

Algal bloom wildlife post-mortem report



Government
of South Australia

Department for
Environment and Water

Species – Great crested grebe

Date collected – 22 December 2025

Location – Goolwa Beach

History relating to the animal

An adult female great crested grebe (*Podiceps cristatus australis*) was found dead and collected from Goolwa Beach on 22 December 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 animal was in poor body condition and weighed 600 g. There was atrophy (wasting) of the pectoral muscles (chest muscles used for flight). There were mild post-mortem autolytic changes (decomposition after death). The gizzard (muscular part of gut that grinds food, often containing stones) contained moist matted green plant material.

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. There were mild to moderate post-mortem autolytic changes (decomposition after death) in most organs. These included post-mortem proliferation of bacteria. Examination of the lung revealed pulmonary hyperaemia (increased blood)/congestion (fluid build-up). Examination of the liver revealed a mild, multifocal (in multiple areas), subacute to chronic (moderate term), lymphocytic, plasmocytic (accumulation of these types of immune cells), heterophilic (accumulation of antibodies) necrotising (with cell death) hepatitis (liver inflammation). There were tapeworms in the small intestine.

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

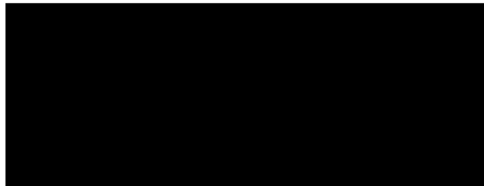
An adult female great crested grebe was found dead. Laboratory examination revealed the bird had long-term weight loss, which contributed to illness, but the cause of weight loss and death could not be determined. Fluid build up in the lung was likely a change that occurred at the time of death. There was a very mild hepatitis (liver inflammation) which was unlikely to be causing illness. Tapeworms were found in the intestines, which is a common finding in wild birds. 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 avian influenza and Newcastle disease was negative. Brevetoxins and other algal biotoxins were also not detected.

PATH RESULTS: CRESTED GREBE, (Wi) [REDACTED]

From [REDACTED]

Date Fri 17/04/2026 7:00 PM

To [REDACTED]



Report Addressee:



Tested on 24/12/25
Reported on 17/04/26 19:30
Referred on 22/12/25 **by:**



Owner:
CRESTED GREBE
GOOLWA BEACH
GOOLWA 5214

Animal/s:
Wild Birds

DOB: N/A

Collected: 22/12/25 15:00 **Subm.No:** [REDACTED] **Lab No.:** [REDACTED]

Samples tested as received All Tests Complete

SUMMARY DIAGNOSIS
No cause of death is concluded

Additional findings

Lung: Pulmonary hyperaemia/congestion

Liver: Mild, multifocal, subacute to chronic, lymphocytic, plasmacytic, heterophilic necrotising hepatitis

Duodenum: Enteric cestodiasis

COMMENTS
The cause of the chronic weight loss and death are not found on laboratory findings.

The enteric cestodiasis is a normal finding in crested grebes. Confluaria pseudofurcifera have been found in this species (Presswell et al 2022).

Very mild necrotising hepatitis is likely a subclinical process, taking into account it is very mild. Please contact the laboratory within the next 5 working days if microbiological culture is required. Please note post-mortem artefact changes will confound microbiological culture and this test will likely be unremarkable.

The pulmonary vascular changes are likely agonal changes.

Biotoxin and brevetoxin testing is pending.

[REDACTED]

Specialist Veterinary Anatomic Pathologist
[REDACTED]

Validated by [REDACTED]

[REDACTED]

Report Addressee:

[REDACTED]

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Owner:
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GOOLWA BEACH
GOOLWA 5214

Animal/s:
Wild Birds

DOB: N/A

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Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

All Tests Complete

HISTOPATHOLOGY

REF: [REDACTED]
ADDITIONAL FINDINGS 17/1/2026

CLINICAL HISTORY

6-7 dead birds found by life guard along Goolwa Beach.
@ least 1x crested grebe

MACROSCOPY

Crested grebe
One pot received labelled [REDACTED]
A = heart
B = kidney, liver, lung
C = pectoral muscle, oviduct
D = ventriculus, oesophagus, trachea, crop and adjacent lymph node
E = duodenum, pancreas, proventriculus
F = brain
Ed

MICROSCOPY

There are mild to moderate post-mortem autolytic changes and most organs. These included abundant extracellular large rod bacteria (post-mortem proliferation of *Clostridium* species). Aside from these artefact changes the following changes are described

Lung: Diffusely capillaries within the interstitium of air capillaries are expanded by hyperaemia/congestion. (Pulmonary hyperaemia/congestion)

Liver: Rare hepatic cords are interrupted by individual hepatocellular necrosis surrounded by low numbers of heterophils, lymphocytes and plasma cells. (Mild, multifocal, subacute to chronic, lymphocytic, plasmacytic, heterophilic necrotising hepatitis)

Duodenum: There are multiple cross sections of cyst nodes (approximately 20 to 30 micron diameter; smooth tegument, spongy parenchyma and calcareous corpuscles) (Enteric cestodiasis)

Those tissues not described appear unremarkable.

