may have positive impacts in that cage structures can play an important role in the pelagic ecosystem through enhancement of local biodiversity and productivity.	Dynema netting assists with predator exclusion due to their strength. Proper feed storage and daily feeding and removal of dead fish from cages. Habitat alteration can only be mitigated by appropriate site selection. but may have positive impacts in that cage structures can play an important role in the pelagic ecosystem through enhancement of local biodiversity and productivity.	Dynema netting assists with predator exclusion due to their strength. Proper feed storage and feeding and removal of dead fish from cages. Habitat alteration can only be mitigated by appropriate site selection. but may have positive impacts in that cage structures can play an important role in the pelagic ecosystem through enhancement of local biodiversity and productivity.	
Cumulative impact post mitigation:	Low-Med	Low - Med	Low - Med	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Low-Med	Low-Med	Low-Med	

This impact would be similar for any of the alternatives (except no-go).

Potential impacts on the cultural-historical aspects:	None expected
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Potential impacts on traffic:	None expected
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Potential noise impacts:	None expected
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Potential odour impacts:	None expected
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Potential visual impact:	Cages may be visible from the shoreline from an elevated height, larger configurations would be more visible than single cages. Molapong's sites in Outer Bay South would have lower visibility than those in Big Bay, although these would still be located some distance ($\pm 2.5-2.8$ km) from the shore.			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	No change, therefore no impact
Extent and duration of impact:	Local Med-term	Local Med-term	Local Med-term	Not applicable
Probability of occurrence:	Med-High	Med-High	Med-High	
Degree to which the impact can be reversed:	High	High	High	
Degree to which the impact may cause irreplaceable loss of resources:	None	None	None	
Cumulative impact prior to mitigation:	Med	Med	Med	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Low	Low	Low	
Proposed mitigation:	Spread mooring grids over two sites as far as possible to avoid larger concentrations of cages, of which the bulk would be more visible. Reduce height of bird net supports and use only	Spread mooring grids over two sites as far as possible to avoid larger concentrations of cages, of which the bulk would be more visible. Reduce height of bird net supports and use only	Spread mooring grids over two sites as far as possible to avoid larger concentrations of cages, of which the bulk would be more visible. Reduce height of bird net supports and use only	

	one low visibility colour on netting. Use downward pointing shaded navigational lights and mark equipment for retrieval purposes.	one low visibility colour on netting. Use downward pointing shaded navigational lights and mark equipment for retrieval purposes.	one low visibility colour on netting. Use downward pointing shaded navigational lights and mark equipment for retrieval purposes.	
Cumulative impact post mitigation:	Low-Med	Low - Med	Low - Med	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
The no-go alternative would obviously have no impact, as the status quo would remain.				

Potential visual impact:	The Molapong project would contribute to the cumulative impact of a change in character of the site from flat predominantly open water to "built" sites.			
Alternative:	A1S1	A1S2	A1S3	No go
Nature of impact:	Negative	Negative	Negative	No change, therefore no impact
Extent and duration of impact:	Local Med-term	Local Med-term	Local Med-term	Not applicable
Probability of occurrence:	Med-High	Med-High	Med-High	
Degree to which the impact can be reversed:	High	High	High	
Degree to which the impact may cause irreplaceable loss of resources:	None	None	None	
Cumulative impact prior to mitigation:	Med-High	Med-High	Med-High	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Low	Low	Low	
Proposed mitigation:	Spread mooring grids over two sites as far as possible to avoid larger concentrations of cages, of which the bulk would be more visible. Reduce height of bird net supports and use only one low visibility colour on netting.	Spread mooring grids over two sites as far as possible to avoid larger concentrations of cages, of which the bulk would be more visible. Reduce height of bird net supports and use only one low visibility colour on netting.	Spread mooring grids over two sites as far as possible to avoid larger concentrations of cages, of which the bulk would be more visible. Reduce height of bird net supports and use only one low visibility colour on netting.	
Cumulative impact post mitigation:	Low-Med	Low - Med	Low - Med	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
The no-go alternative would obviously have no impact, as the status quo would remain.				

Potential impacts on socio-economic aspects:	Employment opportunities i.e. job creation and skills development			
Alternative:	A1S1	A1S2		No go
Nature of impact:	Positive	Positive	Positive	No change, therefore no impact
Extent and duration of impact:	Local Med-term	Local Med-term	Local Med-term	Not applicable
Probability of occurrence:	Med	Med	Med	
Degree to which the impact can be reversed:	High	High	High	
Degree to which the impact may cause irreplaceable loss of resources:	Not applicable	Not applicable	Not applicable	
Cumulative impact prior to mitigation:	Low	Low	Low	
Significance rating of impact prior to mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Degree to which the impact can be mitigated:	Med	Med	Med	
Proposed mitigation:	The impact can be enhanced through additional training.	The impact can be enhanced through additional training	The impact can be enhanced through additional training	
Cumulative impact post mitigation:	Med	Med	Med	
Significance rating of impact after mitigation (Low, Med, Med-High, High, or Very-High)	Med	Med	Med	
Employment creation would be the same for any of the Alternatives A1S1, A1S2, and A1S3, but no opportunities would be created through the no-go option.				

