Algal bloom wildlife post-mortem report

Government of South Australia
Department for Environment and Water

Species – Long-nosed fur seal

Date collected – 23 November 2025

Location – Goolwa Beach

History relating to the animal

A male long-nosed fur seal (*Arctocephalus forsteri*) pup was found dead at Goolwa Beach on 23 November 2025.

Clinical examination

The animal was already dead and so could not be examined prior to death.

Necropsy

The necropsy (looking at the whole body) revealed that the animal was in poor body condition, weighing 8.8kg and measuring 90cm in length. There was with minimal subcutaneous (under the skin) fat and abdominal fat (within the abdominal cavity). There was putrefactive post-mortem autolytic changes (decomposition of tissues after death). There was a moderate number of maggots within the oral cavity (mouth). There was no food in the stomach, scant pasty brown food material in the small intestines, and scant faeces within the rectum. There was no urine in the bladder.

Tissues were collected for histopathology (looking at tissues under the microscope for more detailed information) and testing for *Mycobacterium tuberculosis* (*MTb*) complex organisms, *Brucella* species bacteria, and brevetoxins and other algal biotoxins (a possibility due to the algal bloom).

Histopathology

Samples from every major body system were examined under the microscope. There was mild to moderate autolysis (decomposition of tissues after death), with no significant findings in any of the tissues examined.

Bacteriology

There was no evidence of tuberculosis (caused by *MTb* complex organisms) or brucellosis (caused by *Brucella* species bacteria) based on bacterial culture and polymerase chain reaction (PCR) testing.

Brevetoxins

No samples were above the limits of reporting.

Other algal biotoxins

Algal bloom wildlife post-mortem report

No samples were above the limits of reporting.

Summary

A male long-nosed fur seal (*Arctocephalus forsteri*) pup was found dead. Laboratory examination revealed the seal was underweight, but it was not possible to determine the cause of the weight loss or death in this animal. There was no evidence of brucellosis (*Brucella* species bacteria) or tuberculosis (*Mycobacterium tuberculosis* complex organisms). Brevetoxins and other algal biotoxins were also not detected.

Outlook

PATH RESULTS: LONG-NOSE FUR SEAL, (Ma) [redacted]

From [redacted]
Date Wed 26/11/2025 5:30 PM
To [redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 26/11/25 18:00
Referred on 23/11/25 **by:** [redacted]

Owner:
LONG-NOSE FUR SEAL
GOOLWA BEACH

Animal/s:
Marine Mammal

DOB: N/A

Collected: 23/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

NECROPSY REPORT
ADDITIONAL COMMENTS 26/11/2025

CLINICAL HISTORY
This is a transcription of the clinical history from the request form
Dead long-nosed fur seal collected by Dept Environment and Water SA from
Goolwa Beach on 23/11/25

SAMPLES SUBMITTED
One dead Long nosed fur seal male pup (Arctocephalus forsteri)

NECROPSY FINDINGS
The animal is in poor body condition and weighs 8.8 kg. There is minimal subcutaneous and abdominal fat. The animal is 900mm in length and the circumference around the body caudal to the pectoral flippers is 480mm.

There are putrefactive post-mortem autolytic changes. There are moderate

numbers of maggots within the oral cavity. There is no ingesta in the stomach, scant pasty brown ingesta in the alimentary tract and scant faeces. There is no urine in the bladder.

GROSS SUMMARY
Chronic weight loss

SAMPLES COLLECTED & TESTING
Fresh liver, spleen, heart, lung, kidney, brain, faeces are stored and analytical services Tasmania will be quoted for a cost of biotoxin review toxin testing. We will forward this information to you for your review.

Formalin fixed liver, spleen, heart, lung, kidney, multiple sections of alimentary tract are processed for histopathology.

2 x liver, spleen, heart, lung, kidney, brain and oropharyngeal swab in VTM are stored at -80C

COMMENTS
The cause for chronic weight loss and death are not evident based on gross findings. Could the Karenia algal bloom and decreased fish stocks be a contributing factor for the chronic weight loss ?

[redacted]

[redacted]

Tested on 25/11/25
Reported on 26/11/25 18:00
Referred on 23/11/25 **by:** [redacted]

Owner:
LONG-NOSE FUR SEAL
GOOLWA BEACH

Animal/s:
Marine Mammal

DOB: N/A

Collected: 23/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

26/11/2025
As approved by [redacted] lung and brain will be sent to ACDP for Brucella sp. and Mycobacterium sp. PCR screening.

[redacted]

Specialist Veterinary Anatomic Pathologist
[redacted]

Validated by [redacted]

Outlook

PATH RESULTS: LONG-NOSE FUR SEAL, (Ma) [redacted]

From [redacted]
Date Tue 02/12/2025 6:00 PM
To [redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 02/12/25 18:30
Referred on 23/11/25 **by:** [redacted]

Owner:
LONG-NOSE FUR SEAL
GOOLWA BEACH

Animal/s:
Marine Mammal

DOB: N/A

Collected: 23/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received All Tests Complete

SUMMARY DIAGNOSIS
Chronic weight loss

SUMMARY COMMENTS
The cause for chronic weight loss and death are not evident based on gross or histopathological findings. Could the Karenia algal bloom and decreased fish stocks be a contributing factor for the chronic weight loss ?

