



Vibrio – current knowledge and managing your risk

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A close-up photograph of traditional weaving tools and materials. In the foreground, there is a large, shallow, reddish-brown wooden bowl filled with a dark, fibrous material. To its left, a smaller, dark, woven basket with a blue and white braided rim sits on a light brown, fibrous mat. In the background, another larger woven basket is visible, containing several dark, round objects. The scene is set outdoors on a wooden surface, with a blurred green background. A diagonal white and teal graphic element is overlaid on the left side of the image.

Acknowledgement of country

In the spirit of reconciliation, we respectfully acknowledge the Birpai peoples as the traditional owners of the land we stand on today. We recognise Aboriginal history and culture of the land and acknowledge and pay respect to the Traditional Owners and to Elders past, present and emerging.



Provides technical advice to support Australia's seafood trade and market access negotiations and helps to resolve barriers to trade

www.safefish.com.au



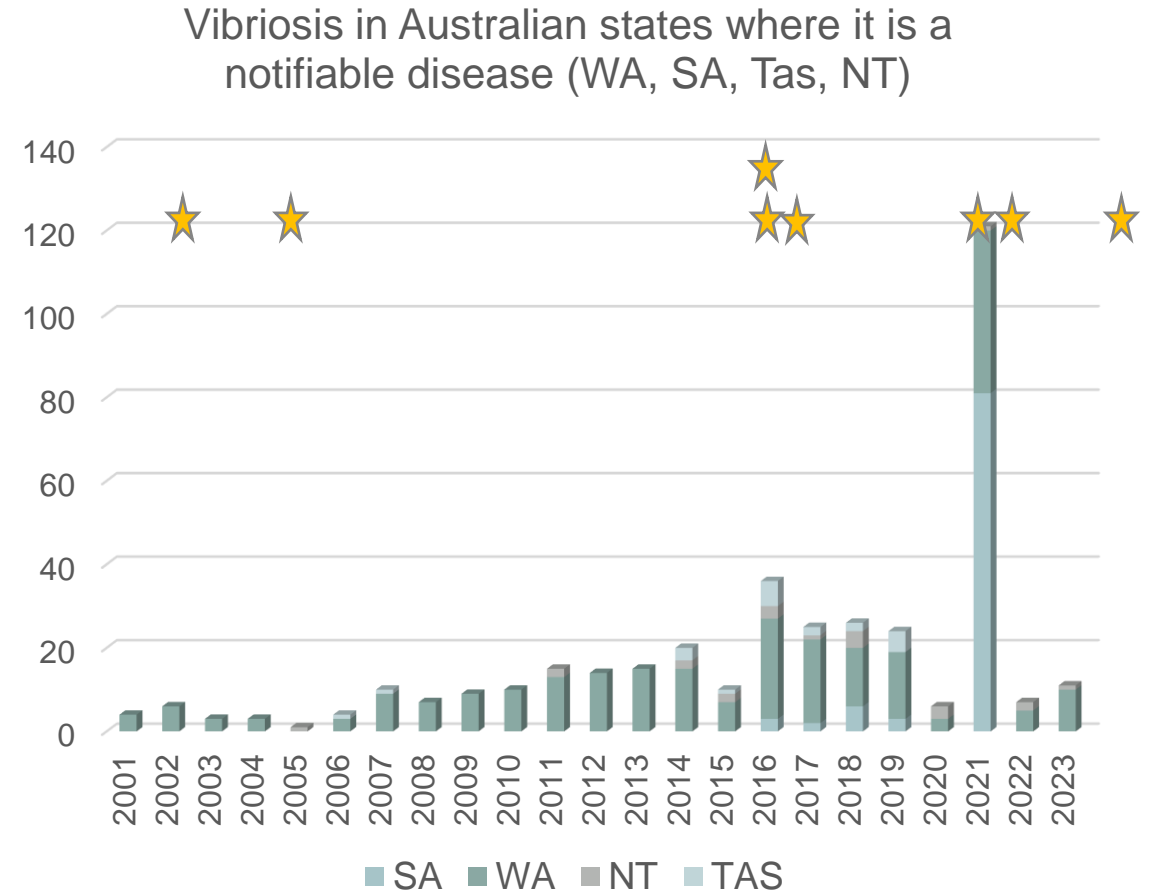
What are *Vibrio spp*?

