Shark Dissection Report Summary

Sample Details

Date collected – 27 June 2025

Species – White Shark (*Carcharodon carcharias*)

Location – Port Broughton, Spencer Gulf

Reference code – CCPB270625

Sample History

Members of the public reported a stranded white shark near Port Broughton, Spencer Gulf to Fishwatch on 27 June 2025. Local commercial fishers had reported a white shark exhibiting unusual behavior near Port Broughton in the days prior to 27 June 2025. PIRSA Fisheries Compliance Officers collected the white shark from the Port Broughton boat ramp and then transferred the shark to SARDI scientists at Paskeville. SARDI Scientists delivered the carcass for necropsy to an independent veterinary pathologist in the late evening on 27 June 2025.

Necropsy was conducted by the Veterinary Pathology Laboratory on 28 June 2025.

Dissection interpretation

The shark was identified as a female white shark. Physical body condition was considered good to moderate. Mild post-mortem autolytic changes were observed. Liver to body weight ratio was normal at 14%.

Biological Information

Length metrics (mm)				
Total	**Fork**	**Precaudal**	**Clasper**	**Uterus width**
3500	NA	NA	NA	NA

Maturity information		
Sex	**Maturity status**	**Maturity Indicator**
Female	NA	NA

Weights (kg)					
Total	Liver	Heart	Gonad	Stomach whole	Stomach empty
~480	~70	NA	NA	NA	NA

Prey items	Item weights (kg)
NIL	

Histology

Histological examination of kidney, gill, and stomach tissue was conducted by an independent veterinary pathologist. Results of histological examination are attached below.

Toxicology

Gill and liver tissue samples were sent for toxicological analysis, results were received 5 August 2025 from Analytical Services Tasmania. The gill tissue contained low concentrations of brevetoxin 2 and brevetoxin 3, while no brevetoxins were found in the liver tissue above the limits of reporting.

Tissue	Biotoxin	Concentration	Units
Liver	Brevetoxin 2	<0.01*	mg/kg WMB
Liver	Brevetoxin 3	<0.01*	mg/kg WMB
Gill	Brevetoxin 2	0.02	mg/kg WMB
Gill	Brevetoxin 3	0.01	mg/kg WMB
* below reporting limit			

Summary

The cause of mortality of this female white shark could not be concluded. The sharks overall body condition was good, the stomach was empty with no evidence of recent feeding or stomach eversion. The liver to body to weight ratio was normal, suggesting it was not malnourished. Low concentrations of brevetoxins were identified in gill tissues. However, it is unknown if the presence or concentration of brevetoxins resulted or contributed to the mortality of this shark.

Appendix

Veterinary pathology report and Analytical Services Tasmania brevetoxin results (received 5 August 2025).

[redacted] (PIRSA-SARDI)

From: [redacted]
Sent: Monday, 30 June 2025 12:51 PM
To: [redacted]
Subject: FW: PATH RESULTS: SHARK GREAT WHITE, (Fi) [redacted]

[redacted]

From: [redacted]
Sent: Monday, 30 June 2025 12:37 PM
To: [redacted]
Subject: PATH RESULTS: SHARK GREAT WHITE, (Fi) [redacted]

[redacted]

Tested on 28/06/25
Reported on 30/06/25 13:06
Referred on 27/06/25 by:
SARDI AQUATIC SCIENC
SARDI AQUATIC SCIENCES
2 HAMRA AVE
WEST BEACH SA 5024

Report Addressee:
SARDI AQUATIC SCIENC
SARDI AQUATIC SCIENCES
2 HAMRA AVE
WEST BEACH SA 5024

Owner:
SHARK GREAT WHITE

PORT BROUGHTON 5522

Animal/s:
Fish - other

DOB: N/A

Collected: 27/06/25 00:25 Subm.No: [redacted] Lab No.: [redacted]

Samples tested as received

NECROPSY REPORT

CLINICAL HISTORY
Please refer to the clinical history on the request form and the clinical notes sent with the request form. A brief summary of the clinical history;
The shark was seen by fisherman in the Pt Broughton area, swimming unusually. The shark was found dead near Pt Broughton on 27/6/25.

SAMPLES SUBMITTED
One dead adult great white shark, Carcharodon carcharias

NECROPSY FINDINGS
The animal is in moderate to good body condition and weighs approximately 480kg. The shark is 3.5m long. There are mild post mortem

autolytic changes. The liver weighed 70kg.

There is no ingesta in the stomach. the distal intestines contains abundant green moist ingesta.

GROSS SUMMARY
Unremarkable gross findings

SAMPLES COLLECTED & TESTING
Formalin fixed, epigonal gland, spleen, heart, liver, kidney, alimentary tract, gill is stored in formalin, if histopathology is required. Please note, the brain was not extracted because this process would have significantly damaged the jaws.