Operational Impacts associated with the no-go option

Although the no-go alternative can be seen as appropriate mitigation for negative impacts associated with the sea-cage farming project, no positive benefits would accrue.

Potential impact on the biological aspects	No biological impact
Potential impacts on cultural and historical aspects	No impacts on the cultural and historical aspects.
Potential visual impact	No visual impact
Potential impacts on socio economic impacts	No positive socio-economic impacts indicated above are associated with the no-go alternative. This would mean that all potential employment and added value-chain gains would be nullified. Existing experimental operations may not be viable at current volumes and current investment and jobs may be lost as a result of the project closing.

C. Impacts that may result from the DECOMMISSIONING AND CLOSURE PHASE (briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase.

It is not anticipated that the cages and longlines would be decommissioned within the near future as a five year phased implementation approach would be followed. However, should total decommissioning be considered for the removal of cages ropes and anchor blocks, decommissioning and rehabilitation of the area to its previous state would be at the Applicant's expense and be undertaken in terms of a Decommissioning Environmental Management Plan, which should include as a minimum a decommissioning risk report and method statement shall be compiled and submitted to DEA&DP and DAFF Impacts associated with decommissioning would be similar to installation related impacts.

A DEMP must address the following issues which may impact on the environment:

- de-establishment of the infrastructure on site - removal of cages, anchors, anchor and grid lines;
- disposal of any remaining waste on site;
- removal/disposal/storage or re-use for another purpose of any project infrastructure and equipment from the site;
- fate of any remaining fish and mussels,
- addressing of any other identified residual environmental risks as a result of the operations.
- water and benthic sampling and analysis 3 months after decommissioning

When it becomes necessary to decommission the temporary cage construction site, the site manager and the operator will ensure that any negative environmental impact will be minimised. At a minimum, the following main actions will be performed:

- (a) Removal of any chemicals or wastes stored on site. Any plastics, oils, lubricants or fuels on site at the time of decommissioning will be disposed of or recycled through appropriate waste disposal channels.
- (b) After construction, all plant and equipment will be adequately cleaned, dismantled and removed.
- (c) The Site's temporary fence/safety barrier will be removed and stored for future use.
- (d) If a chemical toilet was necessary on site then it will be removed and wastes disposed of through municipal waste system.
- (e) No waste may be disposed of in to the surrounding sea area.
- (f) The site will be handed over to the Harbour Master for inspection and approval.

Impacts and Mitigation Measures from the decommissioning phase:

The main impact from the decommissioning will be the generation of waste. Waste will mainly consist of organic waste (Bio-fouling) and HDPE (plastic trimmings and off cuts – recyclable) in relatively small quantities, thus of LOW significance. If a reuse option cannot be found for the plant and leftover material their constituent materials will also be classed as waste. The materials arising in this situation will be recycled if feasible.

D. Any other impacts:

Potential impact:	None currently identified.
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7. SPECIALIST INPUTS/STUDIES AND RECOMMENDATIONS

Please note: Specialist inputs/studies must be attached to this report as **Appendix G**. Also take into account the Department's Guidelines on the Involvement of Specialists in EIA Processes available on the Department's website (<http://www.capegateway.gov.za/eadp>).

Specialist inputs/studies and recommendations:

The specialist studies and reports considered for this report includes the environmental risk assessments completed by the applicant for their mariculture right application for the experimental project (as reference), as well as the draft Strategic environmental assessment for identification of potential marine aquaculture development zones for fin fish cage culture, compiled by Anchor Environmental (2011). The draft SEA considered a number of factors concerning sea cage fish farming systems, including the logistical and environmental requirements for the most commonly used "inshore" floating cage systems. The report highlights potential environmental impacts associated with sea cage fish farming and suggests mitigation in this regard as also indicated above (extracted from Anchor Environmental, 2011):

