

Biotoxin Testing: re-evaluating sampling frequency



SHELLFISH MARKET
ACCESS PROGRAM

Shellfish Futures 2024

Kate Ollerhead

Background

Assessing the risk of marine biotoxins in Tasmanian commercial shellfish

MILESTONE REPORT NO. 2

June 2021

Prepared by
Dorothy-Jean McCoubrey

Alison Turnbull



Oysters Tasmania commissioned a report investigating the risk of marine biotoxins in Tasmania



Government analysed data to include more recent data (up to April 2024) and new units



Once definitions are set, just awaiting sign off.

New Units

Implemented in
Tasmania
January 1, 2025

The Food Standards Australia New Zealand (FSANZ), which governs our standards, changed the paralytic shellfish toxin (PST) units to align with international standards.

Units are changing from saxitoxin equivalents to saxitoxin dihydrochloride equivalents.

Limit is still 0.8 mg/kg, and this change in units will likely have **no effect on your regular sampling** or normal day-to-day activities.

Note: diarrhetic shellfish toxin (okadaic acid equivalent) is decreasing from 0.20 to 0.16 mg/kg.



3 November 2023
268-23

Approval report – Application A1243

Harmonisation of marine biotoxin standards for bivalve shellfish

Food Standards Australia New Zealand (FSANZ) has assessed an application made by SafeFish on behalf of the Australian Shellfish Quality Assurance Advisory Committee (ASQAAC) seeking to amend the Australia New Zealand Food Standards Code (the Code) to change the current maximum level (ML) in Schedule 19 of the Code for two marine biotoxins in bivalve molluscs.

On 6 July 2023, FSANZ sought submissions on a draft variation and published an associated report. FSANZ received seven submissions.

FSANZ approved the draft variation on 25 October 2023. The Food Ministers' Meeting¹ was notified of FSANZ's decision on 3 November 2023.

This Report is provided pursuant to paragraph 33(1)(b) of the *Food Standards Australia New Zealand Act 1991* (the FSANZ Act).

PST Data (exceedance = 0.8 mg/kg)

Highest PST values for all known data in each growing area by month, using new units (STX.2HCl eq. mg/kg).

Location		Month											
Region	Growing Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
North West	Big Bay / Montagu	0.15	BLD	0.19	BLD	0.19	BLD	0.19	BLD	0.19	0.22	0.19	BLD
North West	Duck Bay	BLD	BLD	BLD	BLD	BLD	BLD	0.19	0.15	BLD	BLD	BLD	BLD
North West	Port Sorell	BLD	0.43	BLD	0.21	0.29	BLD	BLD	BLD	0.19	0.19	BLD	0.19
East Coast	Great Oyster Bay	0.33	0.14	0.45	1.74	0.81	1.23	1.24	6.45	10.29	0.46	0.05	BLD
East Coast	Great Swanport	0.19	0.20	0.19	0.24	0.52	1.04	0.83	7.44	0.73	0.19	0.04	0.19
East Coast	Little Swanport	0.56	0.81	1.61	0.30	0.47	2.60	0.84	19.84	7.94	7.07	1.49	0.15
East Coast	Moulting Bay	0.19	0.19	0.39	0.46	0.52	0.51	2.73	6.82	1.36	3.22	0.68	0.19
Frederick Henry	Boomer Bay	1.36	1.05	0.64	0.41	0.69	0.32	0.41	0.55	3.60	27.28	2.73	0.41
Frederick Henry	Dunalley	0.16	0.19	0.09	BLD	0.42	0.78	1.09	0.86	0.35	0.42	BLD	0.27
Frederick Henry	Garfish / Dart Island	BLD	BLD	BLD	BLD	0.33	0.53	0.58	0.58	0.22	0.12	0.19	0.14
Frederick Henry	Island Inlet	0.33	0.25	0.07	0.14	0.27	0.40	1.24	1.07	0.31	0.12	0.08	0.16
Frederick Henry	King George Sound	BLD	BLD	BLD	BLD			BLD	BLD	BLD	BLD	BLD	BLD
Frederick Henry	Pipe Clay Lagoon	0.19	0.19	0.19	0.19	1.10	1.51	1.24	1.98	1.02	1.03	1.78	0.20
Frederick Henry	Pitt Water	0.22	0.22	0.19	0.19	0.48	0.19	0.22	0.35	0.29	0.20	0.20	0.19
South	Cloudy Bay	0.21	0.24	0.40	2.14	54.00	0.68	0.31	0.20	0.35	0.16	0.30	0.15
South	Fleurty's Point	0.67	BLD	1.40	0.46	0.52	0.67	0.48	0.19	0.49	1.52	0.19	0.32
South	Gardners Bay	1.61	2.23	3.80	12.40	8.76	22.32	19.84	0.99	0.51	0.36	0.48	0.37
South	Great Bay	0.37	0.30	0.95	2.35	4.70	0.52	0.66	0.42	0.19	0.19	0.21	0.21
South	Hastings Bay	0.38	0.52	0.88	22.12	4.53	1.05	0.41	0.33	0.22	0.19	0.29	0.66
South	Little Taylors Bay	0.41	0.30	0.42	1.00	0.89	0.98	16.00	0.45	0.19	0.22	0.29	0.25
South	Port Esperance	3.57	6.81	4.09	45.00	4.26	4.63	14.55	2.96	3.60	0.43	0.38	0.61
South	Recherche Bay	0.14	0.45	BLD	1.05	0.33	0.43	BLD	0.19	0.19	BLD	0.19	0.12

