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& fisheries

Department: Environment, Forestry
and Fisheries
REPUBLIC OF SOUTH AFRICA

Microbiological Action Plan for Saldanha Bay Molluscan Shellfish Aquaculture Production Facilities

Branch: Fisheries Management

Chief Directorate: Aquaculture & Economic Development

Directorate: Sustainable Aquaculture Management

Issue 11: February 2021

TITLE

Microbiological Action Plan for Saldanha Bay Molluscan Shellfish Aquaculture Production Facilities

COMMENCEMENT

This programme comes into force on 1 February 2021.

REVOCATION

This programme issue revokes and replaces Microbiological Action Plan for Saldanha Bay Molluscan Shellfish Aquaculture Production Facilities, Issue 10 as well as any previous issues of the document.

Issue	Date of issue
5	1 June 2016
6	20 February 2017
7	1 October 2017
8	16 January 2019
9	1 April 2019
10	20 November 2019
11	1 February 2021

ISSUING AUTHORITY

This Microbiological Action Plan for Saldanha Bay Molluscan Shellfish Aquaculture Production Facilities is issued by the Director Sustainable Aquaculture Management of the Department of Environment, Forestry and Fisheries in terms of the South African Shellfish Monitoring (Issue 8) and Control Programme that was issued by the Deputy Director General.



Acting Director Sustainable Aquaculture Management

DATE: 19/02/2021

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1 DOCUMENT CONTROL

The Microbiological Action Plan (MAP) for Saldanha Bay Molluscan Shellfish Aquaculture Production Facilities was compiled by Department of Environment, Forestry and Fisheries: Food Safety Office (FSO) of the Directorate Sustainable Aquaculture Management. The MAP is administered by the FSO and will be reviewed and updated as relevant new information becomes available and/or operations expand within Saldanha Bay.

A detailed record of all amendments shall be maintained and the latest version will be made available at the FSO and will be loaded onto the DEFF website. Suggestions for alterations that would significantly improve the document are welcomed. These should be forwarded to the co-ordinator, Mr John Foord and enquiries can be directed to Mr Mayizole Majangaza (Appendix 1).

2 DEFINITIONS

"Sample" means as a representative number of oysters or mussels taken a particular batch.

"Accredited laboratory" for the purposes of the Manual means any laboratory as contemplated in the Accreditation for Conformity, Assessment, Calibration and Good Laboratory Practice Act 2006 (Act No. 19 of 2006).

"Adverse pollution conditions" for the purposes of this Manual means conditions determined by changes in meteorological, hydrographic, seasonal and point source pollution conditions that have been historically demonstrated to unfavourably impact on a particular production area. Examples include, but are not limited to, unusual climatic conditions, long periods without rain, unusually hot temperatures, consecutive days of light rainfall, heavy rainfall, tidal effects, and salinity and wind effects.

"Batch" for the purposes of this Manual means fish harvested from a particular identifiable area at a particular time (i.e. no more than one day).

"Clean seawater" for the purposes of this Manual means water from any marine source where harmful microbiological contamination, substances and/or toxic plankton are not present in such quantities as may affect the health and quality of fish and fishery products.

"Closed facility" for the purposes of this Manual means a production facility where the harvesting of fish is temporarily or permanently not permitted.

"Closed facility" for the purposes of this Manual means a production facility where the harvesting of fish is temporarily or permanently not permitted.

"Dispatch facility" for the purpose of this Manual means any installation for the reception, washing, grading, packaging and forwarding of fresh aquacultured fish for human consumption or forwarded for further processing.

"Establishment number" refers to the official approval number for a production facility or processing facility. The establishment number of a production facility is obtained from the Department of Environment, Forestry and Fisheries (DEFF) and the establishment number for packaging and processing is obtained from the Foods and Associated Industries Division of the National Regulator for Compulsory Specifications in Cape Town. This number may also refer to a permit number issued by the DAFF for a specific cultivation area.

"Fishery Control Officer" means any person appointed as a fishery control officer in terms of section 9 of the Marine Living Resources Act, 1998 (Act No. 18 of 1998).