- The incubation and transmission of fish disease and parasites from captive to wild populations. Mitigation relies on sound animal health management and biosecurity.
- Pollution of coastal waters due to the discharge of organic wastes. Mitigation includes the use of species and system specific feeds in order to maximize food conversion ratios, rotation of cages within a site to allow recovery of benthos, and sensible site selection (sufficient depth, current speeds and suitable sediment type). Macro algae and bivalve culture would assist in mitigation.
- Chemical pollution of marine food chains (& potential risk to human health) due to the possible use of therapeutic chemicals in the treatment of cultured stock and antifouling treatment of infrastructure. Recommended mitigation includes the responsible storage and use of the minimum required quantities of (preferably biodegradable) chemicals.
- Fish cages pose a physical hazard to cetaceans and other marine species that may become entangled in ropes and nets. Mitigation measures include site selection that excludes important migration, feeding or aggregation sites; and the use of correct and durable cage netting that minimizes entanglements. No history of entanglement in Saldanha to date.
- Piscivorous marine animals (including mammals, sharks, bony fish and birds) attempt to remove fish from the cages and may become tangled in nets and damage nets leading to escapes and stress or harm the cultured stock. Farmers tend to kill problem predators or use acoustic deterrents. Effective mitigation may be achieved through the use of appropriate predator resistant mesh, proper feed storage and feeding and removal of dead fish from cages.
- Localised habitat alteration and impacts (such as changes in wave action and sediment transport). Can only be mitigated through site selection and farm design.
- User conflict due to exclusion from mariculture zones for security reasons or negative impacts on tourism and coastal real estate value due to negative aesthetic impacts of fish farms. Can be partly mitigated by site selection and consultation with other users.

Currently, the DAFF is undertaking a basic assessment process for an Aquaculture Development Zone in Saldanha Bay. The Specialist studies that were undertaken for this process, considered the impacts for aquaculture projects and is directly applicable to the Molapong projects. Relevant information from these reports have been considered. As such the following general impacts associated with aquaculture development have been considered in this assessment:

Marine ecology impacts (Extracted from PISCES Environmental, 2017: 77-81):

Construction impacts

Crushing of biota in sediments during placement of anchor blocks

Operational impacts

Biodeposition of faeces, pseudofaeces and detritus

Changes to physico-chemical properties of the sediments

Changes to biological properties of the sediments

Modification of benthic habitat through accumulation of live and dead shells on the seabed

Shading from farm structures and crop

Effects of farm structures on currents and waves

Effects on seawater nutrient chemistry and clarity

Depletion of food sources, especially phytoplankton, for other organisms

Alteration of plankton community structure

Harmful algal blooms

Habitat creation by farm structures

Effects on fish (and ichthyoplankton)

Effects on seabirds

Effects on marine mammals: seals, dolphins and whales

Biosecurity risks relating to the spread of diseases, parasites and biofouling pests

Genetic interactions with wild populations, and effects of escapees (fish culture)

Effects of therapeutical chemicals and trace contaminants (fish culture)

Effects on other users (operations)

Pulse disturbances during harvest practices

Conflict with other users

Mitigation measures, which are practically applicable to the Molapong project (and which have been incorporated into the EMPr) include:

- Ensure mooring systems are well designed to prevent/limit movement of anchors and chains over the sea floor.
- Leave mooring anchors or blocks in place when undertaking cage net maintenance or following sites to avoid repetitive impacts of the same activity at each site

