



**forestry, fisheries  
& the environment**

Department:  
Forestry, Fisheries and the Environment  
**REPUBLIC OF SOUTH AFRICA**

# Standard Operating Procedure: Control of Abalone Contaminated with Paralytic Shellfish Toxin

Branch: Fisheries Management

Chief Directorate: Aquaculture Development and Freshwater Fisheries Directorate:  
Sustainable Aquaculture Management

Issue 5: July 2024

**TITLE**

Standard Operating Procedure: Control of Abalone Contaminated with Paralytic Shellfish Toxin

**COMMENCEMENT**

This Standard Operating Procedure comes into force on 1 July 2024.

**REVOCATION**

This programme issue revokes and replaces Standard Operating Procedure: Control of Abalone Contaminated with Paralytic Shellfish Toxin (Issue 4) as well as any previous issues of the document.

**STANDARD OPERATING PROCEDURES ISSUED**

Issue	Date of issue
1	9 March 2016
2	1 August 2020
3	1 March 2021
4	1 February 2024

**ISSUING AUTHORITY**

This Standard Operating Procedure is issued by the Environmental Officer Specialised Production of the Directorate Sustainable Aquaculture Management of the Department of Forestry, Fisheries and the Environment in terms of the Aquacultured Marine Fish Food Safety Programme (AMFFSP).



---

Environmental Officer Specialised Production

DATE: 01/07/2024

## Contents

1. DOCUMENT CONTROL.....	4
2. SCOPE.....	5
3. BACKGROUND.....	5
4. FOOD SAFETY CONTROL .....	6
4.1. Application to Process Abalone .....	6
4.2. Biotxin Monitoring.....	6
5. REFERENCES.....	8
Appendix 1: Contact Information .....	9

## **1. DOCUMENT CONTROL**

The Standard Operating Procedure (SOP): Control of Abalone Contaminated with Paralytic Shellfish Toxin was compiled by Department of Forestry, Fisheries and the Environment: Food Safety Office (FSO) of the Directorate Sustainable Aquaculture Management. The SOP is administered by the FSO and will be reviewed and updated as relevant new information becomes available.

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 DFFE website. Suggestions for alterations that would significantly improve the document are welcomed. These should be forwarded to the coordinator, Mr John Foord and enquiries can be directed to Mr Mayizole Majangaza (Appendix 1).

## 2. SCOPE

This document covers the procedures for the control of cultured abalone (*Haliotis midae*) that is contaminated with Paralytic Shellfish Toxins (PST) and harvested for processing to meet the requirements stipulated in terms of the Aquacultured Marine Fish Food Safety Programme (AMFFSP).

The procedures are applicable to all abalone production facilities located between Port Nolloth in the Northern Cape and Haga Haga in the Eastern Cape and relevant FPEs. FPEs, for the purposes of this protocol, refers to any authorised facilities that processes or package aquacultured abalone or products thereof. Currently, however, only the farms on the West Coast and the Northern Cape have exceeded PST regulatory limits.

Abalone from farms that exceed the regulatory limits for biotoxins, shall not be processed at establishments registered for supplying the European Union market.

## 3. BACKGROUND

The Department of Forestry, Fisheries and the Environment (DFFE) is the managing and regulatory authority for the undertaking of aquaculture activities that include farming, harvesting and transporting of fish for wholesale trading stipulated in the permit conditions issued in terms of the Marine Living Resources Act, 1998 (Act No. 18 of 1998) and associated regulations. The Directorate: Sustainable Aquaculture Management (D: SAM) of the Fisheries Branch of DFFE is responsible for the development, management and regulation of a sustainable aquaculture industry that contributes towards job creation, food security, rural development, and economic growth. D: SAM aims to achieve the above-mentioned strategic objectives through the development and implementation of relevant enabling legislation, policies and programmes as well as be responsive and compliant to international obligations and agreed standards. The Food Safety Office (FSO) within D: SAM is responsible for the development and management of food safety programmes stipulated in the permit conditions issued in terms of the Marine Living Resources Act, 1998 (Act No. 18 of 1998) including the Aquacultured Marine Fish Food Safety Programme (AMFFSP) and the associated National Residue Control Programme (NRCP). The objectives of the food safety programmes include providing guarantees to domestic and international markets and consumers that South African cultured fish products are safe for human consumption.