"Harvester" for the purpose of this Manual means a person who takes oysters or mussels by any means from a production facility.

"Health authority" means the local authorities responsible for municipal health services as defined in the National Health Act, 2003 (Act No. 61 of 2003) and Municipal Structures Act, 1998 (Act No. 117 of 1998).

"Marine aquaculture" means the production of marine aquatic organisms including fish, molluscs, crustaceans and plants in control or selected marine aquatic environments with some form of intervention in the rearing process to enhance production such as regular stocking, feeding,

protection from predators etc. Aquaculture also implies individual or corporate ownership of the stock being cultivated as defined by Nash (1995). For the purposes of this manual the controlled production of fish in natural and artificial seawater systems destined for the market as a foodstuff for human consumption in a production facility.

“Point source (of pollution)” for the purpose of this Manual means a discernible single source such as any pipe, ditch, channel, tunnel or conduit that carries a polluting substance or any other infrastructure used for the discharge or carrying of a polluting substance.

“Processing” for the purpose of this Manual means an activity where any substance or article is produced from oysters or mussels by any method, including the work of cutting up, dismembering, separating parts of, cleaning, sorting, lining and preserving of fish or where fish are canned, packed, dried, smoked, gutted, salted, iced, chilled, frozen, value-adding or otherwise processed for sale.

3 ACRONYMS

MAP:	Microbiological Action Plan
BB:	Big Bay
BSASA:	Bivalve Shellfish Farmers Association of South Africa
DEFF:	Department of Agriculture Forestry and Fisheries
FSO:	Food Safety Office
MSS:	Microbiological Sampling Station
NRCP:	National Residue Control Programme
NRCS:	National Regulator for Compulsory Specifications
OBN:	Outer Bay North
SASM&CP:	South African Shellfish Monitoring and Control Programme
SB:	Small Bay
SBJMG:	Saldanha Bay Joint Monitoring Group
SCMSS:	Sub-Cluster Microbiological Sampling Station

4 OVERVIEW AND OBJECTIVES

Microbiological monitoring of production areas is required for the classification of production areas and the monitoring of sewerage borne diseases to ensure food safety of aquaculture products marketed. *Escherichia coli* (*E. coli*) are used as an indicator species for the monitoring of microbiological contamination and the presence of enteric viruses in Saldanha Bay in accordance with the South African Live Molluscan Shellfish Monitoring and Control Programme (SASM&CP).

4.1 Scope

The MAP applies to the Saldanha Bay black mussels (*Mytilus galloprovincialis*, *Choromytilus meridionalis*) and oysters (*Crassostrea gigas*) culture facilities as listed in **Error! Not a valid bookmark self-reference.**. The facilities are located in the following bay clusters, Small Bay (SB), Big Bay (BB) and Outer Bay North (OBN) which are monitored separately.

Biotoxin, environmental residue, veterinary drug residue and radionuclide testing requirements remain as given in the SASM&CP, Microbiological Action Plan for Saldanha Bay, the National Residue Control Programme (NRCP) and relevant legislation outlined in the SASM&CP.

Table 1: Aquaculture facilities and species cultured

Facility	Farm Code	Species	Farm position	Active
Small Bay				
Cluster 1				
Blue Ocean Mussels	FW04	Mussels	33° 2'7.04"S, 17°58'38.42"E	Yes
Cluster 2				
African Olive Trading A	FW08	Mussels	33° 0'43.32"S, 17°58'18.29"E	Yes
African Olive Trading B	FW08	Mussels	33° 0'48.13"S, 17°57'48.84"E	Yes
AquaFoods SA (SB)	FW12	Oysters	33° 0'33.37"S, 17°57'56.21"E	Yes
Blue Sapphire Pearls (SB)	FW02	Mussels & Oysters	33° 0'35.59"S, 17°57'47.19"E	Yes
Imbaza Mussels	FW05	Mussels	33° 0'31.70"S, 17°58'12.94"E	Yes
Saldanha Bay Oyster Company (SB)	FW11	Oysters	33° 0'49.76"S, 17°58'8.62"E	Yes
Salmar Trading	FW28	Oysters	33° 0'23.33"S, 17°57'47.87"E	Yes
West Coast Aquaculture	FW19	Mussels & Oysters	33° 0'44.64"S, 17°58'33.05"E	Yes
West Coast Oyster Growers (SB)	FW26	Mussels & Oysters	33° 0'17.57"S, 17°57'56.66"E	Yes