- Avoid high density culture and overcrowding of mussel droppers, other structures in shellfish farms. The recommended density for mussels is 11 longlines of 832 droppers per ha;
- Fish cages should be located at suitably deep sites that allow cages to be held at least 5 m off the seabed. The configuration of finfish cages should not exceed a total coverage of 30% of the total area allocated for finfish farming,
- Implement recommended monitoring of biodeposition and physico-chemical changes in seabed properties, infaunal and epifaunal macrobenthic communities, at shellfish and finfish farming sites relative to undisturbed control. For finfish farms, adopt the (relevant aspects of) MOM management system (or similar) in monitor in faunal and epifaunal macrobenthic communities at farming sites.
- Manage fish stocking densities to ensure the environmental and stock health is maintained.
- Monitor and manage feeding regimes in finfish farms to minimise feed wastage and chemical usage.
- Use species and system-specific highly digestible, high energy and low phosphorus fish feeds to maximize food conversion ratios and minimize waste.
- Rotate cages within production areas to allow recovery of benthos.
- Ensure debris and waste material does not enter the water to minimise the risk of attraction and entanglement by seabirds, marine mammals and large predators.
- Keep a log of all cetaceans, seabirds and predators recorded in the vicinity of fish farms, including behavioural observations.
- Monitoring by farm personnel of presence (and absence) of marine mammal species in the vicinity or general region of the farm sites, as well as observations of any time spent under or around the farm structures. These data should be periodically compiled and analysed by experts.
- Remove any injured or dead fish from finfish cages promptly and do not release any blood and/or offal (organic waste) from finfish into the bay.
- Develop disentanglement protocols in collaboration with DAFF, DEA and the SA Whale Disentanglement Network and establish a rapid response unit to deal with entanglements.
- Minimise the potential for litter entering the marine environment (particularly plastic wastes).
- Do not apply antifoulants on site and use environmentally friendly alternatives where effective.
- Ensure a high level of biosecurity management and planning is in place within hatcheries, holding tanks and sea cages to limit the introduction of pests and diseases and to be able to respond quickly and effectively should biosecurity risks be identified.
- Have good house-keeping practices in place at all times i.e. keep nets clean and allow sufficient fallowing time on sites to ensure low environmental levels of intermediates hosts and or pathogens.
- Farm operators should 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 vessels for pests; clean structures and hulls regularly to ensure eradication of pests before they become established.
- Fouling organisms removed from oyster stacks, abalone barrels and finfish cages (taken onshore for maintenance) should not be discharged back into the marine environment thereby ensuring that any introduced non-native fouling species not detected previously are not released into the wild.
- Ensure that veterinarian protocols to eliminate any pests, parasites and diseases are strictly adhered to.
- Ensure suitable management and planning measures are in place to limit the possibility of genetic interactions.
- Ensure good physical and biological containment to limit the effects of escaped stocks.
- Implement the "Genetic Best Practice Management Guidelines for Marine Finfish Hatcheries" developed by DAFF and ensure adequate genetic monitoring of brood stock rotation.
- Use robust, well-maintained containment systems to reduce the likelihood of escapes.
- Develop and implement recovery procedures should escapes from finfish farms occur.
- Ensure all fry undergo a health examination prior to stocking in sea cages.
- Take necessary action to eliminate pathogens through the use of therapeutic chemicals or improved farm management.
- Regularly inspect stock for disease and/parasites as part of a formalised stock health monitoring programme.
- Maintain comprehensive records of all pathogens and parasites detected as well as logs detailing the efficacy of treatments applied.
- Locate cages stocked with different cohorts of the same species as far apart as possible; if possible stock different species in cages successively.
- Have good house-keeping practices in place at all times i.e. keep nets clean and allow sufficient fallowing time on sites to ensure low environmental levels of intermediates hosts and or pathogens.
- Treat adjacent cages simultaneously even if infections have not yet been detected.
- Use only approved veterinary chemicals and antifoulants.
- Reduce levels of nutritional therapeutants and trace contaminants in fish feed using only the lowest effective doses.
- Use the most efficient drug delivery mechanisms that minimise the concentrations of biologically active ingredients entering the environment.
- When farming seaweeds, use only locally sourced species for stocking the ropes.
- Use seaweeds as a co-culture species for use in Integrated Multi-Trophic Aquaculture (IMTA) rather than as monoculture
- Implement monitoring of the immediate water column around the precincts or specific farms for nutrient parameters (dissolved carbon, nitrogen and phosphorous).
- Implement monitoring of the immediate water column around the precincts or specific farms for key plankton (chl a, phytoplankton abundance and species composition) parameters.
- Ensuring that minimal non-navigational lighting occurs at night and using downward-pointing and shaded lights.
- Develop and enforce strict maintenance and operational guidelines and standards in relation to potential entanglement risks on the farm including loose ropes, lines, buoys or floats.
- Ensure all mooring lines and rafts are highly visible (use thick lines and bright antifouling coatings).
- Keep all lines taught through regular inspections and maintenance.
- Develop disentanglement protocols in collaboration with DAFF, DEA and the SA Whale Disentanglement Network and establish a rapid response unit to deal with entanglements.

- Adopt appropriate maintenance and operational guidelines and standards for minimising noise in noise-generating equipment.
- Establish and adhere to guidelines around the use of anti-fouling products in the mariculture industry.
- Restrict stocking densities to below 15-20 fish per m³ to limit the spread of diseases and parasitic infections.
- Avoid the use of fertilizers or chemicals in the culture of seaweeds.

Monitoring requirements include:

- Routine monitoring at specific intervals should be undertaken once a site is operational.
- For finfish farms, adopt the (relevant aspects of) MOM management system (or similar) in monitor infaunal and epifaunal macrobenthic communities at farming sites. The basic concept behind this approach is recognising that certain aspects of the receiving environment are more or less sensitive to the impacts of fish farming, and therefore have different capacities for production. By integrating the EIA, impact monitoring and environmental quality standards, the requirements for analytical and numerical models, and amount of environmental monitoring considered necessary is determined by the degree of the environmental impact.

The following findings regarding the visual aspects of the ADZ from the SRK report are highlighted, as the Molapong project may contribute to the cumulative effect of it:

Visual impacts (Extracted from SRK, 2017):

- Visibility of projects along the eastern shoreline, north of Langebaan (Mykonos, Calypso). Overall, projects in Outer Bay would have lower visibility and projects in Big Bay higher visibility.
- The project will contribute to a change in character of the site from flat predominantly open water to "built" sites. The overall cumulative impact is assessed to be of high significance and with the implementation of mitigation, is reduced to medium.
- Safety/warning lights demarcating the precincts at night. Although the lights would not create a large visual impact or large amount of light, these lights would contribute to the change in the character of the seascape at night. The impact is assessed to be of low significance and with the implementation of mitigation, is reduced to very low.