As you have requested AST Hobart will be contacted for a quote for biotoxin and brevetoxin testing.

[redacted]
Specialist Veterinary Anatomic Pathologist
[redacted]

Validated by [redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 02/12/25 18:30
Referred on 23/11/25 **by:** [redacted]

Owner:
LONG-NOSE FUR SEAL
GOOLWA BEACH

Animal/s:
Marine Mammal

DOB: N/A

Collected: 23/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received All Tests Complete

HISTOPATHOLOGY

REF: [redacted]
CLINICAL HISTORY
Dead long-nose fur seal pup collected by DEW from Goolwa Beach on 20 November 2025. Carcass with [redacted] for shipping to [redacted]

MACROSCOPY
One pot received labelled [redacted] and organs listed below
A = lung + liver + spleen
B = kidney + skeletal muscle
C = heart
D = stomach, duodenum, jejunum, colon
BRAIN
E = occipital cortex
F = medulla
G = cerebellum + spinal cord
H = mid brain
I-J = thalamus + hippocampus
K = parietal cortex
L = frontal cortex
M = basal ganglia
EW + GK 26/11/25

MICROSCOPY
There is mild to moderate autolysis of all tissues. Aside from this artifact there are no significant findings.

DIAGNOSIS

Chronic weight loss

COMMENTS
There are no histological findings to explain the cause of the chronic weight loss.

[redacted]
Specialist Veterinary Anatomic Pathologist
[redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 02/12/25 18:30
Referred on 23/11/25 **by:** [redacted]

Owner:
LONG-NOSE FUR SEAL
GOOLWA BEACH

Animal/s:
Marine Mammal

DOB: N/A

Collected: 23/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received All Tests Complete

Validated by [redacted]

Outlook

PATH RESULTS: LONG-NOSE FUR SEAL, (Ma) [redacted]

From [redacted]
Date Wed 28/01/2026 11:30 AM
To [redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 28/01/26 12:00
Referred on 23/11/25 **by:** [redacted]

Owner:
LONG-NOSE FUR SEAL
GOOLWA BEACH

Animal/s:
Marine Mammal

DOB: N/A

Collected: 23/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

REFERRED TEST

Disease/Test : Mycobacterium Isolation
Specimen Type: Brain & Lung Tissue

RESULT : Brain - Mycobacterium sp. was not isolated
Lung - Mycobacterium sp. was not isolated

Comment : NATA/RCPA accreditation does not cover the performance of this service
Cultures were incubated for 8 weeks.

This test was performed by: Australian Centre for Disease Preparedness (CSIRO)
NATA accreditation number: 13546

Outlook

PATH RESULTS: LONG-NOSE FUR SEAL, (Ma) [redacted]

From [redacted]
Date Thu 11/12/2025 11:30 AM
To [redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 11/12/25 12:00
Referred on 23/11/25 **by:** [redacted]

Owner:
LONG-NOSE FUR SEAL
GOOLWA BEACH

Animal/s:
Marine Mammal

DOB: N/A

Collected: 23/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

REFERRED TEST

Disease/Test : Mycobacterium tuberculosis complex IS6110
Method : TaqMan Assay
Specimen Type: Brain and Lung

RESULT : Both samples Negative

Comment : NATA/RCPA accreditation does not cover the performance of this service

This test was performed by: Australian Centre for Disease Preparedness (CSIRO)
NATA accreditation number: 13546

Validated by [redacted] Laboratory Scientist.

REFERRED TEST

Disease/Test : Brucella sp. PCR
Specimen Type: Brain and Lung

RESULT : Both samples Negative

Comment : NATA/RCPA accreditation does not cover the performance of this service

This test was performed by: Australian Centre for Disease Preparedness (CSIRO)
NATA accreditation number: 13546

Validated by [redacted] Laboratory Scientist.

[redacted]

[redacted]

Tested on 25/11/25
Reported on 11/12/25 12:00
Referred on 23/11/25 **by:** [redacted]

Owner:
LONG-NOSE FUR SEAL
GOOLWA BEACH

Animal/s:
Marine Mammal

DOB: N/A

Collected: 23/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

REFERRED TEST

Disease/Test : Pan-Mycobacterium Taqman
Specimen Type: Brain and Lung

RESULT : Both samples Negative

Comment : NATA/RCPA accreditation does not cover the performance of this service

This test was performed by: Australian Centre for Disease Preparedness (CSIRO)
NATA accreditation number: 13546

Validated by [redacted] Laboratory Scientist.

REFERRED TEST

Disease/Test : Mycobacterium avium complex Taqman
Specimen Type: Brain and Lung

RESULT : Both samples Negative

Comment : NATA/RCPA accreditation does not cover the performance of this service

This test was performed by: Australian Centre for Disease Preparedness (CSIRO)
NATA accreditation number: 13546

Validated by [redacted] Laboratory Scientist.

