Algal bloom wildlife post-mortem report

Government of South Australia
Department for Environment and Water

Species – Pied cormorant

Date collected – 03 August 2025

Location – Browns Beach, Kangaroo Island

History relating to the animal

One pied cormorant (*Phalacrocorax varius*) was submitted from a single mass mortality event from Browns Beach, Kangaroo Island. This was the only fresh bird from the three dead cormorants present.

Examination

The animals were already dead and so could not be examined prior to death. Reported clinical signs were neurological signs and sudden death.

Necropsy

The necropsy (looking at the whole body) revealed that the animal had mild to moderate effects from decomposition. The bird was in very poor body condition with atrophy (wasting) of muscle over the pectoral (breast) bone. There was a hepatitis (liver inflammation) and nephritis (kidney inflammation), likely due to fluke worm infection, with multiple areas of infection, and chronic (long term) weight loss. Nematodes (round worms) were also found in the gastrointestinal tract (gut), which is a normal finding in wild cormorants.

Tissues were collected to test for avian influenza and Newcastle disease, and for histopathology (looking at tissues under the microscope for more detailed information). Testing for brevetoxins and other algal biotoxins, a possibility due to the algal bloom, was requested. Samples were collected for other testing that might be indicated after these tests were performed.

Histopathology

Samples from every major body system were examined under the microscope. There were multiple causes for morbidity (being unwell) in the cormorant. There were fluke worm (parasite) ova (eggs) present in the kidney causing inflammation and necrosis (dying off) of tissue. There were tapeworms present in the gastrointestinal tract (gut) with secondary (subsequent) bacterial infection. There were bacterial emboli (focus of infection) established in the heart, which were possibly secondary (subsequent) to the infection in the gastrointestinal tract. There was also bacterial infection established in the liver with necrosis (dying off) of tissue. There were changes in the pancreas indicating some loss of function. The spleen also had evidence of bacterial infection and inflammation. There was also bronchopneumonia (infection in the lungs and large airways), and infection in the brain, likely secondary (subsequent) to that in the gastrointestinal tract.

Algal bloom wildlife post-mortem report

Brevetoxins

Brevetoxin 3 was found in the liver (0.01 mg/kg).

Other algal biotoxins

Insufficient sample was available for testing.

Avian influenza

Results were negative.

Newcastle disease

Results were negative.

Summary

Three pied cormorants were found dead at Browns Beach, Kangaroo Island. One bird was sent for testing.

Prior to death, the birds were reported to have been displaying neurological symptoms (weakness of limbs, wobbly).

Laboratory examination (necropsy and histopathology) found gastrointestinal parasites and bacterial infection affecting the heart, lung, liver, spleen and brain that may have contributed to chronic weight loss, illness and neurological symptoms.

Testing for avian influenza and Newcastle disease was negative.

Brevetoxins were detected in the bird's liver. The levels detected are consistent with those found in marine birds overseas that were reported to have been exposed to harmful algal blooms.

It cannot be determined whether the brevetoxin presence in the cormorant was a direct contributor to its death or a non-lethal co-morbidity given the poor condition of the bird at death. Pied cormorants primarily feed on fish. It is considered that the most significant exposure of the cormorant to brevetoxins is likely to have been via its consumption of fish organs containing brevetoxins.

Outlook

PATH RESULTS: PIED CORMORANT, (Wi) [redacted]

From [redacted]
Date Wed 13/08/2025 5:30 PM
To [redacted]

[redacted]

Tested on 05/08/25
Reported on 13/08/25 18:00
Referred on 03/08/25 **by:**

[redacted]

[redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

CLINICAL HISTORY
Please refer to the clinical history on the request form. A brief summary of the clinical history;

Multiple deaths of birds (plus marine animals) may have been occurring on Kangaroo Island. These deaths were not reported to PIRSA. 3 x dead cormorants were found on Browns Beach East Coast over the weekend by [redacted] of SA Marine mortality group. These deaths were reported in the "inaturalist" app. The presenting signs can be neurological and sudden death. The last mortality investigation of cormorants on Kangaroo Island occurred 3 weeks ago (please refer to submission number [redacted].