Mitigation Measures that will also reduce visual impact for the Molapong project are:

- 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 including for existing operations.
- Ensure project components are of a similar style, scale and have a consistent spacing between them to promote visual cohesiveness.
- Utilise the minimum number of safety/warning buoys and lights 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.
- Restrict operations at night.
- If the Ports Authority requires flashing lights, ensure the lights flash simultaneously.

Heritage impacts (extracted from African Centre for Heritage Activities, 2016)

Twenty-three wrecks were discussed in the HIA, conducted for the ADZ process. Five potentially lie within proposed ADZ expansion areas and three are in close proximity to the Molapong sites:

- Two wrecks potentially lie in Big Bay North: Brazil, Dauphin; Brazil may be close to the 40 site from Molapong
- One wreck potentially lies in Big Bay South: Luna; the existing experimental project may be close to the Luna
- Two wrecks potentially lie in Outer Bay South: Hamlet, Merestein. Hamlet may fall within the area considered for expansion of the Molapong project

The wreck of the Brazil is younger than 60 years and, therefore, does not fall within the ambit of the National Heritage Resources Act. In summary, the applicable wrecks have been assessed as follows:

Wreck	Location	Significance	Certainty
Luna	Big Bay South	Low	Possible
Hamlet	Outer Bay South	Low	Possible

Mitigation proposed:

Concrete anchors to be placed on the sea floor will not affect buried shipwreck material. In addition, 5-ton (roughly 5m²) concrete blocks are relatively small and have a small footprint on the seabed. Scour around concrete blocks will be negligible and shipwreck sites will be minimally affected, if at all. Impact may result if moorings are placed on exposed shipwreck material.

Should wreck sites be identified, it is recommended that, if possible, and more cost effective than archaeological mapping and assessment, planned positions of mooring blocks should be relocated off of visible features (above the seabed) on wreck sites.

It is recommended that the location and nature of any identified maritime and underwater cultural heritage resource be provided to the South African Heritage Resources Agency for inclusion on their Shipwreck Database.

Should evidence of archaeological material be identified, the Maritime and Underwater Cultural Heritage Unit at SAHRA must be notified and it should be provided to an archaeologist for assessment

Should any wreck site, or part thereof, or object or artefacts from a wreck site be disturbed during operations, a permit from SAHRA must be acquired prior to continuing with activities.

8. IMPACT SUMMARY

Please provide a summary of all the above impacts.

Construction phase impact (limited to the assembly of cages on land and placing of anchors on the seabed):

The following impacts are likely to occur –

- Cage assembly would create temporary employment opportunities for local service providers, with indirect impacts of skills development and improvement of livelihoods for those particular families. Significance would be low positive as it would be limited to sub-contractors used by the applicant.
- Navigational as towing of cages may cause obstruction to marine traffic
- Crushing of biota in sediments during placement of anchor blocks

Operational phase impacts

Operational phase impacts include:

- Employment opportunities i.e. job creation and skills development during the five proposed phases of the project, although of low significance.
- Navigational
- Economic
- Reduced carbon footprint
- Impacts on the Benthic environment and the water column as a result of feed and waste
- Disease
- Marine animals that could get tangled in nets and longlines

Decommissioning phase impacts:

- Navigational
- Marine animals that could get tangled in nets and longlines if not properly removed
- Waste generation

The impacts for the three alternatives A1S1, A1S2 and S1A3 would be similar as the site conditions are most appropriate for all. The only differences where A1S2 and A1S3 impacts might have higher significance would be:

1 - impacts on the benthic environment by waste and chemicals, as these site alternatives are at a shallower depth, which may influence waste dispersion below the cages.

2 -Visual. Although the cages and longlines would only be slightly visible from an elevated height at the coast, A1S2 would be closer to land and therefore more visible. The impact would however be low for both alternatives. The no-go alternative would have no visual impact.

A1S3 would have lower Navigational impact, as it would be located outside recreational routes and military training areas, as well as outside the shipping lane.

9. OTHER MANAGEMENT, MITIGATION AND MONITORING MEASURES

(a) Over and above the mitigation measures described in Section 6 above, please indicate any additional management, mitigation and monitoring measures.

Specifications for Environmental Management during construction (cage installation) and operational phases have been included in the Environmental Management Programme, Appendix H.

The applicant is furthermore committed to implement the ASC standards, which forms part of the EMPr. The ASC is a global organisation working internationally with aquaculture producers, seafood processors, retail and foodservice companies, scientists, conservation groups, social NGO's and the public to promote the best environmental and social choice practices in aquaculture.