Facility	Farm Code	Species	Farm position	Active
Big Bay (Cluster 3)				
AquaFoods SA (BB)	FW34	Mussels	33° 2'7.65"S, 18° 0'33.94"E	Yes
Atlantic Mussels	FW36	Mussels	33° 2'43.66"S, 18° 0'33.74"E	Yes
Blue Lagoon Products	FW 43	Oysters	33° 2'9.38"S, 18° 1'32.20"E	Yes
Blue Sapphire Pearls (BB)	FW33	Mussels	33° 1'55.31"S, 18° 0'49.01"E	Yes
CEX Enterprises	FW44	Mussels	33° 2'5.29"S, 18° 1'17.43"E	No
K2019005713 (K13)	FW45	Mussels	33° 2'3.19"S, 18° 1'10.21"E	Yes
K2019005725 (K25)	FW45	Mussels	33° 1'58.65"S, 18° 0'55.45"E	Yes
Lagoon Aqua Farm	FW46	Mussels	33° 2'6.94"S, 18° 1'24.81"E	No
Madima General Agriculture Trading	FW47	Mussels	33° 2'21.63"S, 18° 0'39.46"E	Yes
Mika	FW48	Mussels	33° 2'34.97"S, 18° 0'49.59"E	Yes
MMM Agri Consult	FW49	Mussels	33° 2'14.67"S, 18° 0'51.77"E	Yes
Molapong	FW50	Mussels	33° 2'26.25"S, 18° 0'15.99"E	No
Pluto Mussels and Trading	FW51	Mussels	33° 2'15.17"S, 18° 0'36.44"E	Yes
Saldanha Bay Oyster Company (BB)	FW24	Oysters	33° 1'44.04"S, 18° 1'4.47"E	Yes
Simunye Mussels (A)	FW35	Mussels	33° 2'16.81"S, 18° 1'4.07"E	Yes
Simunye Mussels (B)	FW35	Mussels	33° 2'25.68"S, 18° 0'56.07"E	Yes
Ulwazi Kukutya	FW37	Mussels	33° 2'28.91"S, 18° 0'40.22"E	No
Wada Projects	FW38	Mussels	33° 2'0.56"S, 18° 1'2.53"E	No
Well Done Works (A)	FW39	Mussels	33° 2'21.79"S, 18° 1'18.71"E	No
Well Done Works (B)	FW39	Mussels	33° 2'28.22"S, 18° 1'21.26"E	No
West Coast Oyster Growers (BB)	FW27	Mussels	33° 1'48.05"S, 18° 1'19.65"E	Yes
Outer Bay North (Cluster 4)				
Chapman's Aquaculture	FW30	Mussels	33° 1'54.80"S, 17°56'35.09"E	Yes
Requa Enterprises	FW31	Mussels	33° 2'18.46"S, 17°56'38.89"E	Yes

Facility	Farm Code	Species	Farm position	Active
Southern Atlantic Sea Farm	FW29	Mussels	33° 2'5.56"S, 17°56'35.10"E	Yes
Southern Cross	FW32	Mussels	33° 1'59.70"S, 17°56'51.04"E	Yes
Xesibe A	FW42	Mussels	33° 2'17.33"S, 17°56'52.28"E	Yes
Xesibe B	FW42	Mussels	33° 2'28.97"S, 17°56'39.71"E	Yes