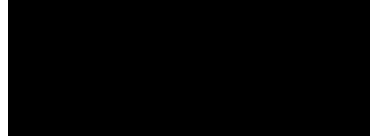
DIAGNOSIS



Report Addressee:



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Owner:
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Animal/s:
Wild Birds

DOB: N/A

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Lab No.:



Samples tested as received

All Tests Complete

Lung: Pulmonary hyperaemia/congestion

Liver: Mild, multifocal, subacute to chronic, lymphocytic, plasmacytic, heterophilic necrotising hepatitis

Duodenum: Enteric cestodiasis

COMMENTS

The cause of the chronic weight loss is not found on laboratory findings.
The cause of death is not determined by laboratory findings.

The enteric cestodiasis is a normal finding in crested grebes. *Confluaria pseudofurcifera* have been found in this species (Presswell et al 2022).

Very mild necrotising hepatitis is likely a subclinical process, taking into account it is very mild. Please contact the laboratory within the next 5 working days if microbiological culture is required. Please note post-mortem artefact changes will confound microbiological culture and this test will likely be unremarkable.

The pulmonary vascular changes are likely agonal changes.

Presswell, B. and Bennett, J., 2022. Gastrointestinal helminth parasites of the threatened Australasian crested grebe (*Podiceps cristatus australis*, Gould 1844) in New Zealand, with descriptions of *Baruscapillaria kamanae* n. sp. (Nematoda: Trichuridae) and *Cryptocotyle micromorpha* n. sp. (Trematoda: Opisthorchiidae). *Systematic parasitology*, 99(2), pp.217-239.

MICROSCOPY 17/1/2026

Liver: Microorganisms are not seen on Gram, PAS (no fungal hyphae or yeast are seen) , Wade fite or Ziehl Neelsen stains (no acid fast bacteria are seen).

COMMENTS

Please note that microbiological culture is more sensitive than the special stains. For this reason an infectious microbial cause cannot be excluded but are unlikely to be cultured due to post mortem autolytic changes.

[REDACTED]

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[REDACTED]

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CRESTED GREBE
GOOLWA BEACH
GOOLWA 5214

Animal/s:
Wild Birds

DOB: N/A

Collected: 22/12/25 15:00 **Subm.No:** [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

All Tests Complete

[REDACTED]

Specialist Veterinary Anatomic Pathologist

[REDACTED]

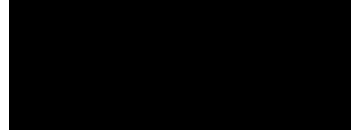
Validated by [REDACTED]



Report Addressee:



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GOOLWA 5214

Animal/s:
Wild Birds

DOB: N/A

Collected: 22/12/25 15:00

Subm.No:



Lab No.:



Samples tested as received

All Tests Complete

NECROPSY REPORT

CLINICAL HISTORY

This is a summary of the clinical history from the request form;
6-7 dead birds were found by the lifeguard dog along Goolwa beach.
The following birds were collected and submitted to the laboratory, 1 x shearwater, 1 x silver gull, 1 x crested grebe, 1 x crested tern

SAMPLES SUBMITTED

1 x dead adult female crested grebe, *Podiceps cistatus australis*

NECROPSY FINDINGS

The animal is in poor body condition, there is diffuse bilateral pectoral muscle atrophy and the animal weighs 600 g. There are mild post-mortem autolytic changes. The gizzard contains a moist matted green plant material.

GROSS SUMMARY

Chronic weight loss

SAMPLES COLLECTED & TESTING

Formalin fixed samples will be processed for histopathology.

Analytical services Tasmania will be contacted for a quote for testing of biotoxin and brevetoxin on liver, spleen, heart, lung, kidney, brain, gizzard contents.

Cloacal and tracheal swabs in VTM will be tested for avian influenza and Newcastle disease virus.

Duplicates of liver, spleen, heart, lung, kidney, brain are stored frozen.

COMMENTS

Chronic weight loss contributed to morbidity. Could the decrease in feed abundance associated with the *Karenia* spp. bloom be a cause of weight loss ?

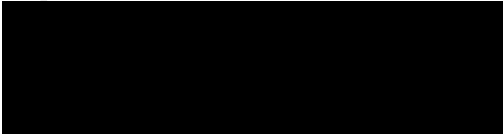


Specialist Veterinary Anatomic Pathologist



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Report Addressee:



Owner:
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GOOLWA BEACH
GOOLWA 5214

Animal/s:
Wild Birds

DOB: N/A

Collected: 22/12/25 15:00 Subm.No: [Redacted] Lab No.: [Redacted]

Samples tested as received All Tests Complete



Validated by [Redacted]

Number of samples 5

MOLECULAR DIAGNOSTICS

INFLUENZA A RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

Specimen type: Pooled Cloacal and Tracheal swabs in VTM



SPECIMEN ID Type A H5 H7

POOL Not detected

Validated by [REDACTED] Laboratory Scientist.