Working with partners, the ASC runs a programme to transform the world's aquaculture markets by promoting the best environmental and social aquaculture performance. The ASC seeks to increase the availability of aquaculture products certified as sustainable and responsibly produced and promotes minimisation of the environmental and social footprint of commercial aquaculture by addressing key impacts. (ASC Salmon Standard Version 1.0 June 2012 - See Annexure to EMPr.)

An industry wide liaison and monitoring committee has been recommended, which DAFF has indicated is going to be implemented. There is also commitment from DAFF to ensure authority oversight and accountability in relation to ensuring monitoring and implementation of both permit conditions and approved specifications.

Molapong is proposing to increase its production in a staggered way but monitored all the time. If the monitoring shows that there is an increase in the environmental impact the farm will have to change its operational procedures in order to bring the impact within the legal DAFF requirements. Monitoring is specified in the aquaculture permit conditions, which are annually reviewed and issued (see Appendix E to the BAR).

Saldanha bay water quality has been monitored by different parties over the past years. Molapong has been accepted as a member of the Saldanha Bay Water Quality forum Trust in order to share results and contribute to bay wide monitoring efforts to ensure early detection and appropriate action in consultation with relevant role players in the Bay.

(b) Describe the ability of the applicant to implement the management, mitigation and monitoring measures.

The proposed mitigation measures are deemed realistic and feasible to implement. The Applicant and any appointed Contractor would be able to implement the proposed mitigation measures.

Please note: A draft **ENVIRONMENTAL MANAGEMENT PROGRAMME** must be attached this report as **Appendix H**.

SECTION G: ASSESSMENT METHODOLOGIES AND CRITERIA, GAPS IN KNOWLEDGE, UNDERLAYING ASSUMPTIONS AND UNCERTAINTIES

(a) Please describe adequacy of the assessment methods used.

The methodology applied is standard methodology and best general criteria to be applied across a range of different types of impacts, although it is difficult to quantify some impacts such as visual or social. In such cases the rating of confidence would be Med to low.

(b) Please describe the assessment criteria used.

The methodology makes provision for the assessment of impacts against the criteria required to include:

- Significance
- Spatial scale
- Temporal scale and
- Probability

See appendix I for rating tables.

(c) Please describe the gaps in knowledge.

Gaps in knowledge include issues that may arise from the public participation process which have not been identified by the EAP. in knowledge include issues that may arise from the public participation process which have not been identified by the EAP. It is also noted that there is little comparative data for South Africa on which to draw for any like models or cage farming in the sea as applied for here. Many of the issues raised by I&AP's reference northern hemisphere cage culture or freshwater culture facilities. These are not comparable.

Future changes in circumstances and legislation can also not be accounted for at this stage.

(d) Please describe the underlying assumptions.

It is assumed that all information provided to the EAP was correct and valid at the time on which it was provided. Every effort will be made to inform all potential stakeholders of the proposed development (notification through letters, advertisements, site notices). The demography, language preferences or social standing of some potential I&AP's cannot be always catered for despite best efforts.

(e) Please describe the uncertainties.

The impacts have been identified and assessed to the EAP's best ability. Any other impacts not identified are currently unknown. Local Bird flight paths, feeding preferences or preferred roosting areas etc. are not well described in this area despite there being high conservation status for both the area and some species. Definitive current modeling for the bay area is not readily available.

SECTION H: RECOMMENDATION OF THE EAP

In my view (EAP), the information contained in this application form and the documentation attached hereto is sufficient to make a decision in respect of the activity applied for.	YES ✓	NO
If "NO", list the aspects that should be further assessed through additional specialist input/assessment or whether this application must be subjected to a Scoping & EIR process before a decision can be made:		
Although the information contained in this report is considered to be adequate for authorities to reach a decision, the public participation process for this report may inform them of any additional issues arising, which first need to be addressed before a decision can be made.		
If "YES", please indicate below whether in your opinion the activity should or should not be authorised:		
Activity should be authorised:	YES ✓	NO
Please provide reasons for your opinion		
As the project would fall within an area identified for aquaculture and related risk assessments completed for the applicant's current experimental project and similar studies have indicated that aquaculture would be desirable in the proposed location, there is no fatal flaw for the project and it can be considered reasonable and feasible, provided that the recommended mitigation measures as contained in the EMPr are implemented. . The application for 2000t is also well within the potential carrying capacities for finfish and is very conservative with good scope to assess in situ issues and react. The applicant is prepared to meet best international standards and has made assurances to both the licencing authority and local monitoring bodies for co-operative management and monitoring.		
If you are of the opinion that the activity should be authorised, then please provide any conditions, including mitigation measures that should in your view be considered for inclusion in an authorisation.		
The mitigation measures have been incorporated into the EMPr with a strict monitoring and reporting mechanism. A consultative forum for aquaculture would allow continued public participation through key stakeholder involvement. Implementation of the EMPr is therefore regarded as the most important condition for the authorisation of the proposed activities.		
Duration and Validity: Environmental authorisations are usually granted for a period of three years from the date of issue. Should a longer period be required, the applicant/EAP is requested to provide a detailed motivation on what the period of validity should be.		
A three-year period should be sufficient for the development to commence, once authorised, and provided that appeal processes, if any, is finalised quickly.		