Figure 1: Farms in Small Bay, Saldanha Bay



Shaded farms are not yet operational

Figure 2: Farms in Big Bay, Saldanha Bay

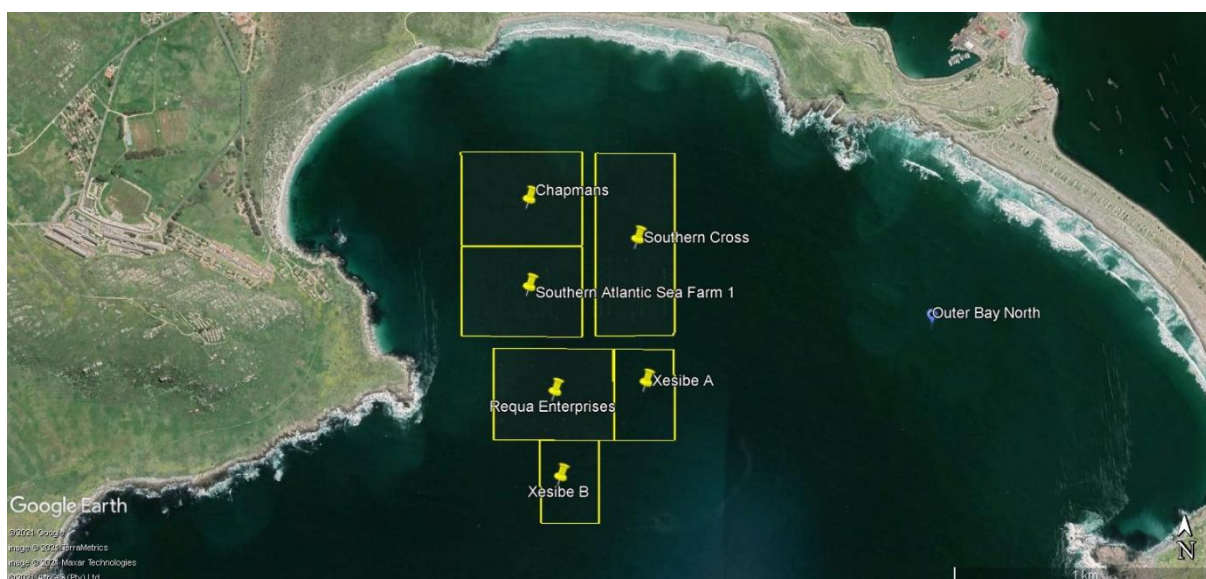


Figure 3: Farms in Outer Bay North, Saldanha Bay

5 MICROBIOLOGICAL MONITORING

5.1 Official Sampling stations

A description of Saldanha Bay and the microbiological pollution status is outlined in the Sanitary Survey Report 2018: Saldanha Bay Farms. A total of ten point source pollution sources have been identified in Saldanha bay, nine in Small Bay and one in Big Bay. The microbiological data from the farms for 2014 to 2019 was analysed to determine, which farms are most at risk of microbiological contamination. Based on the above risk analysis three microbiological sampling stations were identified in Small Bay and one station in Big Bay for routine monitoring. Two microbiological sampling stations were also identified in Outer Bay North as these are new farms. There has, however, been no evidence of risk associated with microbiological contamination to date in Outer Bay North.

Mussels will be used as the indicator organism for both mussel and oyster production facilities in Saldanha Bay as they have been shown to accumulate *E. coli* faster than oysters. Routine sampling at the microbiological sampling stations shall be maintained regardless of closure status of Saldanha Bay farms. Farm codes indicated in (Table 1) will appear on each COA to indicate active participants in the specific cluster.

The routine microbiological sampling stations are presented in applies to the Saldanha Bay black mussels (*Mytilus galloprovincialis*, *Choromytilus meridionalis*) and oysters (*Crassostrea gigas*) culture facilities as listed in **Error! Not a valid bookmark self-reference.** The facilities are located in the following bay clusters, Small Bay (SB), Big Bay (BB) and Outer Bay North (OBN) which are monitored separately.

Biotoxin, environmental residue, veterinary drug residue and radionuclide testing requirements remain as given in the SASM&CP, Microbiological Action Plan for Saldanha Bay, the National Residue Control Programme (NRCP) and relevant legislation outlined in the SASM&CP.

