



Project Definition for proposed Saldanha Bay Aquaculture Development Zone (ADZ)

Notes of Key (Technical) Stakeholder Workshop

Held: Blue Bay Lodge, Henry Wicht Drive, Saldanha, 20 July 2016 at 10h00

Attendees:	1. Andrea Bernatzeder	Department of Agriculture, Forestry and Fisheries (DAFF)
	2. Fatima Daya	DAFF
	3. John Foord	DAFF
	4. Maxhoba Jezile	DAFF
	5. Ferdi Marais	DAFF
	6. Michelle Pretorius	DAFF
	7. Mellisa Naiker	Department of Environmental Affairs and Development Planning (DEA&DP): Coastal Management
	8. Rasheeq Williams	Department of Economic Development
	9. Ferdie Endemann	Department of Agriculture
	10. David Joubert	Saldanha Bay Municipality
	11. William Brink	West Coast National Park
	12. Roger Krohn	Oystercatcher
	13. Vos Pienaar	Imbaza Mussels
	14. Kevin Ruck	Blue Sapphire Pearls
	15. Barend Stander	Molapong Aquaculture
	16. Henk Stander	Southern Cross Salmon Farming
	17. Toni Tonin	Saldanha Bay Oyster Co
	18. Kozette Myburgh	Ecosense Consulting
	19. Chris Heinecken	CapMarine
	20. Sue Reuther	SRK Consulting
	21. Jessica du Toit	SRK Consulting

Apologies were received from Asanda Njobeni (DAFF).

1 Welcome and Introductions

- 1.1 Sue Reuther (SR) welcomed everyone to the meeting and thanked them for attending. All meeting attendees introduced themselves. SR gave a brief safety induction.

2 Purpose of the Workshop

- 2.1 SR explained that the purpose of the workshop is to provide key (technical) stakeholders with a platform to discuss and vet the preliminary findings of the Project Definition phase prior to the formal commencement of the Basic Assessment (BA) process.

3 Project Motivation

- 3.1 Fatima Daya (FD) explained the purpose of the establishment of the Aquaculture Development Zone (ADZ), noting that the expansion of aquaculture is a key priority of Operation Phakisa.
- 3.2 FD explained that although Saldanha Bay supports a number of aquaculture operations, the carrying capacity of the Bay can support additional production.

4 Proposed ADZ – Draft Project Definition

- 4.1 Chris Heineken (CH) presented the draft Project Definition Report, including the following aspects:
- Aquaculture areas already allocated in Saldanha Bay;
 - Transnet National Ports Authority (TNPA) projected developments in Saldanha Bay;
 - Prevailing oceanographic conditions in Saldanha Bay;
 - Carrying capacity;
 - Aquaculture species currently cultivated on commercial scale;
 - Proposed expansion of aquaculture areas in Saldanha Bay;
 - Potential organisms for future aquaculture;
 - On-shore infrastructure;
 - Department of Public Works Spatial and Economic Development Framework (SEDF) for Pepper Bay Harbour.

5 Questions and Concerns

- 5.1 The following questions and concerns were raised by stakeholders during the workshop:
- Saldanha Bay could be overutilised, leading to an increased risk of disease in the Bay. This risk will be increased if stock is purchased from different hatcheries, and if farms are located too close together;
 - Conflict between farms could arise if provision is not made for adequate vessel access channels between farms;
 - An influx of workers into Saldanha as a result of jobs anticipated as a result of the ADZ could cause a strain on municipal planning and infrastructure;
 - Whether all species potentially farmed at the ADZ in future must be listed in the current Basic Assessment (BA) process;
 - Whether alien species may require additional risk assessments and authorisation;
 - How the impacts of processing will be assessed, especially relating to waste products, and whether restrictions will be placed on where processing may take place. (The National Regulatory Compulsory Specifications (NRCS) must be consulted with regards to processing);
 - The Environmental Management Plan (EMP) compiled as part of the Basic Assessment (BA) must make provision for future technology advances in aquaculture; and

- The ADZ should provide services to the entire aquaculture industry in Saldanha Bay, including e.g. security, navigational buoys, laboratory services and discarding of waste products.

6 Proposed Way Forward

6.1 SR explained the proposed way forward in terms of the EIA process.

7 Closure of Meeting

7.1 SR thanked the meeting attendees and closed the meeting at 13h15.

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A handwritten signature in black ink, appearing to read 'J. du Toit', written over the SRK Consulting logo and text.

