

Algal bloom wildlife post-mortem report



Government
of South Australia

Department for
Environment and Water

Species – Pied cormorant

Date collected – 24 February 2026

Location – West Beach, Adelaide

History relating to the animal

A pied cormorant (*Phalacrocorax varius*) was found dead at the southern end of West Beach. No dead fish or foam was found near the bird. This bird was found and submitted together with another cormorant (on a separate report) on 24 February 2026.

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 moderate body condition, weighing 1.4 kg. There was marked post-mortem autolytic change (decomposition after death). There were moderate numbers of maggots in the oral cavity (mouth) and coelomic cavity (space containing digestive tract and other organs). There were three 1 mm diameter, flat firm pale white foci (areas) over the surface of the cranial (toward the head) air sacs (part of birds' lung anatomy). The proventriculus (bird's upper gut) and ventriculus (muscular part of gut that grinds food, often containing stones) contained large numbers of ascarid worms (gut parasites), and a moderate amount of brown mucus.

Tissues were collected for histopathology (looking at tissues under the microscope for more detailed information), and testing for avian influenza, Newcastle disease, 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. Examination of the lung revealed an area of moderate, focal (defined area), chronic (long-term), necrotising (with cell death), pyogranulomatous (pus and nodules) bronchopneumonia (infection of the lungs and upper airways) with mixed bacteria. The brain tissue had mild, multifocal (in multiple areas), pyogranulomatous, necrotising encephalitis (brain inflammation). Fungi were not found with special staining of the lung tissue.

Virology

Polymerase chain reaction (PCR) testing for avian influenza and Newcastle disease was negative.

Brevetoxins

No samples were above the limits of reporting.

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Other algal biotoxins

No samples were above the limits of reporting.

Summary

A cormorant was found dead. Another cormorant was submitted with this bird and was examined and reported on separately. Laboratory examination revealed the bird had a bacterial bronchopneumonia (infection of the lungs and upper airways) with mild encephalitis (brain inflammation) that was possibly caused by the lung infection spreading via the blood stream. The bacterial bronchopneumonia contributed to the death of this bird. Parasites were found in the gut, which is a common finding in marine birds. Testing for avian influenza and Newcastle disease was negative. Brevetoxins and other algal biotoxins were also not detected.

PATH RESULTS: CORMORANT, (Wi) [REDACTED]

From [REDACTED]

Date Tue 24/02/2026 4:30 PM

To [REDACTED]

[REDACTED]

Tested on 24/02/26
Reported on 24/02/26 17:00
Referred on 24/02/26 **by:** [REDACTED]

[REDACTED]

Owner:

CORMORANT
SOUTHERN END OF WEST BEAC
WEST BEACH 5024

Animal/s:

Wild Birds

DOB: N/A

Collected: 24/02/26 08:51

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

NECROPSY REPORT

CLINICAL HISTORY

The dead cormorant was found at the southern end of West Beach. There were no dead fish or foam around the birds

SAMPLES SUBMITTED

2 x dead pied cormorants, *Phalacrocorax varius* are received in one bag. One bird is allocated to this submission number.

NECROPSY FINDINGS

The bird is in moderate body condition and weighs 1.4 kg. There are marked post-mortem autolytic changes. There are moderate numbers of maggots within the oral cavity and coelomic cavity.

There are multiple (3) 1mm diameter flat firm pale white foci over the surface of the cranial air sacs.

Within the ventriculus and proventriculus there are large numbers of ascarid worms and moderate amount of brown mucus.

GROSS SUMMARY

Possible mycotic air sacculitis
Gastric ascaridiasis

SAMPLES COLLECTED & TESTING

Formalin fixed tissues will be processed for histopathology including the airsacs and lung to clarify the gross findings.

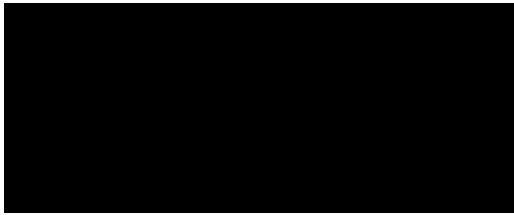
Biotoxin and brevetoxin testing on liver, spleen, heart, lung, kidney, brain, gizzard content will be done.

Fresh brain, liver, spleen, heart, lung, kidney and cloacal and tracheal swabs in virus transport medium are stored.

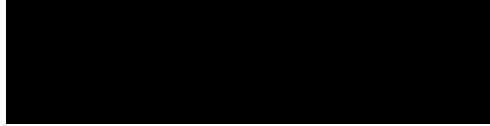
COMMENTS

The plaques on the air sacs are suggestive of fungal infection and this may have contributed to morbidity and death of the bird. Histopathology will clarify these findings.

Gastric ascaridiasis (possibly *Contracaecum* sp. or *Ascarid* sp.) is a normal finding in cormorants.