Table 1: Aquaculture facilities and species cultured

Facility	Farm Code	Species	Farm position	Active
Small Bay				
Cluster 1				
Blue Ocean Mussels	FW04	Mussels	33° 2'7.04"S, 17°58'38.42"E	Yes
Cluster 2				
African Olive Trading A	FW08	Mussels	33° 0'43.32"S, 17°58'18.29"E	Yes
African Olive Trading B	FW08	Mussels	33° 0'48.13"S, 17°57'48.84"E	Yes
AquaFoods SA (SB)	FW12	Oysters	33° 0'33.37"S, 17°57'56.21"E	Yes
Blue Sapphire Pearls (SB)	FW02	Mussels & Oysters	33° 0'35.59"S, 17°57'47.19"E	Yes
Imbaza Mussels	FW05	Mussels	33° 0'31.70"S, 17°58'12.94"E	Yes
Saldanha Bay Oyster Company (SB)	FW11	Oysters	33° 0'49.76"S, 17°58'8.62"E	Yes
Salmar Trading	FW28	Oysters	33° 0'23.33"S, 17°57'47.87"E	Yes
West Coast Aquaculture	FW19	Mussels & Oysters	33° 0'44.64"S, 17°58'33.05"E	Yes
West Coast Oyster Growers (SB)	FW26	Mussels & Oysters	33° 0'17.57"S, 17°57'56.66"E	Yes
Big Bay (Cluster 3)				
AquaFoods SA (BB)	FW34	Mussels	33° 2'7.65"S, 18° 0'33.94"E	Yes
Atlantic Mussels	FW36	Mussels	33° 2'43.66"S, 18° 0'33.74"E	Yes
Blue Lagoon Products	FW 43	Oysters	33° 2'9.38"S, 18° 1'32.20"E	Yes
Blue Sapphire Pearls (BB)	FW33	Mussels	33° 1'55.31"S, 18° 0'49.01"E	Yes
CEX Enterprises	FW44	Mussels	33° 2'5.29"S, 18° 1'17.43"E	No
K2019005713 (K13)	FW45	Mussels	33° 2'3.19"S, 18° 1'10.21"E	Yes
K2019005725 (K25)	FW45	Mussels	33° 1'58.65"S, 18° 0'55.45"E	Yes
Lagoon Aqua Farm	FW46	Mussels	33° 2'6.94"S, 18° 1'24.81"E	No
Madima General Agriculture Trading	FW47	Mussels	33° 2'21.63"S, 18° 0'39.46"E	Yes
Mika	FW48	Mussels	33° 2'34.97"S, 18° 0'49.59"E	Yes

Facility	Farm Code	Species	Farm position	Active
MMM Agri Consult	FW49	Mussels	33° 2'14.67"S, 18° 0'51.77"E	Yes
Molapong	FW50	Mussels	33° 2'26.25"S, 18° 0'15.99"E	No
Pluto Mussels and Trading	FW51	Mussels	33° 2'15.17"S, 18° 0'36.44"E	Yes
Saldanha Bay Oyster Company (BB)	FW24	Oysters	33° 1'44.04"S, 18° 1'4.47"E	Yes
Simunye Mussels (A)	FW35	Mussels	33° 2'16.81"S, 18° 1'4.07"E	Yes
Simunye Mussels (B)	FW35	Mussels	33° 2'25.68"S, 18° 0'56.07"E	Yes
Ulwazi Kukutya	FW37	Mussels	33° 2'28.91"S, 18° 0'40.22"E	No
Wada Projects	FW38	Mussels	33° 2'0.56"S, 18° 1'2.53"E	No
Well Done Works (A)	FW39	Mussels	33° 2'21.79"S, 18° 1'18.71"E	No
Well Done Works (B)	FW39	Mussels	33° 2'28.22"S, 18° 1'21.26"E	No
West Coast Oyster Growers (BB)	FW27	Mussels	33° 1'48.05"S, 18° 1'19.65"E	Yes
Outer Bay North (Cluster 4)				
Chapman's Aquaculture	FW30	Mussels	33° 1'54.80"S, 17°56'35.09"E	Yes
Requa Enterprises	FW31	Mussels	33° 2'18.46"S, 17°56'38.89"E	Yes
Southern Atlantic Sea Farm	FW29	Mussels	33° 2'5.56"S, 17°56'35.10"E	Yes
Southern Cross	FW32	Mussels	33° 1'59.70"S, 17°56'51.04"E	Yes
Xesibe A	FW42	Mussels	33° 2'17.33"S, 17°56'52.28"E	Yes
Xesibe B	FW42	Mussels	33° 2'28.97"S, 17°56'39.71"E	Yes

