Algal bloom wildlife post-mortem report

Government of South Australia
Department for Environment and Water

Species – Cormorant

Date collected – 24 November 2025

Location – Onkaparinga River, Port Noarlunga

History relating to the animal

A cormorant (*Phalacrocorax spp.*) was found dead at Onkaparinga River, Port Noarlunga on 24 November 2025.

Clinical examination

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

Necropsy

The necropsy (looking at the whole body) revealed that the bird was in poor body condition, weighing 1.4kg. There was marked bilateral (both left and right) atrophy (wasting) of the pectoral muscles (large muscles of the chest). There was marked post-mortem autolytic change (decomposition after death). There were abundant ascarids (roundworms) within the ventriculus (muscular part of a bird's stomach – for grinding food material).

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 a mild, multifocal (in multiple areas), subacute (occurring over days to weeks), necrotising (causing cell death), pyogranulomatous hepatitis (liver inflammation with pus and nodules). Within the lung there was moderate, diffuse (throughout the tissue), acute (recent) congestion (tissue full of fluid, usually from circulation problems).

There was moderate autolysis (decomposition of tissues after death) of the intestinal tissues (gut), with no other significant findings in any of the remaining tissues examined.

Brevetoxins

No samples were above the limits of reporting.

Other algal biotoxins

No samples were above the limits of reporting.

Summary

Algal bloom wildlife post-mortem report

Government of South Australia
Department for Environment and Water

A cormorant (*Phalacrocorax spp.*) was found dead. Laboratory examination found the bird was underweight, which would have contributed to morbidity (illness), but the cause of weight loss and death couldn't be determined. Parasites (roundworms) were found in the gut, which is a common finding in marine birds. The bird had a very mild hepatitis (liver inflammation), which was likely subclinical (not causing disease). Brevetoxins and other algal biotoxins were not detected.

Outlook

PATH RESULTS: CORMORANT, (Wi) {CORMORANT} [redacted]

From [redacted]
Date Sat 29/11/2025 5:30 PM
To [redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 29/11/25 18:00
Referred on 24/11/25 **by:** [redacted]

Owner:
CORMORANT
ONKAPARINGA RIVER
PORT NOARLUNGA 5167

Animal/s: CORMORANT
Wild Birds

DOB: N/A

Collected: 24/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

HISTOPATHOLOGY FROM NECROPSY

REF: [redacted]
CLINICAL HISTORY
This is a transcription of the clinical history from the request form;
Dead cormorant collected by Department of environment and water South Australia from Onkaparinga River, Port Noarlunga on 24/11/2025

One dead adult female cormorant (presumptive Phalacrocorax carbo)

MACROSCOPY
Cassettes contain the following tissues
A: liver, lung, spleen
B: heart, kidney
C: brain
D-E: proventriculus, gizzard, duodenum, pancreas, jejunum, ileum, caecae, ovary; Ae EW

MICROSCOPY

Lung: Diffusely in the interstitium lining air capillaries is distended by hyperaemia/congestion. (Moderate, diffuse, acute, pulmonary hyperaemia/congestion)

Liver: Multifocally and randomly hepatic cords are disrupted by karyorrhectic debris admixed with low numbers of lymphocytes, macrophages, plasma cells and heterophils. (Mild, multifocal, subacute, necrotising, pyogranulomatous hepatitis)

There is moderate autolysis of elementary sections. Aside from this artefact there are no significant findings.

Those tissues not described appear normal.

DIAGNOSIS
Alimentary ascaridiasis
Liver: Mild, multifocal, subacute necrotising, pyogranulomatous hepatitis

COMMENTS
There are no gross and histological findings to explain the cause of chronic weight loss or death. The hepatitis is extremely mild and is likely a subclinical process. One possible differential diagnosis is a

[redacted]

[redacted]

Tested on 25/11/25
Reported on 29/11/25 18:00
Referred on 24/11/25 **by:** [redacted]

Owner:
CORMORANT
ONKAPARINGA RIVER
PORT NOARLUNGA 5167

Animal/s: CORMORANT
Wild Birds

DOB: N/A

Collected: 24/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

mild subclinical bacteraemia. Due to the post-mortem changes microbiological culture is not recommended because these artefact changes will confound microbiological culture.

[redacted]

Specialist Veterinary Anatomic Pathologist

[redacted]

Validated by [redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 29/11/25 18:00
Referred on 24/11/25 **by:** [redacted]

Owner:
CORMORANT
ONKAPARINGA RIVER
PORT NOARLUNGA 5167

Animal/s: CORMORANT
Wild Birds

DOB: N/A

Collected: 24/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

NECROPSY REPORT
CORRECTED REPORT 29/11/2025
The sex is corrected. The bird is a female (based on an ovary found on histopathology)

CLINICAL HISTORY
This is a transcription of the clinical history from the request form; Dead cormorant collected by Department of environment and water South Australia from Onkaparinga River, Port Noarlunga on 24/11/2025

SAMPLES SUBMITTED
One dead adult female cormorant (presumptive Phalacrocorax carbo)

NECROPSY FINDINGS
The bird is in very poor body condition and weighs 1.4 kg. There is marked bilateral atrophy of the pectoral muscles. There are marked autolytic changes. There are abundant ascarids within the ventriculus.