SAMPLES SUBMITTED
One dead adult cormorant, Phalacrocorax varius
The bag label is: "Dead cormorant, Browns Beach, Kangaroo Island, 3/8/2025, collected by [redacted]"

NECROPSY FINDINGS
There are mild to moderate post mortem autolytic changes. There is abundant sand over the body, there are no eyes and there are multiple holes in the skin over the back, extending into the coelomic cavity over

the kidneys. There are no organs in the oral cavity, which is filled with sand.

The bird is in very poor body condition and weighs 1.2kg. There is marked atrophy of the pectoral muscles. Over the serosa of the liver and extending into the hepatic parenchyma are low numbers of fine pale white pinpoint foci.

There are abundant ascarid is approximately 20 to 30 mm long (Anisakis sp., Contracaecum species) in the proventriculus. Intestines contain pasty brown ingesta and ascarids.

Bilaterally the kidneys are enlarged, pale red with myriad pale white foci.

GROSS SUMMARY
Possible necrotising hepatitis
Possible necrotizing interstitial nephritis
Chronic weight loss

GRIBBLES VETERINARY PATHOLOGY

[redacted]

Tested on 05/08/25
Reported on 13/08/25 18:00
Referred on 03/08/25 **by:**

Report Addressee:
DEW - MARINE

[redacted]

[redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received
Alimentary ascardiasis

SAMPLES COLLECTED & TESTING
Formalin fixed tissues will be processed for histopathology and cloacal and tracheal swabs (in VTM) will be tested for AI and NDV by PCR as you requested.

Fresh liver and kidney are stored if microbiological culture is required.

Liver, kidney, spleen, heart, lung, brain are stored frozen for one month if Dept Environment and Water SA require biotoxin / brevetoxin testing.

COMMENTS
Based on gross findings a bacterial hepatitis and possibly nephritis contributed to morbidity / ill thrift for this bird. The renal changes are also suggestive of trematode infection e.g. Renicola sp.

Histopathology, to clarify the gross findings is pending. AI and NDV PCR is also in progress. As you requested, samples are stored for possible microbiological culture and algal biotoxin / brevetoxin testing.

Alimentary ascarids are a common finding in healthy and moribund birds and generally don't cause disease in these animals.

[redacted]

Specialist Veterinary Anatomic Pathologist

[redacted]

Validated by [redacted].

Number of samples 7

CASE MANAGEMENT DETAILS

Case Managed by:	
Case Management Requested by:	[redacted]
Case Management Requested on:	05/08/25

Case Details:	Three dead cormorants were found at Brown Beach.

Outlook

PATH RESULTS: PIED CORMORANT, (Wi) [redacted]

From [redacted]
Date Thu 14/08/2025 1:00 PM
To [redacted]

[redacted]

[redacted]

Tested on 05/08/25
Reported on 14/08/25 13:30
Referred on 03/08/25 **by:** [redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

HISTOPATHOLOGY FROM NECROPSY

REF: 2025/V HI 1420
CLINICAL HISTORY
Please refer to the clinical history on the request form. A brief summary of the clinical history;

Multiple deaths of birds (plus marine animals) may have been occurring on Kangaroo Island. These deaths were not reported to PIRSA. 3 x dead cormorants were found on Browns Beach East Coast over the weekend by [redacted] of SA Marine mortality group. These deaths were reported in the "inaturalist" app. The presenting signs can be neurological and sudden death. The last mortality investigation of cormorants on Kangaroo Island occurred 3 weeks ago (please refer to submission number [redacted]).