The risks to food safety of cultured fish include environmental residues (heavy metals, pesticides, polychlorinated biphenyl, dioxins, perfluoroalkyl substances, polycyclic aromatic hydrocarbons and radionuclides) and veterinary medicine residues (hormones, antibiotics and anthelmintics), the accumulation of biotoxins (Paralytic Shellfish Toxins (PST), Lipophilic Shellfish Toxins (LST) and Amnesic Shellfish Toxins (AST)) and microbiological contamination in shellfish indicated by the presence of *E. coli*. Historically, however, only abalone from the West Coast and the Northern Cape have proven to be a food safety risk in terms of PST.

The Competent Authority (CA) viz. National Regulator for Compulsory Specifications (NRCS) in association with the DFFE is required to determine whether a risk exists in any geographical areas under its control. Should there be a risk in abalone the CA is required to implement the necessary contingency measures in accordance with Standard for Live Abalone and for Raw Fresh Chilled or Frozen Abalone for Direct Consumption or for further Processing (CODEX STAN 312-2013) to ensure that the part of the abalone to be consumed, meets with the regulatory levels in the Standard for Live and Raw Bivalve Molluscs (CODEX STAN 292-2008). Abalone from some geographical areas have been found to accumulate PST, which are not eliminated by cooking. Research, however, has shown that if the epithelium layer on the foot and the epipodial fringe is properly removed by scrubbing and the abalone is eviscerated, the PSTs are removed (Pitcher, Franco, Doucette, Powell, & Mouton, 2001). Concessions may thus be granted for the processing of abalone that has exceeded the PST concentration limit provided the part of the abalone to be consumed meets the requirements of the AMFFSP and Codex Stan 292-2008.

## 4. FOOD SAFETY CONTROL

Abalone samples from the marine aquaculture farms are taken as outlined in the Standard Operating Procedure: Sampling and Transport of Aquacultured Marine Fish. The samples are sent to officially approved laboratories for the testing of PST. The test results are submitted to the DFFE for the monitoring and control of the food safety of the product harvested. Should any of the contaminant concentrations exceed the regulatory limits the farms are temporarily closed until the product meets the requirements stipulated in the AMFFSP.

### 4.1. Application to Process Abalone

The abalone farms that are at risk of PST concentrations exceeding the regulatory limit and wanting to process abalone may apply to the DFFE in writing at the beginning of each year for permission to harvest and process the abalone when the PST regulatory limit is exceeded. The exemption would be valid for the relevant calendar year. The letter shall be addressed to the Director Sustainable Aquaculture Management (Appendix 1) and a scanned copy emailed to [SAMSanitation@dffe.gov.za](mailto:SAMSanitation@dffe.gov.za). The letter shall include as minimum:

- Farm name and farm code (issued by DFFE)
- Species to be harvested
- FPE name and the FPE code (issued by the NRCS)
- The calendar year in which the processing will be undertaken

The Director Sustainable Aquaculture Management shall consider the request and relevant information, and if satisfied will grant permission in writing to harvest and process the abalone at the specified FPE. The Approval letter from the Directorate: Sustainable Aquaculture Management to process the abalone must be referenced and attached to the email.

The following conditions apply to the processing of abalone that is contaminated with PST that exceed the regulatory limits:

1. The Department shall provide the farm with a letter indicating that the abalone may not be sold live and is required to be processed to ensure that the PST concentration complies with regulatory limits if it is to be marketed.
2. A Movement Document that is properly completed and submitted to the Department in accordance with the SOP: Traceability of Cultured Shellfish shall accompany each batch of abalone from the production facility to the FPE.
3. During processing, the abalone is to be properly eviscerated, removing the gills and viscera including esophagus and head and the abalone foot and epipodial fringe shall be thoroughly scrubbed to properly remove the epithelial layer.
4. The effectiveness of the processing of the abalone at the FPE shall be verified on a random basis. Once processed a sample of 5 abalone from each batch shall be sampled and tested for PST. A record of the results shall be kept by the NRCS and monitored and controlled to ensure compliance with the regulatory limits.