Outlook

PATH RESULTS: LONG-NOSE FUR SEAL, (Ma) [redacted]

From [redacted]
Date Tue 20/01/2026 3:00 PM
To [redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 20/01/26 15:30
Referred on 23/11/25 **by:** [redacted]

Owner:
LONG-NOSE FUR SEAL
GOOLWA BEACH

Animal/s:
Marine Mammal

DOB: N/A

Collected: 23/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

REFERRED TEST

Disease/Test : Brucella species Isolation

RESULT : Brain - No result
Lung - Brucella spp. was not isolated

Comment : Unable to rule out the presence of Brucella spp. due to overgrowth of other microorganisms in the brain sample submitted.

This test was performed by: Australian Centre for Disease Preparedness (CSIRO)
NATA accreditation number: 13546

ANALYTICAL SERVICES TASMANIA
18 St Johns Avenue New Town 7008 TAS
03 6165 3300
enquiries@ast.tas.gov.au
www.analyticalservices.tas.gov.au

Tasmanian Government

Submission Number: [redacted]
Report Number:
Issue Date: 27/02/2026
Status: Final

CERTIFICATE OF ANALYSIS

Customer: [redacted]
Address:
Contact:

Submission Description: Biotoxin and Brevotoxins - Long nosed fur seal
Sample Received Date: 16/12/2025
Contract Number:
Client Order Number: [redacted]
Program/Quote Reference: Biotoxin and Brevotoxins

Sample(s) analysed as received. Sampling date and time data supplied by the client. The document shall not be reproduced except in full.
Additional information relating to this submission can be found in the sample receipt notification.
This report supersedes any previous reports with this submission number.
Many tests specify a holding time which gives the recommended timeframe by which a sample should be preserved/extracted and/or analysed after the sample is taken.
Holding time information can be found on the AST website https://analyticalservices.tas.gov.au/our-services/containers-samples-and-submissions .
Whilst every effort is made to analyse samples within these timeframes, situations can occur where this is not possible.
Where a test has been conducted outside the recommended sample holding time this should be taken into account when interpreting results.

The results in this report were authorised by:

Name	*Position*
[redacted]	**Section Head - Organic Chemistry**

Test Information:

Method ID	*Test Description*	*Date Commenced:*
3411	Lipophilic Toxins in Shellfish by LC-MS/MS	27-02-2026
3411A	Brevetoxins in Shellfish by LC-MS/MS	17-02-2026
3416	PST in Biota by LC-MS/MS (Boundy Method)	25-02-2026

Chemistry Test Results (Biota - Food)

Method ID	Analyte	Units	Sample Description	Spleen	Kidney	Lung	Brain	Heart	Liver	faeces
			Sampled Date/ Time	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00
				394614	394615	394616	394617	394618	394619	394620
3411	AZA1	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	AZA2	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	AZA3	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	Domoic Acid	mg/kg WMB		<0.05*	<0.05*	<0.05*	<0.05*	<0.05*	<0.05*	*IS*
	DTX1 Free	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	DTX1 Total	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	DTX2 Free	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	DTX2 Total	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	GYM	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	Homo-YTX	mg/kg WMB		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	*IS*
	OA Free	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	OA Total	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	PnTx-G	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	PTX2	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	SPX1	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	Total DST	OA eq. mg/kg		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
	YTX	mg/kg WMB		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*
3411A	Brevetoxin 1	mg/kg WMB		<0.10*	<0.10*	<0.10*	<0.10*	<0.10*	<0.10*	<0.10*
	Brevetoxin 2	mg/kg WMB		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	Brevetoxin 3	mg/kg WMB		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
3416	C1	STX.2HCl eq. mg/kg		<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	C2	STX.2HCl eq. mg/kg		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	C3	STX.2HCl eq. mg/kg		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	C4	STX.2HCl eq. mg/kg		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	dcGTX1	STX.2HCl eq. mg/kg		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	dcGTX2	STX.2HCl eq. mg/kg		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	dcGTX3	STX.2HCl eq. mg/kg		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	dcGTX4	STX.2HCl eq. mg/kg		<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)

		Sample Description	Spleen	Kidney	Lung	Brain	Heart	Liver	faeces
		Sampled Date/ Time	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00	24/11/25 0:00
Method ID	Analyte	Units	394614	394615	394616	394617	394618	394619	394620
3416	dcNEO	STX.2HCl eq. mg/kg	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	dcSTX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	doSTX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX1	STX.2HCl eq. mg/kg	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX2	STX.2HCl eq. mg/kg	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX3	STX.2HCl eq. mg/kg	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX4	STX.2HCl eq. mg/kg	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX5	STX.2HCl eq. mg/kg	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	GTX6	STX.2HCl eq. mg/kg	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	NEO	STX.2HCl eq. mg/kg	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	STX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	Total PST	STX.2HCl eq. mg/kg	<0.10*	<0.10*	<0.10*	<0.10*	<0.10*	<0.10*	<0.10*

IS- Insufficient Sample

* NATA accreditation does not cover this result