One dead adult cormorant, Phalacrocorax varius, is received.
The bag label is: "Dead cormorant, Browns Beach, Kangaroo Island, 3/8/2025, collected by [redacted]"

MACROSCOPY

Cassettes contain the following tissues;
A: liver, lung, heart, kidney, ovary
B: liver, spleen, cerebrum of brain, jejunum
C: ileum, caecum, duodenum, pancreas, crop, aorta
D: Brain, including optic lobe, thalamus, midbrain, cerebellum

MICROSCOPY
Kidney: Multifocally the cortical and medullary architecture are effaced and replaced by multiple granulomas. Within the centre of the granulomas are myriad oval tremor towed over approximately 30 micron across with operculum and they contain larvae. Approximately 30% of proximal and distal tubules are lined by necrotic epithelium and there lumens contain eosinophilic to brown irregularly shaped detritus / necrotic debris (Moderate, multifocal, chronic, granulomatous interstitial nephritis with intralesional trematode ova; moderate, multifocal, chronic renal tubular necrosis)

Heart: Within the ventricle there are multiple emboli of short rod bacteria. (Bacterial emboli)

[redacted]

[redacted]

Tested on 05/08/25
Reported on 14/08/25 13:30
Referred on 03/08/25 **by:** [redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

Lung: Multifocally the lumen of multiple air capillaries contain fibrin and there is necrosis of the interstitium surrounding the lumen of these air capillaries. Within the lumen of capillaries within these interstitium are bacterial emboli (short rod bacteria).

Liver: Multifocally and randomly the hepatic architecture is effaced and replaced by lytic necrosis admixed with moderate numbers of heterophils, lymphocytes, plasma cells, macrophages, fibrin, haemorrhage and colonies of short rod bacteria. (Moderate, multifocal, subacute, necrotizing, heterophils, lymphocytic, plasmacytic, histiocytic hepatitis with intralesional short rod bacteria)

Spleen: Widespread ellipsoid vessels are surrounded by moderate numbers of macrophages and fibrin deposits. Within ellipsoid vessels there are emboli of short rod bacteria. (Moderate, diffuse, subacute, histiocytic, fibrinous, splenitis with intralesional short rod bacteria)

Jejunum: Diffusely there is effacement of replacement of the villi by lytic necrosis admixed with large numbers of heterophils, fewer lymphocytes, plasma cells and macrophages. Within the inflammation there are multiple colonies of short rod bacteria. Extending to the lamina propria are cross sections of cestodes (, 30-40 micron across, smooth cuticle, spongy parenchyma with calcareous corpuscles and not alimentary tract). There are cestode ova, round ova with smooth capsule, 20 micron diameter (Moderate, diffuse, subacute, heterophilic, lymphocytic, plasmacytic, histiocytic, necrotising, enteritis with intralesional short rod bacteria, cestodes and cestode ova)

Ileum, caecum: Similar to the jejunum, there is a necrosis, inflammation and intralesional bacterial effacing the ileal villi and colonic glands (Moderate, diffuse, subacute, heterophils, lymphocytic, plasmacytic, histiocytic, necrotising, entercolitis with intralesional short rod bacteria

Pancreas: Aside from moderate autolysis there is atrophy of exocrine pancreatic acinar cells with loss of intracytoplasmic zymogen granules. (Pancreatic acinar cell atrophy)

Brain: Multifocally there is expansion of the cha Robin space surrounding low numbers of capillaries by moderate numbers of lymphocytes and fewer heterophils. Multifocally moderate numbers of capillaries contain bacterial emboli (sugar bacteria). (Mild, multifocal, subacute, lymphocytic, heterophilic, encephalitis with

[redacted]

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Reported on 14/08/25 13:30
Referred on 03/08/25 **by:**

[redacted]

[redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

intralesional short rod bacteria)

There is moderate autolysis of the duodenum.

Those tissues not described appear normal.

