Algal bloom wildlife post-mortem report

Government of South Australia
Department for Environment and Water

Species – Little Penguin

Date collected – 7 October 2025

Location – Carrickalinga Beach

History relating to the animal

One little penguin (*Eudyptula minor)* was found dead on Carrickalinga Beach, along with body parts of a second penguin and some dead leatherjackets on 7 October 2025. There were reports of multiple dead seagulls at the same site 3 weeks prior. The little penguin was submitted for laboratory examination.

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 little penguin was in very poor body condition and weighed 800g, with marked atrophy (decreased size) of the pectoral muscles (large muscles of the chest). There was moderate post-mortem autolytic change (decomposing after death).

The proventriculus (upper part of a bird's gut) and gizzard (muscular part of gut that grinds food, often containing stones) contained moderate numbers of ascarids (roundworms) and a small amount of mucus.

Samples were collected to test for avian influenza and Newcastle disease. Tissues were collected for histopathology (looking at tissues under the microscope for more detailed information) and testing for brevetoxins and other algal biotoxins (a possibility due to the algal bloom).

Histopathology

Samples from every major body system were examined under the microscope. Examination of the liver revealed mild multifocal (multiple areas), subacute (occurring over days to weeks), necrotising (causing cell death) lymphocytic, plasmacytic, neutorphilic hepatitis (liver inflammation with lymphocyte, plasmacyte and neutrophil immune cells). There was moderate autolysis (cell break down after death) of the lung tissue, brain, kidneys, spleen and gut. Moderate numbers of bacteria were seen were seen within the lungs and spleen.

Virology

Resting results for avian influenza and Newcastle disease were negative.

Algal bloom wildlife post-mortem report

Brevetoxins

No samples were above limits of reporting.

Other algal biotoxins

No samples were above limits of reporting.

Summary

A little penguin was found dead on Carrickalinga Beach, in the same area as another dead little penguin and dead leatherjackets. Laboratory examination revealed a mild hepatitis (inflammation of the liver), possibly due to a bacteraemia (bacteria in the bloodstream). Culture was not recommended as post-mortem bacterial growth would make interpretation of results unreliable. There were no findings to explain the cause of chronic weight loss in this bird.

Testing for avian influenza and Newcastle disease was negative. Brevetoxins and other algal biotoxins were also not detected.

Outlook

PATH RESULTS: LITTLE PENGUIN, (Wi) [redacted]

From [redacted]
Date Wed 08/10/2025 9:00 PM
To [redacted]

[redacted]

Report Addressee:
[redacted]

Tested on 08/10/25
Reported on 08/10/25 21:30
Referred on 07/10/25 **by:**
[redacted]

Owner:
LITTLE PENGUIN
CARRIKALINGA BEACH
CARRICKALINGA 5204

Animal/s:
Wild Birds

DOB: N/A

Collected: 07/10/25 16:00 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

CASE MANAGEMENT DETAILS

Case Managed by:
Case Management Requested by:
Case Management Requested on:
[redacted]

Case Details: 1 x little penguin was found dead on Carrickalinga beach

Outlook

PATH RESULTS: LITTLE PENGUIN, (Wi) [redacted]

From [redacted]
Date Sat 18/10/2025 6:00 PM
To [redacted]

[redacted]

[redacted]

RESULTS PH: [redacted]

Report Addressee:
[redacted]

Tested on 08/10/25
Reported on 18/10/25 18:30
Referred on 07/10/25 **by:**
[redacted]

Owner:
LITTLE PENGUIN
CARRIKALINGA BEACH
CARRICKALINGA 5204

Animal/s:
Wild Birds

DOB: N/A

Collected: 07/10/25 16:00 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received All Tests Complete

HISTOPATHOLOGY FROM NECROPSY

REF: [redacted]
CLINICAL HISTORY
Please refer to the clinical history on the request form. A brief summary of the clinical history;
The dead little penguin was washed up at Carrickalinga Beach. It was found with a number of dead leatherjackets and half of a penguin body. At this same site 3 weeks ago there was a report of multiple dead sea gulls.