SECTION I: APPENDICES

The following appendices must be attached to this report:

Appendix		Tick the box if Appendix is attached
Appendix A:	Locality map	✓
Appendix B:	Site plan(s)	✓
Appendix C:	Photographs	✓
Appendix D:	Biodiversity overlay map	✓
Appendix E:	Permit(s) / license(s) from any other organ of state including service letters from the municipality	✓
Appendix F:	Public participation information: including a copy of the register of interested and affected parties, the comments and responses report, proof of notices, advertisements and any other public participation information as required in Section C above.	
Appendix G:	Specialist Report(s)	✓
Appendix H :	Environmental Management Programme	✓
Appendix I:	Any Other (if applicable) - Impact Assessment Criteria	✓
References:	African Centre for Heritage Activities 2016 Underwater Heritage Impact Assessment for the Development of an Aquaculture Development Zone (ADZ) at Saldanha Bay Western Cape	
	J. Aubin. Author E. Papatryphon. H.M.G. van der Werf. S. Chatzifotis. 2009 Assessment of the environmental impact of carnivorous finfish production systems using life cycle assessment Journal of cleaner production Vol 17 (3) Elsevier)	
	http://www.seafarm-systems.com/ accessed on 8-6-16	
	http://www.akvagroup.com/products/cage-farming-aquaculture/plastic-cages accessed on 8-6-16	
	http://bgis.sanbi.org/MapView accessed on 10-7-16	
	Capricorn Marine. 2016. PROJECT DEFINITION REPORT SUMMARY: Proposed Sea-Based Aquaculture Development Zone in Saldanha Bay	
	Western Cape Department of Environmental Affairs & Development Planning. 2015 Environmental Management Framework For The Greater Saldanha Area	
	Malgas, Y. 2016. Visie vir Saldanha as akwakultuur-hub Deur Yaël Malgas 10 November 2016 10:33 http://www.netwerk24.com/ZA/Weslander/Nuus/visie-vir-saldanha-as-akwakultuur-hub-20161109 accessed 17 July 2017	

	Meadows R. 2005. Monitoring aids control of ag-related stream-temperature increases. <i>Cal Agr</i> 59(3):149-150.	
	Monteiro P. M. S. and Largier J. L. 1999. Thermal Stratification in Saldanha Bay (South Africa) and Subtidal, Density-driven Exchange with the Coastal Waters of the Benguela Upwelling System in Estuarine, Coastal and Shelf Science (1999) 49, 877–890 Article No. ecss.1999.0550, available online at http://www.idealibrary.com	
	Wang et al. 2012. Discharge of nutrient wastes from salmon farms: environmental effects, and potential for integrated multi-trophic aquaculture. <i>Aquaculture Environment Interactions</i> 2: 267–283	
	Food and Agriculture Organisation. 2015. Aquaculture operations in floating HDPE cages – a field handbook	
	Hutchings, K. et al. 2011. Strategic Environmental Assessment - Identification of potential marine aquaculture development zones for fin fish cage culture (draft for public comment)	
	PISCES Environmental Services (Pty) Ltd. 2017. Concept for a proposed sea-based aquaculture development zone in Saldanha Bay, South Africa marine ecology specialist study (draft 8)	
	Saldanha Bay Water Quality Forum Trust 2015 The State of Saldanha Bay and Langebaan Lagoon (compiled by Anchor Environmental Consultants)	
	Saldanha Bay Water Quality Forum Trust 2016 The State of Saldanha Bay and Langebaan Lagoon (compiled by Anchor Environmental Consultants)	
	Saldanha Bay Spatial Development Framework 2011 Available at http://www.sbm.gov.za/pages/spatial-planning/SDF/plan_sdf.html# accessed on 28-02-17	
	SRK Consulting 2017. Proposed Sea-Based Aquaculture Development Zone in Saldanha Bay Basic Assessment Report. Available at: http://www.srk.co.za/en/za-saldanha-bay-aquaculture-development-zone accessed on 16-03-17	
	SRK Consulting. 2016. Proposed Sea-based Aquaculture Development Zone in Saldanha Bay: Visual Impact Assessment	
	Sunday Times "Don't mussel in on training zone, military warns" – September 4 th 2016	
	Initial comments received during ADZ public participation process were considered to address some of the initial concerns against aquaculture projects in Saldanha Bay. These were obtained from DAFF by Molapong, but were later publicly available through the ADZ public participation process.	