Signed by:

Jessica du Toit

Date:

22 July 2016



19 July 2016
 499020

Saldanha Aquaculture Development Zone (ADZ) Key Stakeholder Workshop

Agenda

To be held: Blue Bay Lodge, Henry Wicht Drive, Saldanha
 20 July 2016 at 10h00

	Presenter:	Time Allocated:
<i>Arrival and Registration</i>		10:00 – 10:15
Welcome and Introductions	SRK	10:15 – 10:25
Safety and Housekeeping	SRK	10:25 – 10:30
Purpose of Workshop	SRK	10:30 – 10:35
Project Motivation	DAFF	10:35 – 10:50
Proposed ADZ Draft Project Definition	CapMarine	10:50 – 11:50
<i>Break</i>		11:50 – 12:05
General Discussion	All	12:05 – 12:45
Way Forward	SRK	12:45 – 13:00

Yours faithfully,

SRK Consulting (South Africa) (Pty) Ltd

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Jessica du Toit
 Environmental Consultant

Partners R Armstrong, AH Bracken, MJ Braune, JM Brown, CD Dalglish, BM Engelsman, R Gardiner, GC Howell, WC Joughin, DA Kilian, JA Lake, BF Liber, V Maharaj, DJ Mahlangu, RRW McNeill, HAC Meintjes, MJ Morris, GP Nel, VS Reddy, PE Schmidt, PJ Shepherd, MJ Sim, VM Simposya, HFJ Theart, KM Uderstadt, AT van Zyl, MD Wanless, ML Wertz, A Wood

Directors AJ Barrett, GC Howell, WC Joughin, V Maharaj, DJ Mahlangu, VS Reddy, PE Schmidt, PJ Shepherd

Associate Partners N Brien, LSE Coetser, CJ Ford, E Goossens, M Hinsch, SG Jones, W Jordaan, AH Kirsten, LH Kirsten, S Kisten, I Mahomed, RD O'Brien, T Shepherd, JJ Slabbert, WI Stewart, D Visser

Consultants JAC Cowan, *PrSci/Nat, BSc(Hons)*; JH de Beer, *PrSci Nat, MSc*; JR Dixon, *PrEng*; T Hart, *MA, TTHD*; GA Jones, *PrEng, PhD*; PR Labrum, *PrEng*; PN Rosewarne, *PrSci/Nat*; AA Smithen, *PrEng*; TR Stacey, *PrEng, DSc*; OKH Steffen, *PrEng, PhD*; PJ Terbrugge, *PrSci/Nat, MSc*, DJ Venter; *PrTech*

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Saldanha Bay Aquaculture Development Zone
 Key Stakeholder Workshop – 10h00-13h00, 20 July 2016, Blue Bay Lodge, Saldanha
 ATTENDANCE REGISTER



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Saldanha Bay Aquaculture Development Zone
 Key Stakeholder Workshop – 10h00-13h00, 20 July 2016, Blue Bay Lodge, Saldanha
 ATTENDANCE REGISTER



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Proposed Sea-Based Aquaculture Development Zone in Saldanha Bay

Key Stakeholder Workshop, Blue Bay Lodge, 20 July 2016

Saldanha Bay ADZ

Agenda

Arrival and Registration		10:00 – 10:15
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Way Forward	SRK	12:45 – 13:00

Saldanha Bay ADZ

Welcome and Introductions

- DAFF proposes to establish sea-based Aquaculture Development Zone (ADZ) in Saldanha Bay
- SRK Consulting was appointed as independent consultant to develop a framework for the Saldanha Bay ADZ and undertake the EIA process required in terms of NEMA:
 - Chris Dalglish (Principal Consultant) – Review
 - Sue Reuther (Principal Consultant) – PM
 - Jessica du Toit (Consultant) – Engagement / Support
- Capricorn Marine Environmental (CapMarine) compiles the Project Definition
 - Dave Japp – Review
 - Chris Heineken – Project Definition
 - Sarah Wilkinson – GIS

Please introduce your name, organisation and interest in the project

Saldanha Bay ADZ

Purpose of Workshop

- Background Information Document (BID) was distributed to stakeholders on 9 June 2016
- Parallel process:

1. PROJECT DEFINITION PHASE
 Source and review relevant available information
 Develop background parameters and other key components
 Determine suitable areas for aquaculture
Leave with key stakeholders to discuss the Project Definition