- Ubiquitous in the marine environment
- Part of the natural bacterial flora of marine ecosystems,
- **Thrive in salt/brackish water above 15°C**
- **Highly adaptable and fast growing – growth is highly dependent on temperature**
- Large, highly diverse group of bacteria, some known to be harmful to humans
- ***Vibrio parahaemolyticus*** and ***Vibrio vulnificus*** most associated with foodborne illness
 - Watery diarrhea
 - Abdominal cramps
 - Nausea, Vomiting
 - Fever
 - Headache
 - Bloody diarrhea
- Symptoms last 1-7 days, usually not severe unless immunocompromised



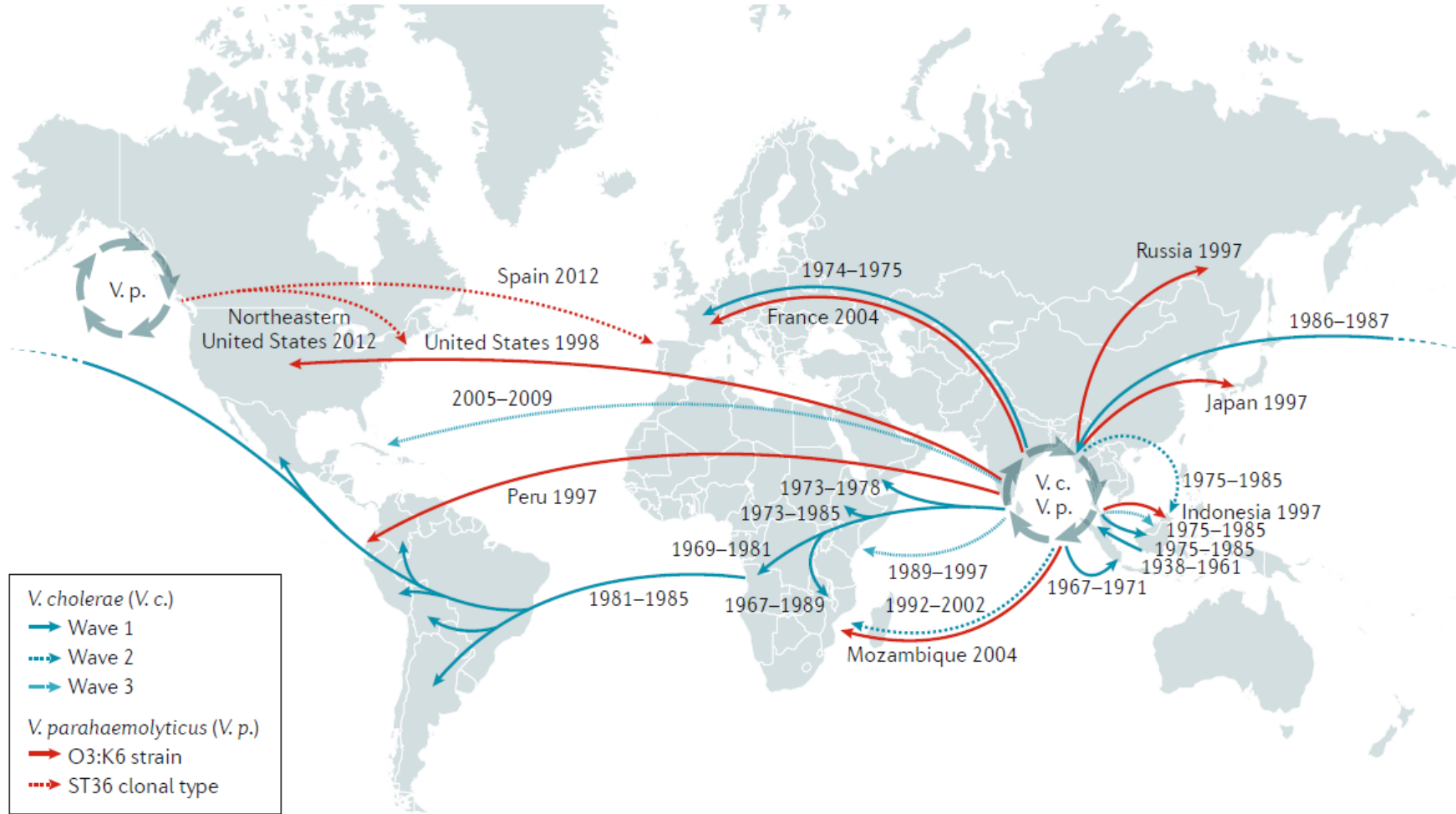
Vibriosis associated with Australian seafood