Fresh kidney, spleen, liver, gill (approximately 50g for each tissue) is stored if biotoxin or brevetoxin testing at Analytical Services Tasmania is required.

5g of fresh gill, spleen, liver, heart, kidney are stored frozen.

The samples are stored for one month only. If no further testing is required after 1 month, the samples are discarded in line with the laboratory's quality assurance procedures.

Approximately 100g of skeletal muscle, heart and liver and 5 vertebrae are frozen for collection by SARDI.

The head and dorsal fish are also stored for collection by SARDI.

COMMENTS
There are no gross findings to explain the unusual swimming behaviour of the shark or the cause of death.

The liver weighs approximately 14% of the total body weight, suggesting the animal had reasonable fat reserves.

Private & Confidential

Doctor:
SARDI AQUATIC SCIENC SHA
SARDI AQUATIC SCIENCES
2 HAMRA AVE POF
WEST BEACH 5024
Your Ref: OwnerID:
Subm. No: Lab No : [redacted]
Samples tested as received

HISTOPATHOLOGY FROM NECROPSY

REF: 2025/V HI 1325

CLINICAL HISTORY

Please refer to the clinical history on the request form and the clinical notes sent with the request form. A brief summary of the clinical history;
The shark was seen by fisherman in the Pt Broughton area, swimming unusually. The shark was found dead near Pt Broughton on 27/6/25.

Please note brain was not collected because SARDI requested an entire head for preservation of the mandible and maxilla.

MACROSCOPY

Slides A-I contain, liver, spleen, heart, gill, kidney, oesophagus, epigonal gland, stomach, intestines; Ae GK

MICROSCOPY

Kidney: Rare tubules (less than 0.5%) are effaced by extracellular mineral deposits. (Mild, multifocal, chronic nephrocalcinosis)

Gills: There is mild autolysis. Aside from this artefact change there are rare individual necrotic lamellae epithelial cells. The cells have, pyknotic nucleus and hypereosinophilic shrunken cytoplasm (apoptosis) or karyorrhectic and eosinophilic cellular debris (lytic necrosis). (Mild, m ultifocal, acute, individual lamellar epithelial cell necrosis)

Stomach: Multifocally within the lamina propria there are low numbers of lymphocytes and plasma cells (mild, multifocal, subacute to chronic lymphocytic, plasmacytic gastritis)

Those tissues not described are histologically unremarkable.

DIAGNOSIS

Kidney: Mild, multifocal, chronic nephrocalcinosis

Gills: Mild, multifocal, acute, individual lamellar epithelial cell necrosis

Stomach: Mild, multifocal, subacute to chronic lymphocytic, plasmacytic gastritis

COMMENTS

The cause of death cannot be concluded from the gross or histological findings.

Causes of rare individual lamellar epithelial necrosis include diatom and dinoflagellate (e.g. Karenia sp.) algal blooms, hydroids, jellyfish.

CC Drs: PIRSA ANIMAL HEALTH.

[redacted]

Private & Confidential

Doctor:
SARDI AQUATIC SCIENC SHA
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2 HAMRA AVE POR
WEST BEACH 5024
Your Ref: OwnerID:
Subm. No: Lab No : [redacted]
Samples tested as received

Biotoxin testing / brevetoxin testing of gill and other tissue (e.g. liver) is recommended to further assess for exposure of the shark to toxic algae.
The very mild gastritis and rare nephrocalcinosis are incidental findings.

[redacted]
Specialist Veterinary Anatomic Pathologist
[redacted]

Validated by [redacted]

CC Drs: PIRSA ANIMAL HEALTH.

[redacted]

Tasmanian Government

ANALYTICAL SERVICES TASMANIA
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www.analyticalservices.tas.gov.au

Submission Number: [redacted]
Report Number: [redacted]
Issue Date: 4/08/2025
Status: Final

CERTIFICATE OF ANALYSIS

Customer: Department of Primary Industries and Regions
Address: [redacted]
Contact: [redacted]

Submission Description: Biotoxins
Sample Received Date: 30/07/2025
Contract Number: [redacted]
Client Order Number:
Program/Quote Reference: P22500011 - Biotoxins

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:*
3411A	Brevetoxins in Biota by LC-MS/MS	01-08-2025

Chemistry Test Results (Biota - Food)

		Sample Description	CCST300525-L	CCPB270625-L	CCPB270625 G	CCPT150725 L	CCPT150725 G
		Sampled Date/ Time	04/04/25 0:00	05/05/25 0:00	27/06/25 0:00	15/07/25 0:00	15/07/25 0:00
Method ID	*Analyte*	*Units*	**328475**	**328476**	**328477**	**328478**	**328479**
3411A	**Brevetoxin 2**	mg/kg WMB	<0.01*	<0.01*	0.02*	<0.01*	<0.01*
	Brevetoxin 3	mg/kg WMB	0.02*	<0.01*	0.01*	<0.01*	<0.01*

* NATA accreditation does not cover this result