GROSS SUMMARY
Marked weight loss
Ventricular ascaridiasis

SAMPLES COLLECTED & TESTING
Fresh liver, spleen, heart, lung, kidney, brain, ventricular contents are stored. Analytical services Tasmania will be contacted for a quote for biotoxin breath toxin testing and we will forward this information to you.

Formalin fixed liver, spleen, heart, lung, kidney, brain, multiple sections of alimentary tract and pectoral muscle are processed for

histopathology.

Fresh liver, spleen, heart, lung, kidney, brain are stored at -80C if further pathogen testing is required.

COMMENTS
The cause for the chronic weight loss and death is not evident grossly. Decreased feed abundance due to the Karenia sp. algal blooms and fish die offs is a possible cause for the chronic weight loss.

Ventricular ascaridiasis (e.g. due to Anisakis sp. / Contracaecum sp.) are normal findings in cormorants.

[redacted]

[redacted]

Tested on 25/11/25
Reported on 29/11/25 18:00
Referred on 24/11/25 **by:** [redacted]

Owner:
CORMORANT
ONKAPARINGA RIVER
PORT NOARLUNGA 5167

Animal/s: CORMORANT
Wild Birds

DOB: N/A

Collected: 24/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

[redacted]

Specialist Veterinary Anatomic Pathologist
[redacted]

Validated by [redacted]

Outlook

PATH RESULTS: CORMORANT, (Wi) [redacted]

From [redacted]
Date Sat 29/11/2025 7:00 PM
To [redacted]

[redacted]

[redacted]

Tested on 25/11/25
Reported on 29/11/25 19:30
Referred on 24/11/25 **by:** [redacted]

Owner:
CORMORANT
ONKAPARINGA RIVER
PORT NOARLUNGA 5167

Animal/s: CORMORANT
Wild Birds

DOB: N/A

Collected: 24/11/25 00:25 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

SUMMARY DIAGNOSIS
No diagnosis concluded

SUMMARY COMMENTS
The cause of ill thrift and death are not determined by histopathology or gross findings.

Samples will be sent to AST for biotoxin and brevetoxin testing

[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: 20/02/2026
Status: Final

CERTIFICATE OF ANALYSIS

Customer: [redacted]
Address:
Contact:

Submission Description: Biotoxin and Brevotoxins - bird
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	19-02-2026
3411A	Brevetoxins in Shellfish by LC-MS/MS	17-02-2026
3416	PST in Biota by LC-MS/MS (Boundy Method)	19-02-2026

Sample Comments

Sample Number: 394502

3411A Brevetoxins in Shellfish by LC-MS/MS
Reporting limit increased due to the low mass of sample available

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)

Method ID	Analyte	Units	Sample Description: Gizzard Contents Sampled Date/ Time: 25/11/25 0:00 394500	Liver 25/11/25 0:00 394501	Spleen x2 25/11/25 0:00 394502	Kidney 25/11/25 0:00 394503	Heart 25/11/25 0:00 394504	Lung 25/11/25 0:00 394505	Brain 25/11/25 0:00 394506
3411	AZA1	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	AZA2	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	AZA3	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	Domoic Acid	mg/kg WMB	<0.05*	<0.05*	*IS*	*IS*	<0.05*	*IS*	<0.05*
	DTX1 Free	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	DTX1 Total	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	DTX2 Free	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	DTX2 Total	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	GYM	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	Homo-YTX	mg/kg WMB	<0.02*	<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*
	OA Free	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	OA Total	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	PnTx-G	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	PTX2	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	SPX1	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	Total DST	OA eq. mg/kg	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
	YTX	mg/kg WMB	<0.01*	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*
3411A	Brevetoxin 1	mg/kg WMB	<0.10*	<0.10*	<0.20*	<0.10*	<0.10*	<0.10*	<0.10*
	Brevetoxin 2	mg/kg WMB	<0.02*	<0.02*	<0.04*	<0.02*	<0.02*	<0.02*	<0.02*
	Brevetoxin 3	mg/kg WMB	<0.02*	<0.02*	<0.04*	<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*	<0.01*
	C2	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	C3	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	C4	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	dcGTX1	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	dcGTX2	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	dcGTX3	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	dcGTX4	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)

	Sample Description	Gizzard Contents	Liver	Spleen x2	Kidney	Heart	Lung	Brain
	Sampled Date/ Time	25/11/25 0:00	25/11/25 0:00	25/11/25 0:00	25/11/25 0:00	25/11/25 0:00	25/11/25 0:00	25/11/25 0:00
Method ID	Analyte	Units	394500	394501	394502	394503	394504	394505	394506
3416	dcNEO	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	dcSTX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*	<0.01*
	doSTX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*	<0.01*
	GTX1	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*	<0.01*
	GTX2	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*	<0.01*
	GTX3	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*	<0.01*
	GTX4	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*	<0.01*
	GTX5	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	GTX6	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	NEO	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	*IS*	<0.02*
	STX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	*IS*	<0.01*
	Total PST	STX.2HCl eq. mg/kg	<0.10*	<0.10*	*IS*	<0.10*	<0.10*	*IS*	<0.10*

IS- Insufficient Sample

* NATA accreditation does not cover this result