DIAGNOSIS
Kidney: Marked renal trematodiasis (renal Renicola sp.); and moderate, multifocal, chronic renal tubular necrosis

Heart: Bacterial emboli

Lung: Moderate, multifocal, subacute, necrotizing, lymphocytic, heterophilic, bronchopneumonia, with intralesional short rod bacteria

Liver: Moderate, multifocal, subacute, necrotizing, heterophils, lymphocytic, plasmacytic, histiocytic hepatitis with intralesional short rod bacteria

Spleen: Moderate, diffuse, subacute, histiocytic, fibrinous, splenitis with intralesional short rod bacteria

Jejunum: Moderate, diffuse, subacute, heterophilic, lymphocytic, plasmacytic, histiocytic, necrotising, enteritis with intralesional short rod bacteria, cestodes and cestode ova

Ileum, caecum: Moderate, diffuse, subacute, heterophils, lymphocytic, plasmacytic, histiocytic, necrotising, entercolitis with intralesional short rod bacteria

Pancreas: Pancreatic acinar cell atrophy

Brain: Mild, multifocal, subacute, lymphocytic, heterophilic, encephalitis with intralesional short rod bacteria

COMMENTS
There are multiple disease processes contributing to morbidity for this bird.

There is renal trematodiasis. This was a significant burden, enlarging both kidneys. There is intercurrent renal tubular degeneration / necrosis.

[redacted]

Tested on 05/08/25
Reported on 14/08/25 13:30
Referred on 03/08/25 **by:**

[redacted]

[redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

The enteric cestodiasis (possibly a Tetraphyllidium type of cestode) with secondary necrotizing bacterial enterocolitis. Possibly related to this enterocolitis, there is a necrotizing bacterial hepatitis, bronchopneumonia, bacterial splenitis and bacterial encephalitis.

Please contact the laboratory if bacterial culture of the liver is required.

[redacted]

Specialist Veterinary Anatomic Pathologist

[redacted]

Validated by [redacted].

Outlook

PATH RESULTS: PIED CORMORANT, (Wi) [redacted]

From [redacted]
Date Fri 22/08/2025 11:30 AM
To [redacted]

[redacted]

Tested on 05/08/25
Reported on 22/08/25 12:00
Referred on 03/08/25 **by:**

[redacted]

[redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

MOLECULAR DIAGNOSTICS

NEWCASTLE DISEASE VIRUS RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

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

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

Sample ID: Pied cormorant

Validated by [redacted], Laboratory Scientist.

[redacted]

Tested on 05/08/25
Reported on 22/08/25 12:00
Referred on 03/08/25 **by:**

[redacted]

[redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received

MOLECULAR DIAGNOSTICS

INFLUENZA A RNA PCR (REAL TIME REVERSE TRANSCRIPTASE)

Specimen type: Tracheal & cloacal swabs
in VTM

SPECIMEN ID	Type A	H5	H7
PIED	Not detected		

Sample ID: Pied cormorant

Validated by [redacted] Laboratory Scientist.

Outlook

PATH RESULTS: PIED CORMORANT, (Wi) [redacted]

From [redacted]
Date Sat 23/08/2025 11:30 AM
To [redacted]

[redacted]

Tested on 05/08/25
Reported on 23/08/25 12:00
Referred on 03/08/25 **by:**

[redacted]

[redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received All Tests Complete

SUMMARY DIAGNOSIS
Kidney: Marked renal trematodiasis (probably Renicola sp.)

Jejunum and colon: enteric cestodiasis (possibly a Tetraphyllidium type of cestode) with secondary necrotizing bacterial enterocolitis.

Liver, lung, spleen and brain:
Necrotizing bacterial hepatitis, bronchopneumonia, bacterial splenitis and bacterial encephalitis

SUMMARY COMMENTS
There are multiple disease processes contributing to morbidity for this bird.

There is renal trematodiasis. This is a significant burden, enlarging both kidneys.

The enteric cestodiasis (possibly a Tetraphyllidium type of cestode) with secondary necrotizing bacterial enterocolitis. Possibly related to this enterocolitis, there is a necrotizing bacterial hepatitis, bronchopneumonia, bacterial splenitis and bacterial encephalitis.

Avian influenza virus and Newcastle disease virus did not contribute to morbidity or death for this bird.

[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: 2/09/2025
Status: Final

This report is a reissue, replacing report number: [redacted]
Reissue Reason: Finalised since last issue.