### 4.2. Biotxin Monitoring

The abalone farms to the west of Cape Point are required to test abalone for PST once a week, and LST and AST once a month in accordance with the AMFFSP. If, however, the abalone farm is processing all the abalone on the farm as per Section 4.1 above for a period the following testing is required:

1. The farm may be tested for PST once a month instead of once a week.
2. LST shall continue to be tested once a month at each farm.
3. AST shall continue to be tested once month on a regional basis.

4. Ranched abalone shall also be tested as above on a routine basis, or the farm can request that each batch harvested be tested for the relevant biotoxins if abalone is harvested on an *ad hoc* basis.
5. The FPE must ensure that each batch is tested for PST after processing.
6. The end of line product must comply with the requirements in terms of the AMFFSP and the relevant National Regulator for Compulsory Specifications Act, 2008 (Act No. 5 of 2008) regulations.

The farm manager is required to inform the Food Safety Office in writing, by way of an email to [SAMSanitation@dffe.gov.za](mailto:SAMSanitation@dffe.gov.za), when the processing of the abalone will be initiated so that the monthly sampling can be conducted during the period that the abalone is being processed. Once the PST concentration meets the regulatory requirements, the farm will be reopened for live marketing and weekly testing shall be reinstated.

Should the farm not want to market live abalone for a pre-determined period of time within the calendar year, irrespective of the PST concentrations in the abalone, the farm manager may inform the Food Safety Office accordingly in writing by way of an email to [SAMSanitation@dffe.gov.za](mailto:SAMSanitation@dffe.gov.za) and provide the period of time that the abalone would be processed so that the monthly sampling can be conducted during the said period.

## 5. REFERENCES

- Codex Alimentarius. 2003. Standard for live and raw bivalve molluscs. Codex Stan 312-2013.
- Codex Alimentarius. 2008. Standard for live abalone and for raw fresh chilled or frozen abalone for direct consumption or for further processing. Codex Stan 292-2008.
- Department of Forestry, Fisheries and the Environment. 2024 Aquacultured Marine Fish Food Safety Programme. Cape Town. Issue 8, 1-67.
- National Regulator for Compulsory Specifications. 2024. Procedure: Sampling and Transport of Aquacultured Marine Fish. Cape Town. Issue 2, 1-17.
- National Regulator for Compulsory Specifications. 2012. Compulsory Specification for Live aquacultured abalone-VC 9001: 2012.
- Pitcher, G. C., Franco, J. M., Doucette, G. J., Powell, C. L., & Mouton, A. 2001. Paralytic shellfish poisoning in the abalone *Haliotis midae* on the West Coast of South Africa. *Journal of Shellfish Research*, 20(2), 895–904.
- South African Bureau of Standards. 2018. South African National Standard Live Aquacultured Abalone. South African Bureau of Standards. SANS 729:2018, 1-33.



**Appendix 1: Contact Information**

Food Safety Office  
 Directorate: Sustainable Aquaculture Management  
 Chief Directorate: Aquaculture Development and Freshwater Fisheries  
 Department of Forestry, Fisheries and the Environment  
 Sea Point Research Facility  
 307 Beach Road  
 Sea Point  
 8001

Director Sustainable Aquaculture Management  
 Department of Forestry, Fisheries and the Environment  
 Private Bag X2  
 Vlaeberg  
 Cape Town  
 8018  
 Name: Mr Asanda Njobeni  
 Email: ANjobeni@dfpe.gov.za

**Food Safety Office**

Contact	Email	Cell
Food Safety Office	SAMSanitation@dfpe.gov.za	-
Ms Helen Ntoampe	HNtoampe@dfpe.gov.za	-
Ms Portia Dwane	PDwane@dfpe.gov.za	066 471 1333
Mr Mayizole Majangaza	MMajangaza@dfpe.gov.za	066 471 1480
Mr John Foord	JFoord@dfpe.gov.za	082 343 8327

**National Regulator for Compulsory Specifications (NRCS): Foods and Associated Industries**

Contact	Email	Office	Cell
Mr Deon Jacobs	Deon.Jacobs@nracs.org.za	021 526 3412	079 368 6183
Mr Aldrid Prins	Aldrid.Prins@nracs.org.za	021 526 3403	083 228 4453