2A. BA INITIATION PHASE
 Advise the project of a BA process and release a BID
 Consult the BA Report reviewing process and negative impacts of the ADZ and identifying mitigation and an EIA

2B. BA REPORTING PHASE
 Compile and release BA Report for public consultation
 Conduct public consultation on BA and EIA
 Submit BA, EIA and comments summary to DEA for decision-making
- Workshop aims to provide a platform to discuss and vet the preliminary findings of the Project Definition phase with key stakeholders prior to the BA process

Saldanha Bay ADZ


Project Motivation (DAFF)

Saldanha Bay ADZ

Project Motivation


- Saldanha Bay is the **primary area for bivalve production** in South Africa, with the majority of oyster and mussel production to date originating here.
- As a result of improved opportunities for local mussel import substitution, the opening up of export markets for oysters and improved access to water and land space through **Operation Phakisa**, there is a **renewed interest** in expanding and fully utilizing the bay for further oyster and mussel production, as well as exploring potential finfish production in the outer more exposed parts of the bay.
- Saldanha Bay supports a number of aquaculture operations, and DAFF has determined that the carrying capacity of Saldanha Bay **can support additional production.**


Saldanha Bay ADZ



Project Motivation


- Operation Phakisa was launched in 2014 to unlock the economic potential of South Africa's oceans.
- **Aquaculture has been prioritized through the Operation Phakisa Oceans Economy. The Aquaculture Lab aims to grow sector revenue from R0.67bn to R3bn; production by 20,000 tonnes; jobs from 2,227 to 15,000 and ensure increased participation to support transformation in the sector by 2019.**

Saldanha Bay ADZ 



Project Motivation

- DAFF proposes to establish a sea-based Aquaculture Development Zone (ADZ) in Saldanha Bay to:
 - Encourage investor and consumer confidence;
 - Create incentives for industry development;
 - Provide marine aquaculture services;
 - Manage the risks associated with aquaculture; and
 - Provide skills development and employment for coastal communities.

Saldanha Bay ADZ 




Proposed ADZ Draft Project Definition (CapMarine)

Saldanha Bay ADZ 




Discussion of Draft Project Definition (All)


Saldanha Bay ADZ 




Proposed Way Forward

- Finalise Project Definition to identify suitable areas for aquaculture assessed in the Basic Assessment Report (BAR): *~Jul 2016*
- Conduct specialist studies and compile BAR and Environmental Management Plan (EMP): *~Aug 2016*
- Release BAR and EMP for public review: *~Sep 2016*
(Attendees of this meeting will also be notified)
- Submit BAR, EMP and comments summary to Department of Environmental Affairs (DEA) for decision making: *~Oct 2016*

Saldanha Bay ADZ 



Thank you

Saldanha Bay ADZ 

Feasibility Assessment for a Proposed Sea-Based Aquaculture Development Zone in Saldanha Bay

Analysis of information and mapping to determine suitable aquaculture areas, species and methods in Saldanha Bay and land based support activities

Aquaculture Development Zone (ADZ) within Saldanha Bay

Report provides baseline for EIA of the ADZ

It identifies

- Current aquaculture activities allocated by TNPA
- Potential expansion ADZ
- Culture species
- Spatial development for aquaculture the fishing harbour

Aquaculture Development Zone (ADZ) within Saldanha Bay

Factors taken into account in identifying proposed expansion of aquaculture in Saldanha Bay

These included:

- Requirements for shipping movements
- Proposed expansion by TNPA in the bay
- Existing MPAs
- Oceanographic conditions
- Carrying capacity

Aquaculture areas allocated in Saldanha Bay

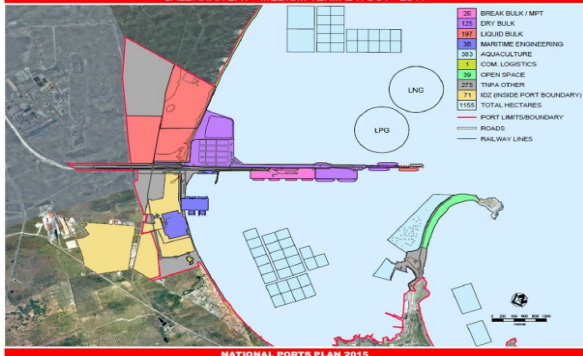
Spatial and temporal distribution of current aquaculture allocated by TNPA