CERTIFICATE OF ANALYSIS

Customer: [redacted]
Address:
Contact:

Submission Description: [redacted] Pied Cormorant - Browns Beach
Sample Received Date: 22/08/2025
Contract Number:
Client Order Number: [redacted]
Program/Quote Reference: [redacted] Brevitoxin, lipophilic toxin and paralytic shellfish toxins

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	01-09-2025
3411A	Brevetoxins in Biota by LC-MS/MS	29-08-2025
3416	PST in Biota by LC-MS/MS (Boundy Method)	01-09-2025

Chemistry Test Results (Biota - Food)

		Sample Description	Pied Corm't - Brain	Pied Corm't - Liver	Pied Corm't - Lung
		Sampled Date/ Time	05/08/25 0:00	05/08/25 0:00	05/08/25 0:00
Method ID	Analyte	Units	338796	338797	338798
3411	AZA1	mg/kg WMB	*IS*	<0.01	<0.01
	AZA2	mg/kg WMB	*IS*	<0.01	<0.01
	AZA3	mg/kg WMB	*IS*	<0.01	<0.01
	Domoic Acid	mg/kg WMB	*IS*	<0.05	<0.05
	DTX1 Free	mg/kg WMB	*IS*	<0.01	<0.01
	DTX1 Total	mg/kg WMB	*IS*	<0.01	<0.01
	DTX2 Free	mg/kg WMB	*IS*	<0.01	<0.01
	DTX2 Total	mg/kg WMB	*IS*	<0.01	<0.01
	GYM	mg/kg WMB	*IS*	<0.01	<0.01
	Homo-YTX	mg/kg WMB	*IS*	<0.02	<0.02
	OA Free	mg/kg WMB	*IS*	<0.01	<0.01
	OA Total	mg/kg WMB	*IS*	<0.01	<0.01
	PnTx-G	mg/kg WMB	*IS*	<0.01	<0.01
	PTX2	mg/kg WMB	*IS*	<0.01	<0.01
	SPX1	mg/kg WMB	*IS*	<0.01	<0.01
	Total DST	OA eq. mg/kg	*IS*	<0.01	<0.01
	YTX	mg/kg WMB	*IS*	<0.01	<0.01
3411A	Brevetoxin 2	mg/kg WMB	<0.01*	<0.01*	<0.01*
	Brevetoxin 3	mg/kg WMB	<0.01*	0.01*	<0.01*
3416	C1	STX.2HCl eq. mg/kg	*IS*	<0.01	<0.01
	C2	STX.2HCl eq. mg/kg	*IS*	<0.02	<0.02
	C3	STX.2HCl eq. mg/kg	*IS*	<0.02	<0.02
	C4	STX.2HCl eq. mg/kg	*IS*	<0.02	<0.02
	dcGTX1	STX.2HCl eq. mg/kg	*IS*	<0.02*	<0.02*
	dcGTX2	STX.2HCl eq. mg/kg	*IS*	<0.02	<0.02
	dcGTX3	STX.2HCl eq. mg/kg	*IS*	<0.02	<0.02
	dcGTX4	STX.2HCl eq. mg/kg	*IS*	<0.02*	<0.02*
	dcNEO	STX.2HCl eq. mg/kg	*IS*	<0.02	<0.02

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)

		Sample Description	Pied Corm't - Brain	Pied Corm't - Liver	Pied Corm't - Lung
		Sampled Date/ Time	05/08/25 0:00	05/08/25 0:00	05/08/25 0:00
Method ID	Analyte	Units	338796	338797	338798
3416	dcSTX	STX.2HCl eq. mg/kg	*IS*	<0.01	<0.01
	doSTX	STX.2HCl eq. mg/kg	*IS*	<0.01*	<0.01*
	GTX1	STX.2HCl eq. mg/kg	*IS*	<0.01	<0.01
	GTX2	STX.2HCl eq. mg/kg	*IS*	<0.01	<0.01
	GTX3	STX.2HCl eq. mg/kg	*IS*	<0.01	<0.01
	GTX4	STX.2HCl eq. mg/kg	*IS*	<0.01	<0.01
	GTX5	STX.2HCl eq. mg/kg	*IS*	<0.02	<0.02
	GTX6	STX.2HCl eq. mg/kg	*IS*	<0.02	<0.02
	NEO	STX.2HCl eq. mg/kg	*IS*	<0.02	<0.02
	STX	STX.2HCl eq. mg/kg	*IS*	<0.01	<0.01
	Total PST	STX.2HCl eq. mg/kg	*IS*	<0.10	<0.10