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Referred on 24/02/26 by:



Owner:
CORMORANT
SOUTHERN END OF WEST BEAC
WEST BEACH 5024

Animal/s:
Wild Birds

DOB: N/A

Collected: 24/02/26 08:51

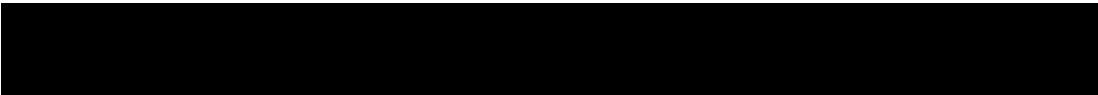
Subm.No:



Lab No.:



Samples tested as received



Specialist Veterinary Anatomic Pathologist



Validated by



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PATH RESULTS: CORMORANT, (Wi) {BIRD 2} [REDACTED]

From [REDACTED]

Date Fri 13/03/2026 3:30 PM

To [REDACTED]

[REDACTED]

Tested on 24/02/26
Reported on 13/03/26 16:00
Referred on 24/02/26 **by:** [REDACTED]

[REDACTED]

Owner:
CORMORANT
SOUTHERN END OF WEST BEAC
WEST BEACH 5024

Animal/s: BIRD 2
Wild Birds
DOB: N/A

Collected: 24/02/26 08:51

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

HISTOPATHOLOGY FROM NECROPSY

REF: [REDACTED]

ADDITIONAL FINDINGS 13/3/2026

CLINICAL HISTORY

The dead cormorant was found at the southern end of West Beach. There were no dead fish or foam around the birds

SAMPLES SUBMITTED

2 x dead pied cormorants, *Phalacrocorax varius* are received in one bag. One bird is allocated to this submission number.

MACROSCOPY

Slides contain the following tissues:

A: liver, kidney, spleen, heart, lung

B: gizzard, duodenum, jejunum, ileum, pancreas

C-D: multiple sections of brain; Ae GK

MICROSCOPY

Lung: Focally the pulmonary parenchyma is effaced by a pyogranulomas (large numbers of heterophils, macrophages, lytic necrosis, fibrin) with central lytic necrosis and abundant colonies of short rod and coccoid bacteria. (Moderate, focal, chronic, necrotising, pyogranulomatous bronchopneumonia with mixed bacteria)

Brain: Multifocally neural parenchyma is effaced and replaced by low numbers of heterophils and macrophages. (Mild, multifocal, subacute, pyogranulomatous necrotising encephalitis)

Those tissues not described are unremarkable.

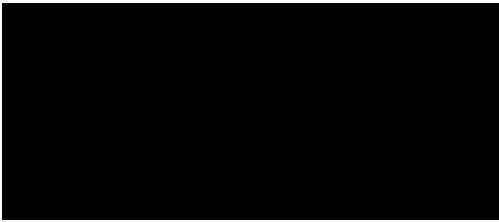
DIAGNOSIS

Lung: Moderate, focal, chronic, necrotising, pyogranulomatous bronchopneumonia with mixed bacteria

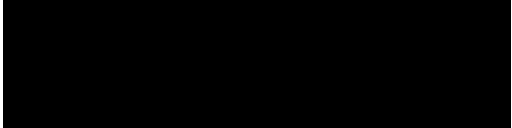
Brain: Mild, multifocal, subacute, pyogranulomatous necrotising encephalitis

COMMENTS

The bacterial bronchopneumonia contributed to the death of the bird. The



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Reported on 13/03/26 16:00
Referred on 24/02/26 by:



Owner:
CORMORANT
SOUTHERN END OF WEST BEAC
WEST BEACH 5024

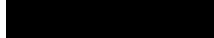
Animal/s: BIRD 2
Wild Birds
DOB: N/A

Collected: 24/02/26 08:51

Subm.No:



Lab No.:



Samples tested as received

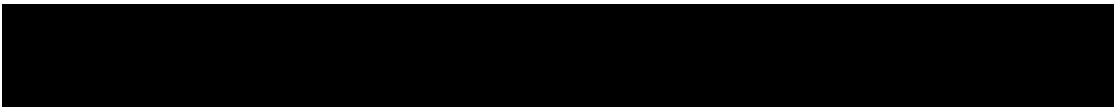
encephalitis was possibly secondary to a bacteraemia from the bronchopneumonia. Special stains are pending to assess for fungi in the inflamed lung.

MICROSCOPY 13/3/2026

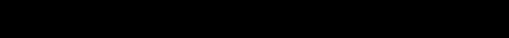
Lung: Fungi are not seen on PAS stains.

COMMENTS

The bacterial bronchopneumonia contributed to the death of the bird. Fungi were not part of the inflammatory process. Microbiological culture is not recommended to identify the pulmonary bacteria because the moderate autolytic post mortem changes will have caused significant artifact post mortem bacterial growth. This will confound any cultures.