(November 2015)



TNPA projected development in Saldanha Bay

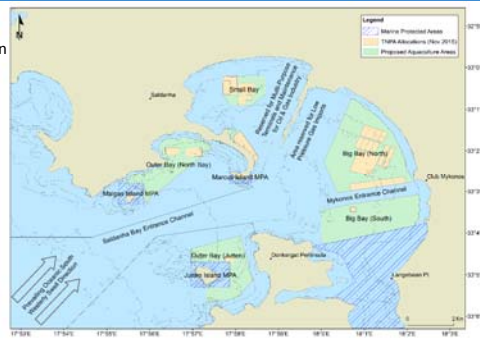
SALDANHA BAY - MEDIUM TERM LAYOUT - 2044



Proposed expansion of aquaculture areas in Saldanha Bay

No Expansion envisaged in Small Bay

May 2016



Aquaculture Development Zone (ADZ) within Saldanha Bay

Area	Areas Currently allocated [ha]	New areas excluding allocate areas [ha]	Total Area in Proposed Expansion [ha]
Big Bay (Outer Bay) South	4	517	521
Big Bay (Outer Bay) North	254	584	838
Jutten Island	10	315	325
North Bay	37	299	336
Small Bay (Inner Bay)	125	114	238
Total	430	1828	2258

Prevailing oceanographic conditions in Saldanha Bay


Prevailing wind and sea conditions

Winds

- Southerly for 9-months [Sep to May]
- Northerly for 3-months [June to Aug]
- Maximum winds peak at approx. 60 knots from SW and NW

Sea and Swell

- Sea conditions can reach up to 6.5 meters
- Prevailing swell from SW can reach 7 meters



Prevailing oceanographic conditions in Saldanha Bay

Prevailing wind and sea conditions

Currents

- Currents mainly driven by rise and fall of tide [0.07 to 0.14 m/s]

Sea Temperatures

- Temperatures range from
 - 14 °C to 20 °C on surface
 - 10 °C to 20 °C at 10m

Prevailing oceanographic conditions in Saldanha Bay

Big bay		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WIND	Prevailing wind speed (knots)	16	16	8	8	8	8	8	8	12	12	12	16
	Direction of prevailing wind	SSW	SSW	S	S	N	N	N	N	S	S	S	SSW
	Maximum wind speed (knots)	58	39	39	39	39	39	39	39	39	39	39	58
SWELL	Direction	SSW	SE	N	NE	NE	NE	NE	NE	NW	NW	NW	SW
	Height max (m)	4	3.3	4.9	4.9	5.3	6.5	6.2	7.5	5	5.6	5.6	4.6

Prevailing oceanographic conditions in Saldanha Bay

Outer bay		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WIND	Prevailing wind speed (knots)	19	19	14	14	14	14	14	14	14	14	14	19
	Direction of prevailing wind	S	S	SSE	SSE	SSE	NNW	NNW	NNW	S	S	S	S
	Maximum wind speed (knots)	39	39	39	39	39	29	29	29	39	39	39	39
	Direction	S	S	S	S	S	SE	SE	SE	SE	SE	SE	S
SWELL	Height max (m)	7	7	7	7	7	7	7	7	7	7	7	7
	Direction	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW

Carrying capacity

Tons wet weight	Organism	Hectares	Year	Source
860	Mussels	30	2012	Probyn et al 2015:529
182	Oysters	25	2014	Probyn et al 2015:529

Scaling up the estimated production potential per 1000 hectares

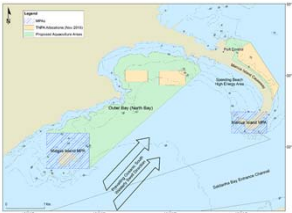
- 53,000 tons live weight mussels
- 6,000 tons for oysters

However, this still falls short of the estimated carrying capacity 140 000 tons per annum for 2,980 hectares [2258 ha]

Outer Bay ADZ

Outer Bay [North Bay]

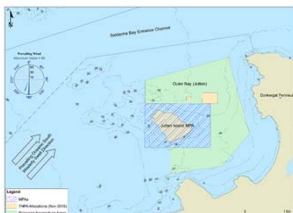
North of the entrance channel
 expansion of 517ha from the 10m to 30m contour up to Malgas Island
 Limited protection from extreme swell conditions from the west



Outer Bay ADZ

Outer Bay [Jutten Island]