IS- Insufficient Sample

* NATA accreditation does not cover this result

Outlook

PATH RESULTS: PIED CORMORANT, (Wi) [redacted]

From [redacted]
Date Wed 17/09/2025 5:00 PM
To [redacted]

[redacted]

Tested on 05/08/25
Reported on 17/09/25 17:30
Referred on 03/08/25 **by:**

[redacted]

[redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received All Tests Complete

SUMMARY DIAGNOSIS
Kidney: Marked renal trematodiasis (probably Renicola sp.)

Jejunum and colon: enteric cestodiasis (possibly a Tetraphyllidium type of cestode) with secondary necrotizing bacterial enterocolitis.

Liver, lung, spleen and brain:
Necrotizing bacterial hepatitis, bronchopneumonia, bacterial splenitis and bacterial encephalitis

SUMMARY COMMENTS
There are multiple disease processes contributing to morbidity for this bird.

There is renal trematodiasis. This is a significant burden, enlarging both kidneys.

The enteric cestodiasis (possibly a Tetraphyllidium type of cestode) with secondary necrotizing bacterial enterocolitis. Possibly related to this enterocolitis, there is a necrotizing bacterial hepatitis, bronchopneumonia, bacterial splenitis and bacterial encephalitis.

Avian influenza virus and Newcastle disease virus did not contribute to morbidity or death for this bird.

ADDITIONAL COMMENTS 17/9/2025
Brevetoxin 3 is detected at 0.01mg / kg WMB in the liver (please refer to the Analytical Services Tasmania report number [redacted] and related [redacted]). This likely reflects ingestion of fish, which were carrying the toxin. The significance of this brevetoxin detection (i.e. did it contribute to the death of the bird) could be interpreted with any detection of Karenia sp. algal bloom in the ocean waters around where the bird was found dead, at the time of its death. Because there are no clinical signs recorded for this bird before it was found dead, how the brevetoxin contributed to morbidity / death for this bird cannot be confirmed.

Additional comments:
As little as 4.8 ng PbTx-3 eq./g, brevetoxin, was detected by high performance liquid chromatography in the livers from stranded brown pelicans exposed to Karenia brevis blooms along the central west coast of Florida, USA (Fauquier et al 2013). Fauquier and co-authors assessed

[redacted]

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Reported on 17/09/25 17:30
Referred on 03/08/25 **by:**

[redacted]

[redacted]

Owner:
PIED CORMORANT
BROWNS BEACH
BROWNS BEACH 5222

Animal/s:
Wild Birds

DOB: N/A

Collected: 03/08/25 13:30 **Subm.No:** [redacted] **Lab No.:** [redacted]

Samples tested as received All Tests Complete

that brevetoxin exposure was the probable cause of stranding in birds if they presented debilitated with detectable premortem or post mortem brevetoxin levels and had clinical neurological signs or stranded during the Karenia brevis bloom on the central west coast of Florida. Many of the affected birds on necropsy had chronic weight loss. There were no specific histopathological changes related to brevetoxicosis.

Fauquier, D.A., Flewelling, L.J., Maucher, J.M., Keller, M., Kinsel, M.J., Johnson, C.K., Henry, M., Gannon, J.G., Ramsdell, J.S. and Landsberg, J.H., 2013. Brevetoxicosis in seabirds naturally exposed to Karenia brevis blooms along the central west coast of Florida. Journal of wildlife diseases, 49(2), pp.246-260.

[redacted]
Specialist Veterinary Anatomic Pathologist
[redacted]

Validated by [redacted].