- Vibrio illnesses were rarely reported in Australia prior to 2012.
- **Not a notifiable disease in Qld, NSW and Vic**
- Illnesses have been reported in association with oysters from all major producing states
- Most cases are sporadic illnesses
- Two outbreaks in 2016: **11 cases** associated with Tas oysters; **9 cases** associated with SA oysters
- Two outbreaks in 2021/2022: **290 cases** associated with SA oysters
- **NSW outbreak in 2024**
- Numbers of cases are increasing



★ = outbreak (2 or more associated cases)

Spread of the new pandemic *V. parahaemolyticus*



- Outbreaks are undergoing a global process of expansion
- Emerging in areas where these diseases have not been previously observed – particularly in cold water climates
- ST36 pandemic strain emerged in NE USA in 2012
- SA 2021 outbreaks
 - Feb/March ST36
 - Sept-Jan ST50 & ST 417

Source: Baker-Austin et al. (2018)

NSW Outbreak

- January to March 2024
- Significant number of illnesses tested positive for *V. parahaemolyticus* (31 in NSW)
- Pandemic strain ST 36 and ST 50
- Most illness from 2 estuaries, but 9 estuaries recorded cases
- Cases were linked to multiple growers within estuaries
- All cases were from Sydney Rock Oysters



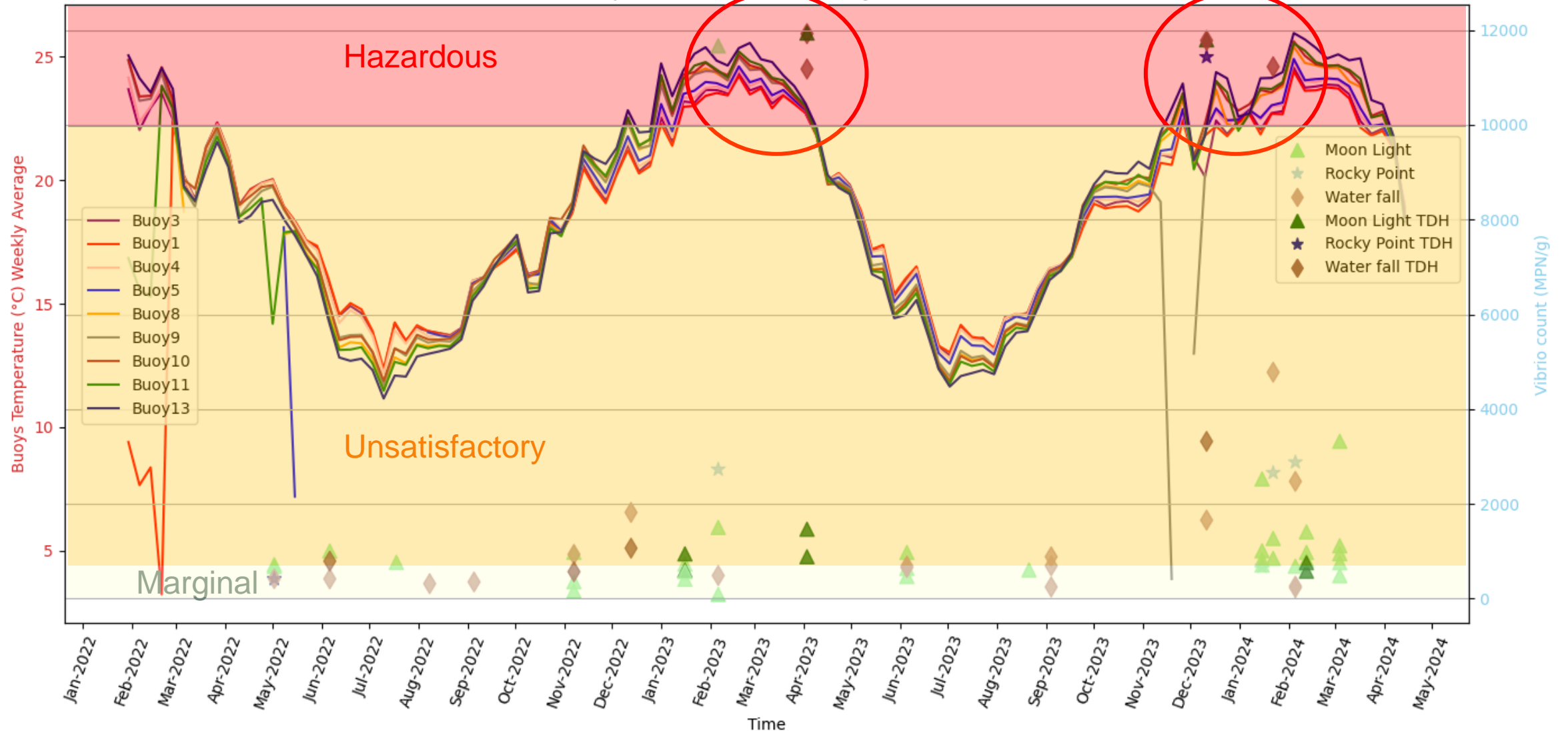
NSW SURVEY PLAN

- Survey to commence in March/April 2022 and run for 2 years.
- Test for presence and level of Vp.
- Analyse positive samples for virulence markers (tdh/trh markers).
- Estuaries chosen based on location, species and production.