DECLARATIONS

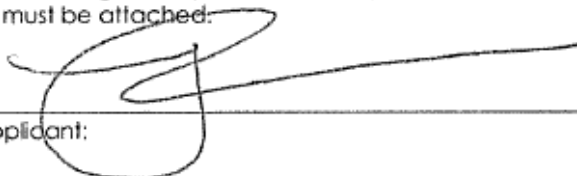
THE APPLICANT

I, Kojo Resoort, in my personal capacity or duly authorised (please circle the applicable option) by Molapong Aquaculture thereto hereby declare that I:

- regard the information contained in this report to be true and correct, and
- am fully aware of my responsibilities in terms of the National Environmental Management Act of 1998 ("NEMA") (Act No. 107 of 1998), the Environmental Impact Assessment Regulations ("EIA Regulations") in terms of NEMA (Government Notice No. R. 543 refers), and the relevant specific environmental management Act, and that failure to comply with these requirements may constitute an offence in terms of the environmental legislation;
- appointed the environmental assessment practitioner as indicated above, which meet all the requirements in terms of regulation 17 of GN No. R. 543, to act as the independent environmental assessment practitioner for this application;
- have provided the environmental assessment practitioner and the competent authority with access to all information at my disposal that is relevant to the application;
- will be responsible for the costs incurred in complying with the environmental legislation including but not limited to –
 - costs incurred in connection with the appointment of the environmental assessment practitioner or any person contracted by the environmental assessment practitioner;
 - costs incurred in respect of the undertaking of any process required in terms of the regulations;
 - costs in respect of any fee prescribed by the Minister or MEC in respect of the regulations;
 - costs in respect of specialist reviews, if the competent authority decides to recover costs; and
 - the provision of security to ensure compliance with the applicable management and mitigation measures;
- am responsible for complying with the conditions that might be attached to any decision(s) issued by the competent authority;
- have the ability to implement the applicable management, mitigation and monitoring measures;
- hereby indemnify, the government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of, inter alia, the content of any report, any procedure or any action for which the applicant or environmental assessment practitioner is responsible; and
- am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

Please Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.

Signature of the applicant:



Name of company:

K. Resoort for Molapong Aquaculture

Date:

21/7/2017

THE INDEPENDENT ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

I MARK SASMAN..... as the appointed independent environmental practitioner ("EAP") hereby declare that I:

- act/ed as the independent EAP in this application;
- regard the information contained in this report to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the application was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- have ensured that the comments of all interested and affected parties were considered, recorded and submitted to the competent authority in respect of the application;
- have kept a register of all interested and affected parties that participated in the public participation process;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

Note: The terms of reference must be attached.

Mark Sasman

Signature of the environmental assessment practitioner:

ECOSENSE CC

Name of company:

21-07-2017

Date:

ECOSENSE CC
P. O. BOX 12697, DIE BOORD 7613
TEL: (021) 886 4056 FAX: 086 617 5560
CK: 98/22840/23 VAT: 4090179278

Terms of Reference for Ecosense:

Pre-application screening: Gathering and synthesis of information, authority liaison and submission of intent form
Pre-application preparations: Research and synthesis of relevant Specialist studies, and pre-application Draft BAR and EMP, gather IAP details, Site meeting, Authority Liaison (1st draft BAR)
Public Participation: Compilation of BID, Printing and circulation of BID / pre-application BAR to Authorities and the public for comment, gather initial comment and compile issues trail
Applications: Completion and submission of required applications form and follow-up
Public Participation: Printing and circulation of after-application BAR to Authorities and the public for comment, (including letters, site notices and newspaper adverts) gather further comment and update issues trail
BAR: Compilation of final BAR and EMP, incorporation of initial comment, printing and circulation to registered IAPs, submission for decision.
Decision period: Follow-up with Competent Authority
Notification of decision: Inform registered IAPS of decision and place notice in the press.
Appeal period to follow, if no appeals, construction may start: Follow up
Project management: Facilitation of process, communication and provision for 10 project meetings and 2 authority meetings.

THE INDEPENDENT PERSON WHO COMPILED A SPECIALIST REPORT OR UNDERTOOK A SPECIALIST PROCESS

Note - no specialists were appointed specifically for this application, although references to various specialist studies have been included in the report – see section I above for reference list. Reports included under Appendix G were completed for the Molapong pilot project and have also been used to inform the application.

- I, as the appointed independent specialist hereby declare that I:
- act/ed as the independent specialist in this application;
 - regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
 - do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
 - have and will not have no vested interest in the proposed activity proceeding;
 - have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
 - am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
 - have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
 - have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
 - have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;
 - have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
 - am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

Note: The terms of reference must be attached.

Signature of the specialist:

Name of company:

Date:
