

Algal bloom wildlife post-mortem report



Government
of South Australia

Department for
Environment and Water

Species – Pelicans

Date collected – 6 February 2026

Location – Port Noarlunga

History relating to the animal

Two adult pelicans (*Pelecanus conspicillatus*) were found dead and collected from Port Noarlunga on 6 February 2026.

Clinical examination

The birds were already dead and so could not be examined prior to death.

Necropsy

The necropsy (looking at the whole body) revealed that the animals were in good body condition and there were mild post-mortem autolytic changes (decomposition after death). In both birds there was minimal ingesta (food material) and low numbers of ascarid roundworms (gut parasites) in the proventriculus (upper part of a bird's gut) and ventriculus (muscular part of gut that grinds food, often containing stones). The intestines contained pasty brown ingesta and faeces was not found in the cloaca (bird's single rear opening).

Pelican 1 was male and weighed 6.8 kg. Within the air sacs and bronchi (large airways) of the lungs there were low numbers of fine round brown organisms, possible pulmonary (lung) mites.

Pelican 2 was female and weighed 5.4 kg. There were fine granular (grainy) deposits in the tissue under the skin, likely feather mite eggs. In the saphenous vein (leg vein) of the right leg there is a catheter (intravenous cannula).

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 autolytic changes (post-mortem decomposition) in the liver in both birds, including post-mortem proliferation of bacteria in pelican 1.

Examination of the liver in both birds revealed a mild, multifocal (multiple areas), subacute to chronic (moderate term), necrotising (with cell death), heterophilic (accumulation of antibodies), lymphocytic, plasmocytic, histiocytic (accumulation of these types of immune cells) hepatitis (liver inflammation). Examination of the heart in both birds revealed a mild, multifocal (multiple areas), subacute to chronic (moderate term), lymphocytic, plasmocytic epicarditis (inflammation of the inner heart sac).

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In pelican 1, examination of the lung revealed a mild, focal (defined area), chronic (long-term), granulomatous (tissue thickening) pneumonia (lung inflammation). In pelican 2, examination of the lung revealed mild multifocal (in multiple places) pneumonia, and examination of the feathered skin revealed mite eggs in the tissue under the skin.

Liver, heart and lung samples from pelican 1 were examined using special stains; no bacteria, fungi or yeast were seen, aside from the post-mortem proliferation of bacteria seen in the liver.

Virology

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

Brevetoxins

No samples were above the limits of reporting.

Other algal biotoxins

No samples were above the limits of reporting.

Summary

Two adult pelicans were found dead. The birds were in good body condition (not underweight). There were no laboratory findings to explain the cause of death of these two birds. There was mild inflammation in the liver, lungs and epicardium (inner heart sac) in both birds, which were unlikely to have contributed to illness or death. Mites and a granuloma (defined area of infection / inflammation) caused by inhaled plant material were found in the lungs of pelican 1 and feather mite eggs were found under the skin in pelican 2; these were incidental findings (not causing disease). Testing for avian influenza and Newcastle disease was negative. Brevetoxins and other algal biotoxins were also not detected.

SUMMARY DIAGNOSIS

No diagnosis concluded; please refer to the comments

SUMMARY COMMENTS

There are no findings to explain the cause of death. The birds are negative by AI and NDV PCR.

There is mild subclinical hepatitis and epicarditis in both birds.

You will be forwarded a quote for biotoxin and brevetoxin testing from Analytical Services, for approval.

NECROPSY REPORT

The clinical history is added to the report 17/2/2026

CLINICAL HISTORY

2 x pelicans and 1 x seagull were found at Port Noarlunga. A member of the public reported seeing a few dead pelicans at the same place over the past week.

SAMPLES SUBMITTED

2 x adult pelicans, *Pelecanus conspicillatus*

NECROPSY FINDINGS

The birds are allocated 1 and 2 at the laboratory. Both birds are in good body condition and there are mild post-mortem autolytic changes. There is minimal ingesta, admixed with low numbers of ascarid nematodes in the proventriculus or ventriculus, the intestines contain pasty brown ingesta and faeces are not found in the cloaca.

Additional findings

1

The male bird weighs 6.8kg

Within the infundula and air bronchi of the lungs there are low numbers of fine round brown organisms (possible pulmonary mites).

2

The female bird weighs 5.4kg.

There are fine granular deposits within the subcutaneous tissue (presumptive feather mite ova).

In the saphenous vein of the right leg there is a catheter.

GROSS SUMMARY

Pelicans 1

Possible lung mites

Gastric acarids

Pelican 2

Probable feather mite ova in subcutaneous tissue

Gastric ascarids

SAMPLES COLLECTED & TESTING

The comments refer to both pelicans.

As requested histopathology is in progress.

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

Cloacal swabs are pooled and tracheal swabs are pooled in VTM and 2 x NDV and AI PCR tests are in progress.

Fresh brain, heart, lung, kidney, spleen, liver are stored.

COMMENTS

There are no remarkable findings to explain the cause of death of these two birds.

The possible lung mites and feather mite ova in the subcutaneous tissue gastric ascarids (e.g. Anisakis sp. or Contracaecum sp.) are incidental findings.

NEWCASTLE DISEASE VIRUS RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

TRACHEA	Not detected	Not detected	Not detected
CLOACA	Not detected	Not detected	Not detected

INFLUENZA A RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

TRACHEA	Not detected
CLOACA	Not detected

[REDACTED] Pelican - Port Noarlunga SA 5167

HISTOPATHOLOGY

REF: [REDACTED]

ADDITIONAL FINDINGS 20/2/2026

CLINICAL HISTORY

2 x pelicans and 1 x seagull were found at Port Noarlunga. A member of the public reported seeing a few dead pelicans at the same place over the past week.

MACROSCOPY

Two pot received labelled [REDACTED] and contains the organs listed below

Pelican 1

1A = kidney + lung + skeletal muscle + liver

1B = heart + proventriculus, spleen,

1C - 1D = oesophagus, proventriculus / ventriculus, duodenum, jejunum, trachea ileum, caecae,

1E - 1G = brain ; cerebrum (including optic lobe), cerebellum, medulla, thalamus

Pelican 2

2A = heart + skeletal muscle + liver

2B = lung + kidney, spleen

2C - 2D = oesophagus, proventriculus / ventriculus, duodenum, jejunum, trachea ileum, caecae,

2E - 2G = brain

GK + Ed

MICROSCOPY

Pelican 1

Liver: There are mild autolytic changes in the liver, including abundant extracellular large rod bacteria (likely post mortem proliferation of *Clostridium* sp.) Aside from this artifact the following changes are described. Multifocally surrounding portal areas and extending into mid zonal areas there are low to moderate numbers of lymphocytes, plasma cells and fewer heterophils macrophages admixed with karyorrhectic debris. The inflammation is disrupting and effacing hepatic cords. (Mild, multifocal, subacute to chronic necrotizing, heterophilic, lymphocytic, plasmacytic, histiocytic hepatitis)

Lung: Focally the air capillary parenchyma is effaced and replaced by a granuloma 1mm across. At the centre of the granuloma is amorphous debris. This is surrounded by lytic necrosis which in turn are surrounded by moderate numbers of macrophages, fewer multinucleated giant cells, lymphocytes, plasma cells and heterophils and encapsulated by fibrosis. There is diffuse hyperaemia congestion. (Mild, focal, chronic, granulomatous pneumonia)

Heart: Multifocally there is expansion of the epicardium by low to moderate numbers of lymphocytes and plasma cells. (Mild, multifocal, subacute to chronic, lymphocytic, plasmacytic epicarditis)

There is moderate autolysis of alimentary sections. Aside from this artifact there are no other significant findings.

Pelican 2

Liver: There is mild autolysis. Aside from this artifact, similar to pelican one there is a necrotizing hepatitis.

Heart: There is mild pericarditis

Lung: Multifocally the interstitium of the air capillaries is expanded by low numbers of lymphocytes and plasma cells. (Mild, multifocal, subacute to chronic, lymphocytic, plasmacytic interstitial pneumonia)

Feathered skin: There are multiple cross sections of mite ova 80-90 micron in diameter. within the subcutaneous tissue.

Those tissues not described for each bird appear normal.

DIAGNOSIS

Pelican 1

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

Lung: Mild, focal, chronic, granulomatous pneumonia

Heart: Mild, multifocal, subacute to chronic, lymphocytic, plasmacytic epicarditis

Pelican 2

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

Heart: Mild, multifocal, subacute to chronic, lymphocytic, plasmacytic epicarditis

Feathered skin: Mite ova in subcutaneous tissue

COMMENTS

There are no remarkable findings to explain the cause of death of these two birds.

Both birds have mild hepatitis and special stains are pending to assess for bacteria within the inflammation. The post mortem proliferation of *Clostridium* sp. will confound any microbiological culture of the livers, unfortunately.

The very mild pericarditis in both bird is likely an incidental finding, possibly due to a historic bacteraemia.

There is a single minor, 1mm diameter, granuloma in the lung of pelican 1 with debris (possibly aquatic plant material) within the centre. This is a incidental finding. The feather mite ova in the subcutaneous tissue of pelican 2 is an incidental finding.

MICROSCOPY 20/2/2026

Pelican 1

Liver: Aside from the large Gram positive large rods (post mortem *Clostridium* sp. proliferation) no other bacteria are seen.

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

Lung: Admixed with the plant material the fine granuloma are Gram positive rods. Microorganisms are not seen on PAS (no fungal hyphae or

yeast are seen) , Ziehl Neelsen stains (no acid fast bacteria are seen) .

Heart: 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

Pelican 1

The aquatic plant material and secondary mild bacterial infection contributed to the microscopic granuloma in the lung.

A cause for the hepatitis and epicarditis is not found on special stains. As explained, due to the post mortem autolytic changes, microbiological culture is not recommended.

In summary in both birds there is are minor subclinical hepatitis and epicarditis. Pelican 1 has a single granuloma due to inhaled aquatic plant material.

CERTIFICATE OF ANALYSIS

Customer: [REDACTED]
Address: [REDACTED]
Contact: [REDACTED]

Submission Description: [REDACTED] Pelican
Sample Received Date: 11/03/2026
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	13-05-2026
3411A	Brevetoxins in Shellfish by LC-MS/MS	08-05-2026
3416	PST in Biota by LC-MS/MS (Boundy Method)	13-05-2026

Chemistry Test Results (Biota - Food)

Sample Description			LIVER 1	HEART 1	LUNG 1	SPLEEN 1	KIDNEY 1	BRAIN 1	GIZZARD CONTENT 1
Sampled Date/ Time			06/02/26 0:00	06/02/26 0:00	06/02/26 0:00	06/02/26 0:00	06/02/26 0:00	06/02/26 0:00	06/02/26 0:00
Method ID	Analyte	Units	440136	440137	440138	440139	440140	440141	440142
3411	AZA1	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	AZA2	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	AZA3	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	Domoic Acid	mg/kg WMB	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*IS*
	DTX1 Free	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	DTX1 Total	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	DTX2 Free	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	DTX2 Total	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	GYM	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	Homo-YTX	mg/kg WMB	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*
	OA Free	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	OA Total	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	PnTx-G	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	PTX2	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	SPX1	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
3411A	Total DST	OA eq. mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	YTX	mg/kg WMB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	Brevetoxin 1	mg/kg WMB	<0.10*	<0.10*	<0.10*	<0.10*	<0.10*	<0.10*	*IS*
3411A	Brevetoxin 2	mg/kg WMB	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	*IS*
	Brevetoxin 3	mg/kg WMB	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	*IS*
3416	C1	STX.2HCl eq. mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*
	C2	STX.2HCl eq. mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*
	C3	STX.2HCl eq. mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*
	C4	STX.2HCl eq. mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*
	dcGTX1	STX.2HCl eq. mg/kg	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	*IS*
	dcGTX2	STX.2HCl eq. mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*
	dcGTX3	STX.2HCl eq. mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)

Chemistry Test Results (Biota - Food)			Sample Description	LIVER 1	HEART 1	LUNG 1	SPLEEN 1	KIDNEY 1	BRAIN 1	GIZZARD CONTENT 1
			Sampled Date/ Time	06/02/26 0:00	06/02/26 0:00	06/02/26 0:00	06/02/26 0:00	06/02/26 0:00	06/02/26 0:00	06/02/26 0:00
Method ID	Analyte	Units	440136	440137	440138	440139	440140	440141	440142	
3416	dcGTX4	STX.2HCl eq. mg/kg	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*	*IS*	
	dcNEO	STX.2HCl eq. mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*	
	dcSTX	STX.2HCl eq. mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*	
	doSTX	STX.2HCl eq. mg/kg	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	*IS*	
	GTX1	STX.2HCl eq. mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*	
	GTX2	STX.2HCl eq. mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*	
	GTX3	STX.2HCl eq. mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*	
	GTX4	STX.2HCl eq. mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*	
	GTX5	STX.2HCl eq. mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*	
	GTX6	STX.2HCl eq. mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*	
	NEO	STX.2HCl eq. mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	*IS*	
	STX	STX.2HCl eq. mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*IS*	
	Total PST	STX.2HCl eq. mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	*IS*	

IS- Insufficient Sample

* NATA accreditation does not cover this result