DST Data (exceedance = 0.16 mg/kg)

Highest DST values for all known data (2001 - 2024) in each growing area by month (exceedance = 0.16 mg/kg)													
Region	Growing Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
North West	Big Bay / Montagu	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
North West	Duck Bay	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
North West	Port Sorell	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
East Coast	Great Oyster Bay	BLD	0.01	0.02	0.01	0.04	0.03	0.02	0.09	0.03	0.02	BLD	0.01
East Coast	Great Swanport	BLD	BLD	0.01	BLD	0.02	0.01	0.01	BLD	0.02	BLD	BLD	0.02
East Coast	Little Swanport	BLD	BLD	BLD	0.02	0.07	BLD	BLD	0.02	BLD	BLD	BLD	0.02
East Coast	Moulting Bay	0.01	0.11	0.06	0.011	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
Frederick Henry	Boomer Bay	BLD	0.02	0.02	BLD	BLD	BLD	BLD	0.02	BLD	BLD	BLD	0.04
Frederick Henry	Dunalley	0.05	0.01	BLD	0.02	0.04	0.05	0.04	0.04	0.02	0.02	0.02	0.06
Frederick Henry	Garfish / Dart Island	0.08	0.02	0.06	0.02	0.08	0.07	0.1	0.08	0.144	0.08	0.04	0.07
Frederick Henry	Island Inlet	0.01	BLD	BLD	0.02	0.07	0.03	0.02	0.03	0.02	0.02	0.01	0.05
Frederick Henry	King George Sound	BLD	BLD	BLD	BLD			0.04	0.03	0.04	0.02	BLD	BLD
Frederick Henry	Pipe Clay Lagoon	BLD	BLD	BLD	0.05	0.077	0.077	0.02	0.25	0.35	0.024	0.04	0.05
Frederick Henry	Pitt Water	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	0.01	BLD	0.01	BLD
South	Cloudy Bay	0.05	BLD	BLD	0.01	BLD	BLD	BLD	BLD	BLD	BLD	0.01	0.02
South	Fleurty's Point	0.02	0.01	0.05	0.03	0.01	0.01	0.02	BLD	BLD	0.02	0.01	0.05
South	Gardners Bay	0.07	0.06	0.12	0.12	0.05	0.02	0.03	0.01	0.03	0.14	0.06	0.08
South	Great Bay	0.08	0.04	0.03	0.08	0.05	0.03	0.02	0.02	0.02	0.026	0.02	0.05
South	Hastings Bay	0.14	0.03	0.01	0.04	0.05	0.01	0.02	0.02	0.04	0.13	0.044	0.1
South	Little Taylors Bay	0.03	0.02	0.02	0.02	0.01	BLD	BLD	BLD	BLD	BLD	BLD	0.08
South	Port Esperance	0.06	0.03	0.03	0.02	0.06	0.02	0.02	0.03	0.11	0.07	0.04	0.09
South	Recherche Bay	BLD	0.01	0.02	0.02	0.01	BLD	0.01	BLD	0.01	0.01	BLD	BLD

AST Data (exceedance = 20 mg/kg)