and Shaded farms *are not yet operational*

Figure 4. The sampling stations represent the cluster of farms in which it is situated for opening and closure of the cluster.

Table 2: Microbiological official sampling stations

Sampling Station	Station position
Microbiological Sampling Station 1 (MSS1)	33° 1'34.97"S, 17°58'7.35"E
Microbiological Sampling Station 2 (MSS2)	33° 0'18.32"S, 17°57'42.63"E
Microbiological Sampling Station 3 (MSS3)	33° 0'23.77"S, 17°58'33.86"E
Microbiological Sampling Station 4 (MSS4)	33° 1'58.43"S, 18° 1'33.39"E
Microbiological Sampling Station 5 (MSS5)	33° 1'57.29"S, 17°56'14.96"E
Sub-cluster Micro Sampling Station 1 (SCMSS1)	33° 0'47.47"S, 17°58'38.39"E
Sub-cluster Micro Sampling Station 2 (SCMSS2)	33° 0'48.80"S, 17°57'42.30"E
Sub-cluster Micro Sampling Station 3 (SCMSS3)	33° 0'46.65"S, 17°58'14.24"E
Sub-cluster Micro Sampling Station 4 (SCMSS4)	33° 1'46.35"S, 17°58'15.48"E
Sub-cluster Micro Sampling Station 5 (SCMSS5)	33° 1'59.62"S, 17°58'23.92"E
Sub-cluster Micro Sampling Station 6 (SCMSS6)	33° 2'10.65"S, 17°58'30.38"E
Sub-cluster Micro Sampling Station 7 (SCMSS7)	33° 1'40.31"S, 17°57'55.76"E
Sub-cluster Micro Sampling Station 8 (SCMSS8)	33° 2'15.55"S, 18° 1'24.95"E
Sub-cluster Micro Sampling Station 9 (SCMSS9)	33° 1'35.76"S, 18° 1'0.75"E
Sub-cluster Micro Sampling Station 10 (SCMSS10)	33° 2'39.00"S, 18° 0'42.72"E
Sub-cluster Micro Sampling Station 11 (SCMSS11)	33° 2'20.84"S, 17°56'54.77"E
Sub-cluster Micro Sampling Station 12 (SCMSS12)	33° 1'52.36"S, 17°56'55.35"E
Sub-cluster Micro Sampling Station 13 (SCMSS13)	33° 2'44.75"S, 17°56'31.54"E



Shaded farms are not yet operational

Figure 4: Production facilities, Microbiological Sampling Station (MSS), Sub-cluster Micro Sampling Stations and pollution sources (Points 2-12) in Saldanha Bay

5.2 Species to be sampled

Within each sampling station in Saldanha Bay, mussels shall be sampled for the testing of *E. coli*, unless only oysters are present in the cluster represented by the sampling station. Historical data from Saldanha Bay indicate that mussels accumulate *E. coli* faster than oysters. Mussels are thus a better indicator of the potential risk for the presence of enteric viruses in the production area.

5.3 Routine and intensive testing

Throughout the year samples shall be taken weekly for the testing of *E. coli* from each Microbiological Sampling Station (MSS) in Small Bay, which includes, MSS 1, MSS 2 and MSS 3. Samples shall also be taken monthly from MSS 4 in Big Bay and MSS 5 in Outer Bay North. Based on these results, the Blue Ocean cluster, Small Bay cluster, Big Bay cluster and Outer Bay North cluster should be classified separately.

