

Algal bloom wildlife post-mortem report



Government
of South Australia

Department for
Environment and Water

Species – Australian sea lion (*Neophoca cinerea*)

Date collected – 13 November 2025

Location – Port Gibbons, Port Lincoln

History relating to the animal

A juvenile (possibly female) Australian sea lion (*Neophoca cinerea*) was found dead at Port Gibbons on 13 November 2025. The body was kept in a freezer at the Department for Environment and Water Port Lincoln Office.

Clinical examination

The sea lion was found dead and so could not be examined prior to death.

Necropsy

The necropsy (looking at the whole body) revealed that the sea lion was in very poor body condition and severely underweight, weighing approximately 14 kg. The animal was about 80 cm long, with a body circumference of around 52 cm, and appeared to be female. It had significant muscle loss, especially around the ribs and along the spine, and almost no body fat was present. The body showed some expected changes from freezing and natural decomposition after death. There were maggots in the mouth, which likely developed after it died. In the stomach, there were several small stones and only a very small amount of mucus-like food particles, while the intestines and rectum contained very little digested material and faeces. No urine was found in the bladder. A few small brown soft deposits were also seen under the skin along the underside of the body.

Tissues were collected for histopathology (looking at tissues under the microscope for more detailed information) and testing for *Mycobacterium tuberculosis* (MTb) and *Mycobacterium avium* (*M. avium*) 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 were expected changes caused by freezing and post-mortem autolysis (decomposing after death). In the lungs, there was a small amount of fluid build-up in the air spaces where gas exchange occurs; this is commonly seen around the time of death and does not necessarily indicate disease. A tiny mite was also found in one of the airways of the lung; this type of parasite has been reported in Australian sea lions and is considered an incidental finding that is unlikely to have caused harm. No significant abnormalities were seen in other organs.

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Bacteriology

Polymerase chain reaction (PCR) testing for *MTb* and *M. avium* complex organisms and *Brucella* species bacteria was negative.

Brevetoxins

No samples were above the limits of reporting.

Other algal biotoxins

No samples were above the limits of reporting.

Summary

A juvenile Australian sea lion (*Neophoca cinerea*) was found dead. The animal was severely underweight. Laboratory examination could not determine the cause of severe weight loss or death. It is suspected that poor nutrition contributed to the animal's weakened condition, possibly due to reduced food availability in the environment, although this could not be confirmed. Testing for tuberculosis (*Mycobacterium tuberculosis* and *Mycobacterium avium* complex organisms) and brucellosis (*Brucella* species bacteria) was negative. Brevetoxins and other algal biotoxins were also not detected.

PATH RESULTS: AUSTRALIAN SEALION, (Ma) [REDACTED]

From [REDACTED]

Date Tue 10/02/2026 5:30 PM

To [REDACTED]

[REDACTED]

Tested on 09/02/26
Reported on 10/02/26 18:00
Referred on 13/11/25 **by:** [REDACTED]

[REDACTED]

Owner:

AUSTRALIAN SEALION
PORT GIBBONS
PORT LINCOLN 5606

Animal/s:

Marine Mammal

DOB: N/A

Collected: 13/11/25 00:25

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

NECROPSY REPORT

CLINICAL HISTORY

This is a summary of the clinical history from the request form. Please refer to the request form for the full history.
The dead Australian sea lion was found in Port Gibbons 13/11/2025. The carcass was stored frozen at Dept Environment and Water Pt Lincoln office.

SAMPLES SUBMITTED

One juvenile Australian sea lion, *Neophoca cinerea*, probable female

NECROPSY FINDINGS

The animal is in very poor body condition and weighs 14 kg. There is marked atrophy of skeletal muscles particularly intercostal muscles and the epaxial muscles over the dorsal processes of the vertebrae. There is minimal subcutaneous fat (blubber) and abdominal and retroperitoneal fat is not evident. There are moderate freeze artefact and post-mortem

autolytic changes. There are moderate numbers of maggots in the oral cavity.

The animal is approximately 800mm long and the circumference around the body, caudal to the pectoral flippers is approximately 520mm.

There appears to be a uterus and ovaries (female).

There are multiple small gastroliths (ranging from 20-30mm across) within the stomach and scant mucoid ingesta (< 20ml). The intestines contain scant pasty ingesta and the rectum contains scant dark brown pasty faeces. There is no urine in the bladder.

Within the ventral subcutaneous tissue along the midline are rare fine, 1-2mm, brown soft deposits.