South of the entrance channel in vicinity of Jutten Island
 expansion of 315ha from the 10m northwards to the entrance channel




Big Bay - ADZ

Big Bay - North of Mykonos

Currently 12 areas allocated [254ha] with proposed expansion of 584ha

ADZ expansion bordered by

- exclusion zone to the west for the gas line development
- northwards from a navigation channel leading to Mykonos
- seawards from the 5m contour




Big Bay - ADZ

Big Bay - South of Mykonos

Currently 1 areas allocated [4ha] with proposed expansion of 517ha

ADZ expansion bordered by

- Navigational channel to Mykonos harbour in north
- MPA in the south
- Westwards from the 5m contour to the limit of exclusion zone required for port operations



Aquaculture species currently cultivated on commercial scale

Aquaculture species currently cultivated on commercial scale in Saldanha Bay

At present 3 species of bivalves commercially cultivated in Saldanha Bay.

- Pacific oysters (*Crassostrea gigas*)
- Mediterranean mussel (*Mytilus galloprovincialis*)
- Black mussel (*Choromytilus meridionalis*)

Two main commercial species are introduced Spp. and listed by National Environmental Management: Biodiversity Act (NEMBA) (10 of 2004) regulations, 2014, as Category 2 species.

Exempted for aquaculture in Saldanha Bay under the above mentioned act.

Potential organisms for future aquaculture

Potential indigenous species for future aquaculture in Saldanha Bay

The main invertebrate species recommended were:

- Abalone (*Haliotis midae*)
- South African scallop (*Pecten sulcicostatus*)
- Gracilaria (*Gracilaria gracilis*)

Potential organisms for future aquaculture

Indigenous fish species

- White Stumpnose (*Rhabdosargus globiceps*)
- Kabeljou (*Argyrosomus inodorus*)
- Yellowtail (*Seriola lalandi*)
- Hottentot (*Pachymetapon blochii*)

Yellowtail and Kabeljou currently farmed in other parts of country with limited success



Potential organisms for future aquaculture

Potential for introduced aquaculture specie

The main species recommended were:

- European flat oyster (*Ostrea edulis*)
- Chilean scallops (*Argopecten purpuratus*)
- Sea urchins

Chilean scallop and Black sea urchin are listed as Category 1b by NEMBA that currently prohibits import and or propagation

These have existing commercial value and the possibility of them being tested in the future will depend on exemption from NEMBA and DAFF



Potential organisms for future aquaculture

Potential for introduced fish species


The main fish species considered and that have been trialed are

- Salmonids, Atlantic salmon (*Salmo salar*)
- Rainbow trout (*Oncorhynchus mykiss*)

Both have a high value with existing market demand

Experimental cage culture of Atlantic salmon trialed in North Bay but were aborted due to high mortalities caused by low Dissolved Oxygen levels

Currently ongoing trials underway with Rainbow trout



Potential organisms for future aquaculture

Potential for introduced fish species

Salmonids, Rainbow trout are also listed by NEMA as Category 2, for fresh water [no reference is made to the use of this species or Atlantic salmon in seawater]

In accordance to the BRBA report for both Rainbow trout and Brown trout [*Salmo trutta*] are categorised as having a "low biosecurity" in a marine environment

In Saldanha Bay where there is no fresh water rivers entering the bay these remain potential species for future finfish culture


On-shore infrastructure

Pepper Bay and Saldanha commercial harbour

Availability of onshore infrastructure will play a key role in the development of an ADZ

DAFF has overall responsibility for the Saldanha Bay harbour facilities

The maintenance and management of the harbour currently falls under ational Departments of Public Works (NDPW)





On-shore infrastructure

Pepper Bay Harbour

Pepper Bay Harbour comprises a land area of approximately 9.7 Ha and 11 properties

Infrastructure includes

- 110m of concrete quay
- 27m and 18m long timber quays
- 2 concrete paved boat ramps

Department of Public Works
Spatial and Economic Development Framework
[SEDF] for Pepper Bay Harbour

Potential development of Harbour area



Department of Public Works
Spatial and Economic Development Framework
[SEDF] for Pepper Bay Harbour

Potential development of
Southern Seas area

- ① The use of the land occupied by the decommissioned fishmeal factory to allow the expansion of mariculture based SMMEs
- ⑥ Marine infrastructure upgrades to support the expansion of mariculture



Thank You

Question and Discussions