Highest AST values for all known data (2001 - 2024) in each growing area by month (exceedance = 20 mg/kg)													
Region	Growing Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
North West	Big Bay / Montagu	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD
North West	Duck Bay	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	BLD	0.1	BLD
North West	Port Sorell	BLD	BLD	BLD	BLD	BLD	BLD	0.1	0.13	0.14	BLD	BLD	BLD
East Coast	Great Oyster Bay	0.59	0.18	0.05	0.79	0.07	1.4	2.3	0.88	0.2	1.2	0.05	2.1
East Coast	Great Swanport	0.82	0.21	BLD	0.24	0.07	0.26	2.2	0.44	0.05	BLD	0.06	0.36
East Coast	Little Swanport	BLD	0.16	0.09	1	0.98	0.05	0.12	0.44	0.49	0.08	BLD	1.3
East Coast	Moulting Bay	0.66	0.92	1.73	6.38	0.15	0.15	BLD	0.14	0.82	0.25	0.36	0.55
Frederick Henry	Boomer Bay	0.6	0.48	1.4	1.5	0.62	BLD	0.17	0.18	0.47	0.3	0.3	0.18
Frederick Henry	Dunalley	0.11	0.06	BLD	BLD	BLD	BLD	0.64	0.67	0.7	0.08	0.26	0.11
Frederick Henry	Garfish / Dart Island	BLD	BLD	BLD	BLD	BLD	0.26	0.65	0.92	1.1	0.09	0.1	BLD
Frederick Henry	Island Inlet	BLD	0.15	BLD	BLD	BLD	0.07	0.59	1.2	1.8	1.1	0.21	BLD
Frederick Henry	King George Sound	BLD	BLD	BLD	BLD			0.74	0.23	BLD	BLD	BLD	BLD
Frederick Henry	Pipe Clay Lagoon	0.15	0.15	0.1	0.13	0.13	0.19	2.1	1.8	2.9	0.71	0.41	0.05
Frederick Henry	Pitt Water	BLD	BLD	BLD	BLD	BLD	BLD	0.16	0.25	BLD	0.56	0.12	BLD
South	Cloudy Bay	0.26	0.19	0.35	0.11	BLD	BLD	BLD	BLD	BLD	2.5	0.63	0.15
South	Fleurty's Point	0.1	0.09	0.22	0.34	BLD	BLD	BLD	BLD	0.85	1.2	0.6	0.12
South	Gardners Bay	0.17	BLD	0.07	0.06	BLD	BLD	BLD	BLD	BLD	0.22	0.11	0.12
South	Great Bay	0.05	0.14	0.06	1.8	BLD	0.13	BLD	BLD	0.52	1.4	0.35	0.07
South	Hastings Bay	0.08	BLD	BLD	0.05	0.08	BLD	BLD	BLD	BLD	0.1	BLD	BLD
South	Little Taylors Bay	0.11	0.28	0.34	0.66	BLD	BLD	BLD	BLD	BLD	BLD	0.3	0.9
South	Port Esperance	1.8	0.47	0.43	0.16	BLD	BLD	BLD	BLD	0.11	0.18	0.16	0.4
South	Recherche Bay	BLD	0.07	0.07	0.22	14	BLD	BLD	0.61	BLD	BLD	BLD	BLD

Definitions

Risk level	Combined phytoplankton and biotoxin
Insignificant	No known potentially harmful phytoplankton detection and PST levels <0.1 mg/kg.
Minor	Potentially harmful phytoplankton detection at levels for Analytical Services Tasmania to alert ShellMAP and/or PST levels 0.1 to <0.4 mg/kg. <i>Example: Elevated potentially harmful phytoplankton detected, increased monitoring considered.</i>
Significant	1. Potentially harmful phytoplankton detection at levels for ShellMAP to alert growers and/or PST levels 0.4 to <0.6 mg/kg. <i>Example: Elevated potentially harmful phytoplankton detected, increased monitoring instigated.</i> 2. <u>Potential to miss an exceedance at a 4-week sampling period.</u>
Major	1. Potentially harmful phytoplankton detection at levels initiating closure and/or PST levels 0.6 to <0.8 mg/kg. <i>Example: Elevated potentially harmful phytoplankton detected at levels that may result in closure, depending on subsequent testing.</i> 2. Biotoxin PST levels ≥ 0.8 mg/kg and/or phytoplankton levels exceeding the regulatory limit. <i>Example: Biotoxin PST result requiring closure and notification of Primary Produce Safety Program to initiate recall investigations.</i> 3. <u>Potential to miss an exceedance at a 2-week sampling period.</u>



From annual reports

Table 2: Categories for marine biotoxin levels

Toxin	Category 1 Results mg/kg	Category 2 Results mg/kg	Category 3 Results mg/kg	Category 4 Results mg/kg
PST	0.1 - 0.4	0.41 - 0.6	0.61 - 0.79	≥ 0.8
AST	0.1 - 10.0	10.01 - 15.0	15.01 - 19.9	≥ 20
DST	0.025 - 0.1	0.11 - 0.15	0.151 - 0.19	≥ 0.2



From Ali & Dorothy-Jean report

Example

Occurrence	Insignificant	Minor	Significant	Major
> 10 years prior	low	low	medium	medium
Within last 5-10 years	low	medium	medium	high
< 5 years prior	low	medium	high	high

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
all time	0.67	BLD	1.4	0.46	0.52	0.67	0.48	0.19	0.49	1.52	0.19	0.32
last 10 years	0.4	BLD	0.27	0.21	0.38	0.67	0.48	0.19	0.38	0.17	BLD	0.32
last 5 years	BLD	BLD	0.27	0.17	0.38	0.67	0.48	0.16	BLD	BLD	BLD	0.31

med	low	med	med	med	high	high	med	med	med	low	med
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Example

June & July
more intensive sampling



Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
med	low	med	med	med	high	high	med	med	med	low	med



Rest of year
less intensive sampling





Thank you!

Happy to take questions now or
at any other time today!

**SEAFOOD
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Government**

Shellfish Market Access Program

T: (03) 6165 3771

E: shellmap@nre.tas.gov.au