GROSS SUMMARY

Chronic weight loss

SAMPLES COLLECTED & TESTING

Formalin fixed tissues will be processed for histopathology (including what appears to be the uterus and ovaries; to clarify the sex).

[REDACTED]

Tested on 09/02/26
Reported on 10/02/26 18:00
Referred on 13/11/25 **by:** [REDACTED]

[REDACTED]

Owner:
AUSTRALIAN SEALION
PORT GIBBONS
PORT LINCOLN 5606

Animal/s:
Marine Mammal

DOB: N/A

Collected: 13/11/25 00:25 **Subm.No:** [REDACTED] **Lab No.:** [REDACTED]

Samples tested as received

A quote for biotoxin and brevetoxin testing at Analytical Services Tasmania on fresh liver, lung, heart, kidney, brain, faeces and stomach contents will be requested. The quote will be forwarded to Dr K. Hillyard for approval.

Lung and brain will be sent to ACDP for Mycobacterium sp. and Brucella sp. testing.

Fresh liver, lung, heart, kidney, brain and oropharyngeal swab in virus transport medium are stored.

100g of fresh liver and kidney and the scant faeces are stored for University of Sydney. There is no blubber which can be sampled.

COMMENTS

Weight loss contributed to morbidity for this animal. There are no gross findings to explain the cause of the chronic weight loss. Have there been recent Karenia sp. blooms in the region which could have contributed to decreased feed availability. Could decreased feed availability be a contributing factor for weight loss ?

The maggots likely occurred post death.

The rare fine cutaneous nodules may be adnexal cysts or cestode larvae. Histopathology will clarify these findings.

[REDACTED]

Specialist Veterinary Anatomic Pathologist

Validated by

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PATH RESULTS: AUSTRALIAN SEALION, (Ma) [REDACTED]

From [REDACTED]

Date Wed 25/02/2026 9:00 AM

To [REDACTED]

[REDACTED]

Tested on 09/02/26
Reported on 25/02/26 09:30
Referred on 13/11/25 **by:** [REDACTED]

[REDACTED]

Owner:

AUSTRALIAN SEALION
PORT GIBBONS
PORT LINCOLN 5606

Animal/s:

Marine Mammal

DOB: N/A

Collected: 13/11/25 00:25

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

HISTOPATHOLOGY

Further sections cut in on 29/2/2026 by GK

REF: [REDACTED]

CLINICAL HISTORY

This is a summary of the clinical history from the request form. Please refer to the request form for the full history.

The dead Australian sea lion was found in Port Gibbons 13/11/2025. The carcase was stored frozen at Dept Environment and Water Pt Lincoln office.

MACROSCOPY

Pots received labelled '[REDACTED]' and organs listed below.

Brain

H = thalamus + hippocampus

I = thalamus

J = parietal cortex

K = cerebellum

L = medulla + occipital cortex

M = basal ganglia

N = frontal cortex

O = liver, lung, trachea, heart

P = lung, kidney, skeletal muscle

Q - R = pancreas, liver, pancreatic lymph node, stomach, duodenum, jejunum, ileum, caecum, colon, bladder

Due to processing errors cassettes A-G do not contain tissues for reporting.

GK + Ed

MICROSCOPY

Lung: There are mild freeze artifact and post mortem autolytic changes. Aside from these artifact changes the following findings are described. Diffusely alveolar spaces are expanded by oedema. There is a cross section of an acarid within a bronchial lumen. The acarid, 100 micron across, has a cuticle, coelom, musculature, appendages.

There is moderate freeze artifact and post mortem autolytic changes in the other organs. Aside from these artefacts there are no other significant findings.

[REDACTED]

Tested on 09/02/26
Reported on 25/02/26 09:30
Referred on 13/11/25 **by:** [REDACTED]

[REDACTED]

Owner:
AUSTRALIAN SEALION
PORT GIBBONS
PORT LINCOLN 5606

Animal/s:
Marine Mammal

DOB: N/A

Collected: 13/11/25 00:25 **Subm.No:** [REDACTED] **Lab No.:** [REDACTED]

Samples tested as received

DIAGNOSIS

Lung: Mild, diffuse, acute, pulmonary oedema and pulmonary acarid

COMMENTS

There are no findings to explain the cause of death.

Mites of the lower respiratory tract (genus: Orthohalarachne) have been reported in Australian sea lions from Kangaroo Island (Nicholson et al 1981). This is an incidental finding.