One dead adult male little penguin, Eudyptula minor

MACROSCOPY
Cassettes contain the following tissues:
A: liver, kidney, spleen, heart, lung
B: skeletal muscle, caecum, ileum, proventriculus, duodenum, jejunum
C: trachea, air sacs, cerebellum
D: optic lobe of brain and other sections of brain; Ae GK

MICROSCOPY
Liver: Multifocally and randomly there are low numbers of individualised necrotic parasite surrounded by low numbers of lymphocytes, plasma cells and heterophils. (Mild, multifocal, subacute, necrotising, lymphocytic, plasmacytic, neutrophilic hepatitis)

Lung and air sacs: There is moderate autolysis with moderate numbers of extracellular large rod (probably post mortem Clostridium sp.) and short rod bacteria scattered through the lungs.

There is moderate autolysis of the alimentary sections, spleen (with abundant large Clostrium-like bacteria), brain and the kidney.

DIAGNOSIS
Chronic weight loss
Liver: Mild, multifocal, subacute, necrotising, lymphocytic, plasmacytic, neutrophilic hepatitis

COMMENTS
There is a mild hepatitis possibly due to a bacteraemia. Microbiological culture of the liver is not recommended because the extensive post mortem proliferation of bacteria in other organs will likely confound

[redacted]

[redacted]

RESULTS PH: [redacted]

Report Addressee:

[redacted]

Tested on 08/10/25
Reported on 18/10/25 18:30
Referred on 07/10/25 **by:**

[redacted]

Owner:
LITTLE PENGUIN
CARRIKALINGA BEACH
CARRICKALINGA 5204

Animal/s:
Wild Birds

DOB: N/A

Collected: 07/10/25 16:00 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received All Tests Complete

any liver cultures.

There are no findings to explain the cause of chronic weight loss. Could decreased feed abundance be a contributing factor ?

[redacted]

Specialist Veterinary Anatomic Pathologist
[redacted]

Validated by [redacted].

SUMMARY DIAGNOSIS
Chronic weight loss
Liver: Mild, multifocal, subacute, necrotising, lymphocytic, plasmacytic, neutrophilic hepatitis

COMMENTS
There is a mild hepatitis possibly due to a bacteraemia. Microbiological culture of the liver is not recommended because the extensive post mortem proliferation of bacteria in other organs will likely confound any liver cultures.

There are no findings to explain the cause of chronic weight loss. Could decreased feed abundance be a contributing factor ?

Analytical Services Tasmanian has been contacted for a quote for biotoxin and brevetoxin testing as you requested.

[redacted]

Specialist Veterinary Anatomic Pathologist

[redacted]

Validated by [redacted]

Outlook

PATH RESULTS: LITTLE PENGUIN, (Wi) [redacted]

From [redacted]
Date Tue 14/10/2025 11:00 AM
To [redacted]

[redacted]

Report Addressee:
[redacted]

Tested on 08/10/25
Reported on 14/10/25 11:30
Referred on 07/10/25 **by:**
[redacted]

Owner:
LITTLE PENGUIN
CARRIKALINGA BEACH
CARRICKALINGA 5204

Animal/s:
Wild Birds

DOB: N/A

Collected: 07/10/25 16:00 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

MOLECULAR DIAGNOSTICS

INFLUENZA A RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

Specimen type: Pooled cloacal & tracheal swabs in VTM

SPECIMEN ID	Type A	H5	H7
PENGUIN	Not detected		

Validated by [redacted] Laboratory Scientist.

[redacted]

Tested on 08/10/25
Reported on 14/10/25 11:30
Referred on 07/10/25 **by:**

Report Addressee:

[redacted]

[redacted]

Owner:
LITTLE PENGUIN
CARRIKALINGA BEACH
CARRICKALINGA 5204

Animal/s:
Wild Birds

DOB: N/A

Collected: 07/10/25 16:00 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

MOLECULAR DIAGNOSTICS

NEWCASTLE DISEASE VIRUS RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

Specimen type: Pooled cloacal & tracheal swab in VTM Number of specimens: 1

SPECIMEN ID	F Gene	M Gene	L Gene
PENGUIN	Not detected	Not detected	Not detected

Validated by [redacted] Laboratory Scientist.

[redacted]

Tested on 08/10/25
Reported on 08/10/25 21:30
Referred on 07/10/25 **by:**

Report Addressee:
[redacted]

[redacted]

Owner:
LITTLE PENGUIN
CARRIKALINGA BEACH
CARRICKALINGA 5204

Animal/s:
Wild Birds

DOB: N/A

Collected: 07/10/25 16:00 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

NECROPSY REPORT

CLINICAL HISTORY
Please refer to the clinical history on the request form. A brief summary of the clinical history;
The dead little penguin was washed up at Carrickalinga Beach. It was found with a number of dead leatherjackets and half of a penguin body. At this same site 3 weeks ago there was a report of multiple dead sea gulls.