Specialist Veterinary Anatomic Pathologist



Validated by



SUMMARY DIAGNOSIS

Bacterial bronchopneumonia and mild secondary encephalitis

SUMMARY COMMENTS

Bacterial bronchopneumonia contributed to the death of this bird.

Biotoxin and brevetoxin testing is pending for this animal.

[REDACTED]
Specialist Veterinary Anatomic Pathologist
[REDACTED]

Validated by [REDACTED]

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PATH RESULTS: CORMORANT, (Wi) {1 2} [REDACTED]

From [REDACTED]

Date Fri 27/02/2026 4:00 PM

To [REDACTED]

[REDACTED]

Tested on 25/02/26
Reported on 27/02/26 16:30
Referred on 24/02/26 **by:** [REDACTED]

[REDACTED]

Owner:
CORMORANT
SOUTHERN END OF WEST BEAC
WEST BEACH 5024

Animal/s: 1 2
Wild Birds

DOB: N/A

Collected: 24/02/26 08:51

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

All Tests Complete

MOLECULAR DIAGNOSTICS

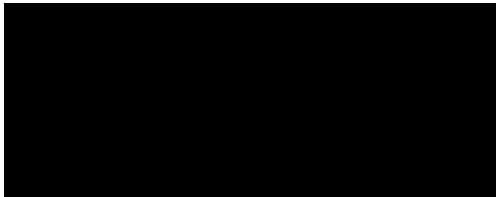
INFLUENZA A RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

Specimen type: Trachea & Cloacal Swabs

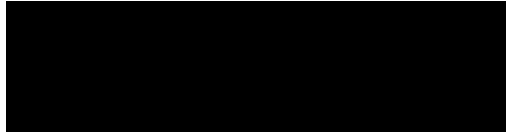
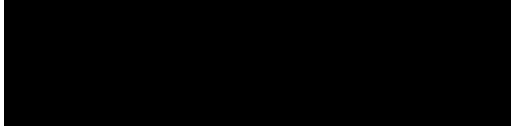
SPECIMEN ID	Type A	H5	H7
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POOL 1&2	Not detected		
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Validated by [REDACTED] Laboratory Scientist.



Tested on 25/02/26
Reported on 27/02/26 16:30
Referred on 24/02/26 by:



Owner:
CORMORANT
SOUTHERN END OF WEST BEAC
WEST BEACH 5024

Animal/s: 1 2
Wild Birds
DOB: N/A

Collected: 24/02/26 08:51 Subm.No:



Lab No.:



Samples tested as received

All Tests Complete

MOLECULAR DIAGNOSTICS

NEWCASTLE DISEASE VIRUS RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

Specimen type: Trachea &
Cloacal Swabs

Number of specimens: 1

SPECIMEN ID	F Gene	M Gene	L Gene
POOL 1&2	Not detected	Not detected	Not detected

Validated by  Laboratory Scientist.

CERTIFICATE OF ANALYSIS

Customer:	[REDACTED]	Submission Description:	[REDACTED] Cormorant
Address:	[REDACTED]	Sample Received Date:	11/03/2026
Contact:	[REDACTED]	Contract Number:	[REDACTED]
		Client Order Number:	[REDACTED]

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	07-05-2026
3411A	Brevetoxins in Shellfish by LC-MS/MS	08-05-2026
3416	PST in Biota by LC-MS/MS (Boundy Method)	07-05-2026

Chemistry Test Results (Biota - Food)			LIVER	LUNG	HEART	SPLEEN	BRAIN	KIDNEY	GIZZARD CONTENT
Sample Description			24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00
Sampled Date/ Time			24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00
Method ID	Analyte	Units	440296	440297	440298	440299	440300	440346	440347
3411	AZA1	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	AZA2	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	AZA3	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	Domoic Acid	mg/kg WMB	<0.05	<0.05	<0.05	*IS*	<0.05	<0.05	<0.05
	DTX1 Free	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	DTX1 Total	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	DTX2 Free	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	DTX2 Total	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	GYM	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	Homo-YTX	mg/kg WMB	<0.02	<0.02	<0.02	*IS*	<0.02	<0.02	<0.02
	OA Free	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	OA Total	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	PnTx-G	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	PTX2	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	SPX1	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	Total DST	OA eq. mg/kg	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
	YTX	mg/kg WMB	<0.01	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01
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

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)			LIVER	LUNG	HEART	SPLEEN	BRAIN	KIDNEY	GIZZARD CONTENT
Sample Description			24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00	24/02/26 0:00
Sampled Date/ Time									
Method ID	Analyte	Units	440296	440297	440298	440299	440300	440346	440347
3416	dcGTX4	STX.2HCl eq. mg/kg	<0.02*	<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	<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