Reference

Nicholson A, Fanning J (1981) parasites and associated pathology of the respiratory tract of the Australian sea lion, Neophocacinerea. Wildlife disease of the Pacific Basin and other countries. In : Fowler ME (Ed.) Proceedings of the Fourth International Conference of the Wildlife Disease Association, Sydney 178-181

[REDACTED]

Specialist Veterinary Anatomic Pathologist
[REDACTED]

Validated by [REDACTED]

PATH RESULTS: AUSTRALIAN SEALION, (Ma) [REDACTED]

From [REDACTED]

Date Tue 24/02/2026 2:00 PM

To [REDACTED]

[REDACTED]

Tested on 09/02/26
Reported on 24/02/26 14:30
Referred on 13/11/25 **by:** [REDACTED]

[REDACTED]

Owner:

AUSTRALIAN SEALION
PORT GIBBONS
PORT LINCOLN 5606

Animal/s:

Marine Mammal

DOB: N/A

Collected: 13/11/25 00:25

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

REFERRED TEST

Disease/Test : Brucella sp. PCR

Specimen Type: Brain & 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 Assay

Specimen Type: Brain & 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.



Tested on 09/02/26
Reported on 24/02/26 14:30
Referred on 13/11/25 by:



Owner:
AUSTRALIAN SEALION
PORT GIBBONS
PORT LINCOLN 5606

Animal/s:
Marine Mammal

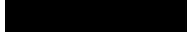
DOB: N/A

Collected: 13/11/25 00:25

Subm.No:



Lab No.:



Samples tested as received

REFERRED TEST

Disease/Test : Mycobacterium tuberculosis complex IS6110 - TaqMan Assay
Specimen Type: Brain & 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  Laboratory Scientist.

REFERRED TEST

Disease/Test : Pan-Mycobacterium Taqman Assay
Specimen Type: Brain & 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.

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CERTIFICATE OF ANALYSIS

Customer:		Submission Description:	Sea Lion
Address:		Sample Received Date:	11/03/2026
Contact:		Contract Number:	
		Client Order Number:	

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
	Section Head - Organic Chemistry

Test Information:

Method ID	Test Description	Date Commenced:
3411	Lipophilic Toxins in Shellfish by LC-MS/MS	04-05-2026
3411A	Brevetoxins in Shellfish by LC-MS/MS	01-05-2026
3416	PST in Biota by LC-MS/MS (Boundy Method)	04-05-2026

Chemistry Test Results (Biota - Food)

Sample Description			LIVER	KIDNEY	SPLEEN	HEART	LUNG	BRAIN
Sampled Date/ Time			10/02/26 0:00	10/02/26 0:00	10/02/26 0:00	10/02/26 0:00	10/02/26 0:00	10/02/26 0:00
Method ID	Analyte	Units	440130	440131	440132	440133	440134	440135
3411	AZA1	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	AZA2	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	AZA3	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Domoic Acid	mg/kg WMB	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	DTX1 Free	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	DTX1 Total	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	DTX2 Free	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	DTX2 Total	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	GYM	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Homo-YTX	mg/kg WMB	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	OA Free	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	OA Total	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	PnTx-G	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	PTX2	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	SPX1	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Total DST	OA eq. mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	YTX	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3411A	Brevetoxin 1	mg/kg WMB	<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*
	Brevetoxin 3	mg/kg WMB	<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
	C2	STX.2HCl eq. mg/kg	<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
	C4	STX.2HCl eq. mg/kg	<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*
	dcGTX2	STX.2HCl eq. mg/kg	<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

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)		Sample Description	LIVER	KIDNEY	SPLEEN	HEART	LUNG	BRAIN
		Sampled Date/ Time	10/02/26 0:00	10/02/26 0:00	10/02/26 0:00	10/02/26 0:00	10/02/26 0:00	10/02/26 0:00
Method ID	Analyte	Units	440130	440131	440132	440133	440134	440135
3416	dcGTX4	STX.2HCl eq. mg/kg	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	dcNEO	STX.2HCl eq. mg/kg	<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
	doSTX	STX.2HCl eq. mg/kg	<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
	GTX2	STX.2HCl eq. mg/kg	<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
	GTX4	STX.2HCl eq. mg/kg	<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
	GTX6	STX.2HCl eq. mg/kg	<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
	STX	STX.2HCl eq. mg/kg	<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

* NATA accreditation does not cover this result