SAMPLES SUBMITTED
One dead adult male little penguin, Eudyptula minor

NECROPSY FINDINGS
The bird is in very poor body condition with marked atrophy of pectoral muscles and weighs 800 g. There are moderate post-mortem autolytic changes. The proventriculus and gizzard contain moderate numbers of ascarid (likely Contracaecum sp. and Anisakis sp.) and scant mucus.

GROSS SUMMARY
Chronic weight loss
Proventricular ascaridiasis

SAMPLES COLLECTED & TESTING
Cloacal and tracheal swabs will be tested by AI and NDV PCR.

As requested by [redacted] a quote will be requested from Analytical Services Tasmania for biotoxin and brevetoxin testing of kidney (1g), liver (10g), lung (2g) and brain (3g) (kept in 70ml containers).

Liver, kidney, spleen, heart, lung, brain are stored in 5ml containers are stored at -80 degrees Celsius.

Formalin fixed tissues are stored.

COMMENTS
Chronic weight loss contributed to morbidity for this animal. Could decreased feed abundance have contributed to chronic weight loss ?

Proventricular is a normal finding in little penguins.

[redacted]

Tested on 08/10/25
Reported on 08/10/25 21:30
Referred on 07/10/25 **by:**

Report Addressee:

[redacted]

[redacted]

Owner:
LITTLE PENGUIN
CARRIKALINGA BEACH
CARRICKALINGA 5204

Animal/s:
Wild Birds

DOB: N/A

Collected: 07/10/25 16:00 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

[redacted]

Specialist Veterinary Anatomic Pathologist
[redacted]

Validated by [redacted]

Tasmanian Government

ANALYTICAL SERVICES TASMANIA

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

Submission Number: [redacted]
Report Number:
Issue Date: 10/11/2025
Status: Final

CERTIFICATE OF ANALYSIS

Customer: [redacted]
Address:
Contact:

Submission Description: Little Penguin
Sample Received Date: 24/10/2025
Contract Number:
Client Order Number: [redacted]
Program/Quote Reference:

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

Test Information:

Method ID	*Test Description*	*Date Commenced:*
3411	Lipophilic Toxins in Shellfish by LC-MS/MS	04-11-2025
3411A	Brevetoxins in Shellfish by LC-MS/MS	07-11-2025
3416	PST in Biota by LC-MS/MS (Boundy Method)	04-11-2025

Chemistry Test Results (Biota - Food)

		Sample Description	Liver	Kidney	Spleen	Heart	Lung	Brain
		Sampled Date/ Time	08/10/25 0:00	08/10/25 0:00	08/10/25 0:00	08/10/25 0:00	08/10/25 0:00	08/10/25 0:00
Method ID	Analyte	Units	364924	364925	364926	364927	364928	364929
3411	AZA1	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	AZA2	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	AZA3	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	Domoic Acid	mg/kg WMB	<0.05*	<0.05*	*IS*	<0.05*	<0.05*	<0.05*
	DTX1 Free	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	DTX1 Total	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	DTX2 Free	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	DTX2 Total	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	GYM	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	Homo-YTX	mg/kg WMB	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	OA Free	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	OA Total	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	PnTx-G	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	PTX2	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	SPX1	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	Total DST	OA eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	YTX	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
3411A	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*	*IS*	<0.01*	<0.01*	*IS*
	C2	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	C3	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	C4	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	dcGTX1	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	dcGTX2	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	dcGTX3	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	dcGTX4	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	dcNEO	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)

		Sample Description	Liver	Kidney	Spleen	Heart	Lung	Brain
		Sampled Date/ Time	08/10/25 0:00	08/10/25 0:00	08/10/25 0:00	08/10/25 0:00	08/10/25 0:00	08/10/25 0:00
Method ID	Analyte	Units	364924	364925	364926	364927	364928	364929
3416	dcSTX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*
	doSTX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*
	GTX1	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*
	GTX2	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*
	GTX3	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*
	GTX4	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*
	GTX5	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	GTX6	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	NEO	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*
	STX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*
	Total PST	STX.2HCl eq. mg/kg	<0.10*	<0.10*	*IS*	<0.10*	<0.10*	*IS*

IS- Insufficient Sample

* NATA accreditation does not cover this result