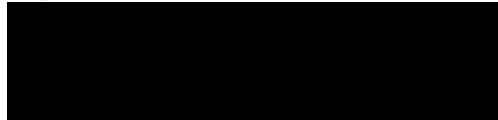
CASE MANAGEMENT DETAILS

Case Managed by: [REDACTED]
Case Management Requested by: [REDACTED]
Case Management Requested on: 23/12/25

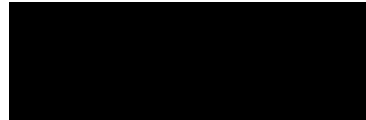
Case Details: Found dead on Goolwa Beach



Report Addressee:



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Owner:
CRESTED GREBE
GOOLWA BEACH
GOOLWA 5214

Animal/s:
Wild Birds

DOB: N/A

Collected: 22/12/25 15:00

Subm.No:



Lab No.:



Samples tested as received

All Tests Complete

MOLECULAR DIAGNOSTICS

NEWCASTLE DISEASE VIRUS RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

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

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

Validated by  Laboratory Scientist.

CERTIFICATE OF ANALYSIS

Customer:

Address:

Contact:

Submission Description:

Sample Received Date:

11/03/2026

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	Name	Position
	Chemist		Analytical Chemist

Test Information:

Method ID	Test Description	Date Commenced:
3411	Lipophilic Toxins in Shellfish by LC-MS/MS	01-04-2026
3411A	Brevetoxins in Shellfish by LC-MS/MS	10-04-2026
3416	PST in Biota by LC-MS/MS (Boundy Method)	02-04-2026

Chemistry Test Results (Biota - Food)			BRAIN	HEART	SPLEEN	LIVER	KIDNEY	LUNG	GIZZARD CONTENT
Sample Description			23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00
Sampled Date/ Time			23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00
Method ID	Analyte	Units	440046	440047	440048	440049	440050	440051	440052
3411	AZA1	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	AZA2	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	AZA3	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	Domoic Acid	mg/kg WMB	*IS*	<0.05	*IS*	<0.05	<0.05	<0.05	<0.05
	DTX1 Free	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	DTX1 Total	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	DTX2 Free	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	DTX2 Total	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	GYM	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	Homo-YTX	mg/kg WMB	*IS*	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	OA Free	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	OA Total	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	PnTx-G	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	PTX2	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	SPX1	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	Total DST	OA eq. mg/kg	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	YTX	mg/kg WMB	*IS*	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
3411A	Brevetoxin 1	mg/kg WMB	<0.10*	<0.10*	*IS*	<0.10*	<0.10*	<0.10*	<0.10*
	Brevetoxin 2	mg/kg WMB	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	Brevetoxin 3	mg/kg WMB	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
3416	C1	STX.2HCl eq. mg/kg	<0.01	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	C2	STX.2HCl eq. mg/kg	<0.02	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	C3	STX.2HCl eq. mg/kg	<0.02	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	C4	STX.2HCl eq. mg/kg	<0.02	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	dcGTX1	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	dcGTX2	STX.2HCl eq. mg/kg	<0.02	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	dcGTX3	STX.2HCl eq. mg/kg	<0.02	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	dcGTX4	STX.2HCl eq. mg/kg	<0.02*	<0.02*	*IS*	<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	BRAIN	HEART	SPLEEN	LIVER	KIDNEY	LUNG	GIZZARD CONTENT
			Sampled Date/ Time	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00	23/12/25 0:00
Method ID	Analyte	Units		440046	440047	440048	440049	440050	440051	440052
3416	dcNEO	STX.2HCl eq. mg/kg		<0.02	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	dcSTX	STX.2HCl eq. mg/kg		<0.01	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	doSTX	STX.2HCl eq. mg/kg		<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX1	STX.2HCl eq. mg/kg		<0.01	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	GTX2	STX.2HCl eq. mg/kg		<0.01	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	GTX3	STX.2HCl eq. mg/kg		<0.01	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	GTX4	STX.2HCl eq. mg/kg		<0.01	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
	GTX5	STX.2HCl eq. mg/kg		<0.02	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	GTX6	STX.2HCl eq. mg/kg		<0.02	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	NEO	STX.2HCl eq. mg/kg		<0.02	<0.02	*IS*	<0.02	<0.02	<0.02	<0.02
	STX	STX.2HCl eq. mg/kg		<0.01	<0.01	*IS*	<0.01	<0.01	<0.01	<0.01
Total PST			STX.2HCl eq. mg/kg	<0.10	<0.10	*IS*	<0.10	<0.10	<0.10	<0.10

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