In addition, the day after every high rainfall event (> 20mm rain), samples shall be taken from MSS 1 to MSS 5 and tested for *E. coli*.

5.4 Closure to harvest

Should the *E. coli* test results for a particular sampling cluster station/s exceed the regulatory level, a temporary ban on harvesting from the cluster of farms represented by the sampling station/s shall be enforced as prescribed in the SASM&CP and a recall of the product shall be enforced for product marketed since the sampling date. As from 15 March 2019 pathogenic *Vibrio* and *Salmonella* are tested by the NRCS in the end-of-line product in terms of the Compulsory Specification for Aquacultured Live and Chilled Raw Bivalve Molluscs (VC 9107) and thus not required in terms of routine monitoring of the farms.

The closure will be communicated and enforced as stipulated in the SASM&CP and the Standard Operating Procedure: Contingency Measures.

5.5 Reopening of farms

Each of the sampling stations (MSS and SCMSS) within the relevant production cluster shall be resampled, ensuring that a minimum of 5 samples are taken from the cluster. The samples shall be submitted to the laboratory and tested for *E. coli*. If the test results for the sampling stations are below the regulatory limits the relevant cluster of farms shall be reopened.

The reopening of farms will be communicated as stipulated in the SASM&CP and the Standard Operating Procedure SOP: Contingency Measures.

5.6 Sampling and analysis

Sampling shall be carried out by the NRCS sampling inspectors as outlined in Standard Operating Procedure: Sampling and Transport of Fish. If samples cannot be taken on a scheduled date, e.g. due to bad weather, the sample must be taken as close as possible to the stated date. The reason for shifting the date must be depicted in the sampler's report. The samples shall be sent to an accredited laboratory that uses suitably accredited methods in accordance with the SASM&CP. Samples from each sampling station shall be tested separately.

6 GENERAL ADMINISTRATION PROCEDURES

The operations manager for the SASM&CP, will co-ordinate the sampling plan outlined above. Specific functions include:

1. Ensuring sampling is carried out according to this plan.
2. Ensuring the prompt delivery of results from the analytical laboratory.
3. Collation and record keeping of monitoring data.
4. Communicating with farmers and authorities regarding biotoxin events, harvesting closure and re-opening.
5. Ensuring harvesting restrictions are enforced. This will involve liaison with the Directorate: Compliance of the Chief Directorate: Monitoring Control and Surveillance.
6. Facilitating the recall and destruction of biotoxin-contaminated products.

7 TERMS AND CONDITIONS

The following terms and conditions will be applicable to each shellfish farm listed above (Table 1: Aquaculture facilities and species cultured):

1. The NRCS will collect the samples for biotoxin monitoring.
2. The SBJMG accepts responsibility for couriering the samples to the laboratory timeously and manages the financial administration and ensures that a boat is available to the NRCS for sampling.
3. Costs for sample testing will be paid for by the farms.

8 REFERENCES

Anchor Environmental & Department of Environment, Forestry and Fisheries. 2019. Sanitary Survey Report: Saldanha Bay Farms. Vol 1, 1-73.

Department of Environment, Forestry and Fisheries. 2021. South African Shellfish Monitoring and Control Programme. Cape Town. Issue 8, 1-65.

Department of Environment, Forestry and Fisheries. 2021. Standard Operation Procedure: Contingency Measures. Issue 2, 1-13

National Regulator for Compulsory Specifications. 2018. Procedure: Sampling and Transport of Aquacultured Marine Fish. Cape Town. Issue 1, 1-14.

APPENDIX 1: CONTACT INFORMATION

Food Safety Office
Directorate: Sustainable Aquaculture Management
Chief Directorate: Aquaculture and Economic Development
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Ms Portia Dwane	PDwane@environment.gov.za	012 319 6397	076 172 7305
Mr Mayizole Majangaza	MMajangaza@environment.gov.za	021 430 7076	061 5062328
Mr John Foord	JFoord@environment.gov.za	021 430 7003	082 343 8327

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NRCS: Mr Andre Dreyer, Email: Andre.Dreyer@nrccs.org.za