Shark Dissection Report Summary

Sample Details

Date collected – 5 May 2025

Species – White Shark (*Carcharodon carcharias*)

Location – Henley Beach, Gulf St Vincent

Reference code – CCHB050525

Sample History

Members of the public reported a large stranded white shark ~300 m north of the Torrens River outlet, Henley Beach to Fishwatch in the morning of 5 May 2025. PIRSA Fisheries Compliance Officers, SARDI Scientists and SAPOL Officers responded. Members of the public attempted to swim the shark back out to sea. However, these attempts were unsuccessful. PIRSA/SARDI staff retrieved the carcass and returned to PIRSA/SARDI West Beach.

Dissection was conducted by SARDI research scientists on 5 May 2025 at SARDI Aquatic Sciences West Beach.

Dissection interpretation

The shark was identified as a sub-adult male white shark, no external significant physical damage or injury evident. Physical body condition was considered normal. Gills had no signs of significant hemorrhaging or physical damage evident. Sand particles had encased the gills filaments. Livor mortis was evident almost immediately post-mortem resulting in pink discoloration along ventral surfaces. The liver was large, healthy and not discolored. The liver to body weight ratio was normal at 16%. Stomach contained small unidentifiable sections of teleost muscle tissue, skeletal bones and spines. A small quantity of *Posidonia spp*. seagrass was also present in the stomach contents. The advanced stage of decomposition of the small quantity of prey items indicates that the shark had not recently eaten.

Biological Information

Length metrics (mm)				
Total	**Fork**	**Precaudal**	**Clasper**	**Uterus width**
3080	2810	2460	291	NA

Maturity information		
Sex	Maturity status	Maturity Indicator
Male	Immature sub-adult	Claspers semi-rigid

Weights (kg)					
Total	Liver	Heart	Gonad	Stomach whole	Stomach empty
263	43.94	0.51	1.27	7.02	6.36

Prey items	Item weights (kg)
Unidentified teleost tissue and skeletal remains	0.65

Histology

Fresh and formalin preserved gill tissue was collected and delivered to an independent veterinary pathologist on 5 May 2025. Results from histological examination of the gill tissue were available on 8 May 2025 and are attached to this document.

Toxicology

Gill and liver tissue samples were sent for toxicological analysis, results were received from Analytical Services Tasmania (2 June 2025) and from the independent veterinary pathologist (report not included). Brevetoxins were not detected above reporting limits in the liver tissue of this shark. The gill tissue contained low concentrations of brevetoxin 2 and 3.

Tissue	Biotoxin	Concentration	Units
Liver	Brevetoxin 2	<0.01*	mg/kg WMB
Liver	Brevetoxin 3	<0.01*	mg/kg WMB
Gill	Brevetoxin 2	0.03	mg/kg WMB
Gill	Brevetoxin 3	0.11	mg/kg WMB
* below reporting limit			

Summary

The cause of mortality of this sub-adult male white shark could not be definitively concluded. The shark's overall body condition was good, the stomach contents were minor and unidentifiable, without evidence of recently consumed prey. The liver was large and healthy suggesting it was not malnourished. Low concentrations of brevetoxins were identified in the gills. 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 from Analytical Services Tasmania brevetoxin results (2 June 2025, liver only)

[redacted] PIRSA-SARDI)

From: [redacted]
Sent: Thursday, 8 May 2025 6:00 PM
To: [redacted]
Subject: PATH RESULTS: SHARK GREAT WHITE, (Fi) [redacted]

Tested on 06/05/25
Reported on 08/05/25 18:30
Referred on 05/05/25 by:
[redacted]
GLENSIDE SA 5065

Owner:
SHARK GREAT WHITE

HENLEY BEACH 5022

Animal/s:
Fish

DOB: N/A

Collected: 05/05/25 00:25 Subm.No: [redacted] Lab No.: [redacted]

Samples tested as received

HISTOPATHOLOGY FROM NECROPSY

REF: 2025/V HI 805
CLINICAL HISTORY
This is a summary of the clinical history from the request form. Please refer to the request form for the full history.
On 5 May 2025 PIRSA were notified of a Great white shark washed up on to Henley Beach. An algal bloom (Karenia mikimotoi cells up to 1.5 million / L) was observed near this site

MACROSCOPY
One pot labeled "immediately PM" contains 2 gill filaments.
Cassette 805 contains all pieces of tissue; Ae GK

MICROSCOPY
Gills: Multifocally approximately affecting 10 to 15% of lamellae there are the following range of changes. The interstitium is expanded by low numbers of neutrophils, multifocally there is rare loss of lamellar epithelium with filamentous bacteria adhered to the sites of epithelial loss. The overlying lamellar epithelium is multifocally hypertrophic and there are rare foci of lamellar epithelial hyperplasia.

DIAGNOSIS
Gills: Branchitis, proliferative, neutrophilic, mild, multifocal, subacute to chronic with rare individual epithelial cells loss and

intralesional bacteria

COMMENTS
There is a range of histological changes. There is mild multifocal chronic epithelial hyperplasia. This is a non-specific change and can be due to multiple factors including parasitism (e.g. Amyloodinium sp.), exposure to benthic sediment, bacteria etc. The bacterial colonization seen in these gill sections is very mild and unlikely the primary cause for the changes. The individual cell necrosis is very mild and likely acute to subacute. Differential diagnoses include diatom or dinoflagellate algae e.g Karenia mikimotoi (which was recently recorded in South Australia), jellyfish (uncommon this time of year) etc.

There are no conclusive findings in the gill to explain the cause of the shark's death.

[redacted]

Tasmanian Government

ANALYTICAL SERVICES TASMANIA

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Submission Number: [redacted]
Report Number: [redacted]
Issue Date: 2/06/2025
Status: Final

CERTIFICATE OF ANALYSIS

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

Submission Description: Biotoxins
Sample Received Date: 27/05/2025
Contract Number: [redacted]
Client Order Number: [redacted]
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	29-05-2025

Chemistry Test Results (Biota - Food)		Sample Description	CCCJ040425-L	CCHB050525-L	CCPM180425-L	CCPM180425-G	CCWI180425-L	CCWI180425-G	CCPW130525-L	CCPW130525-G
		Sampled Date/ Time	04/04/25 0:00	05/05/25 0:00	18/04/25 0:00	18/04/25 0:00	18/04/25 0:00	18/04/25 0:00	13/05/25 0:00	13/05/25 0:00
Method ID	Analyte	Units	298535	298536	298537	298538	298539	298540	298541	298542
3411A	Brevetoxin 2	mg/kg WMB	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	Brevetoxin 3	mg/kg WMB	<0.01*	<0.01*	0.02*	0.01*	<0.01*	0.04*	0.01*	0.04*

Chemistry Test Results (Biota - Food)		Sample Description	CCAR090525-L	CCAR090525-G	CCSP160525-L	CCSP160525-G	CCSB101123 L	CCCE240921 L	CCHB041223 L
		Sampled Date/ Time	09/05/25 0:00	09/05/25 0:00	16/05/25 0:00	16/05/25 0:00	10/11/23 0:00	24/09/21 0:00	04/12/23 0:00
Method ID	Analyte	Units	298543	298544	298545	298546	298547	298548	298549
3411A	Brevetoxin 2	mg/kg WMB	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	Brevetoxin 3	mg/kg WMB	0.01*	<0.01*	0.01*	0.05*	<0.01*	<0.01*	<0.01*

* NATA accreditation does not cover this result