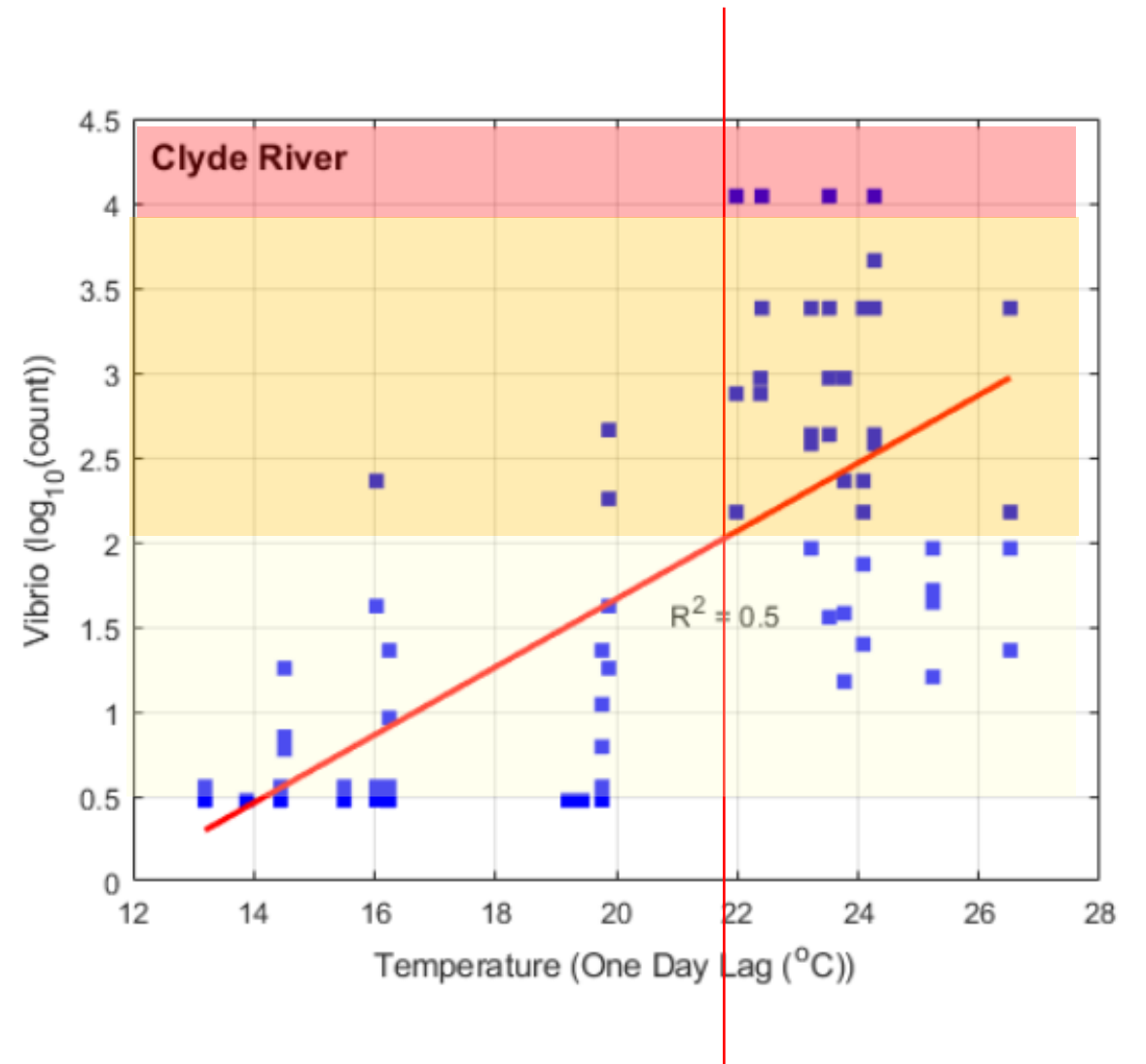
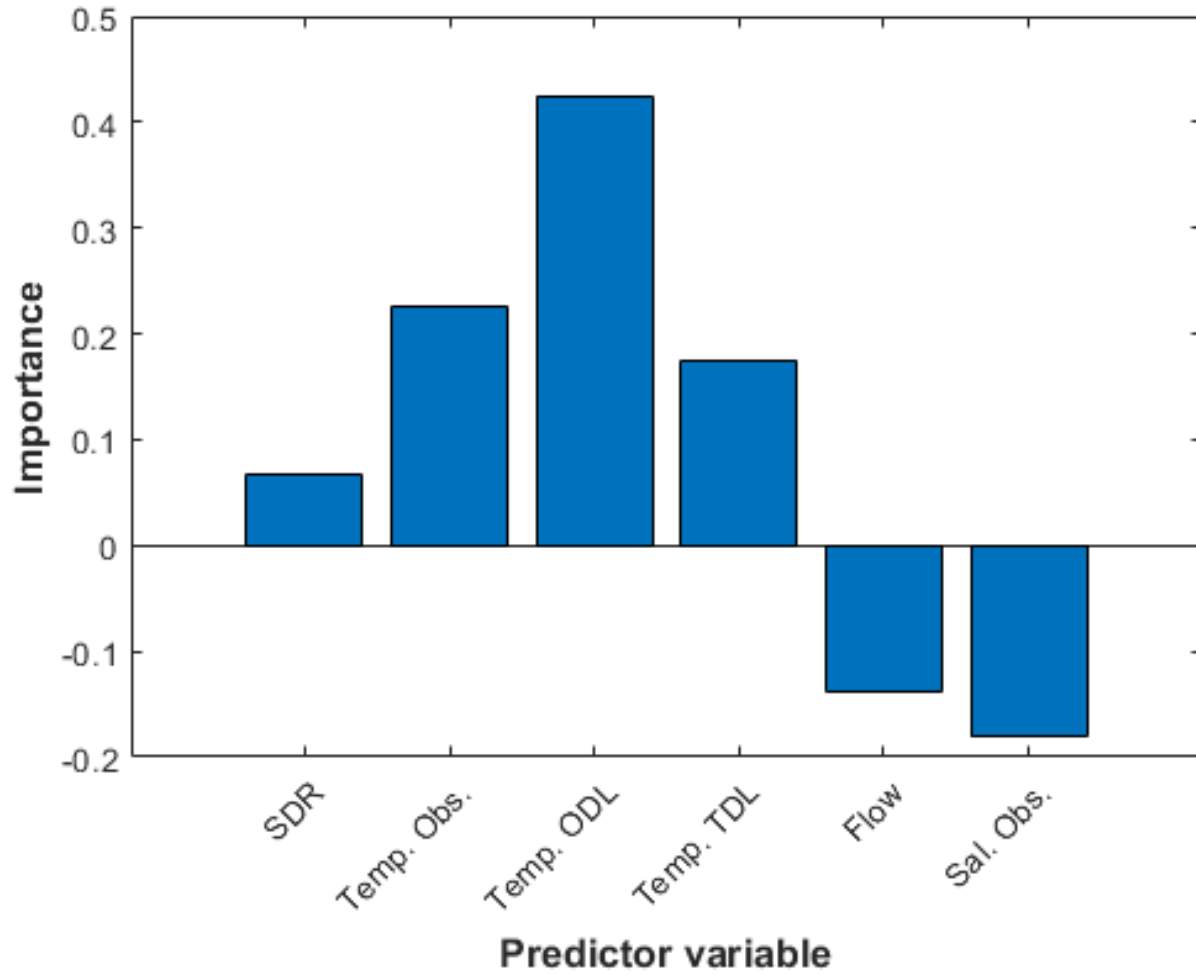
Estuary/Harvest Area	Target Species	Number of Samples per Month
Manning River – Pelican Point	Sydney Rock Oysters	5
Wallis Lake – Long Island	Sydney Rock Oysters	5
Port Stephens – Lemon Tree Passage/Cromarty Bay	Sydney Rock Oyster and Pacific Oysters.	10
Clyde River - Rocky Point	Sydney Rock Oyster or Pacific Oyster.	5
Merimbula Lake – Top Lake	Sydney Rock Oyster	5
<i>Samples per Month</i>		<i>30</i>
Total Samples over 2 years		720

Clyde River

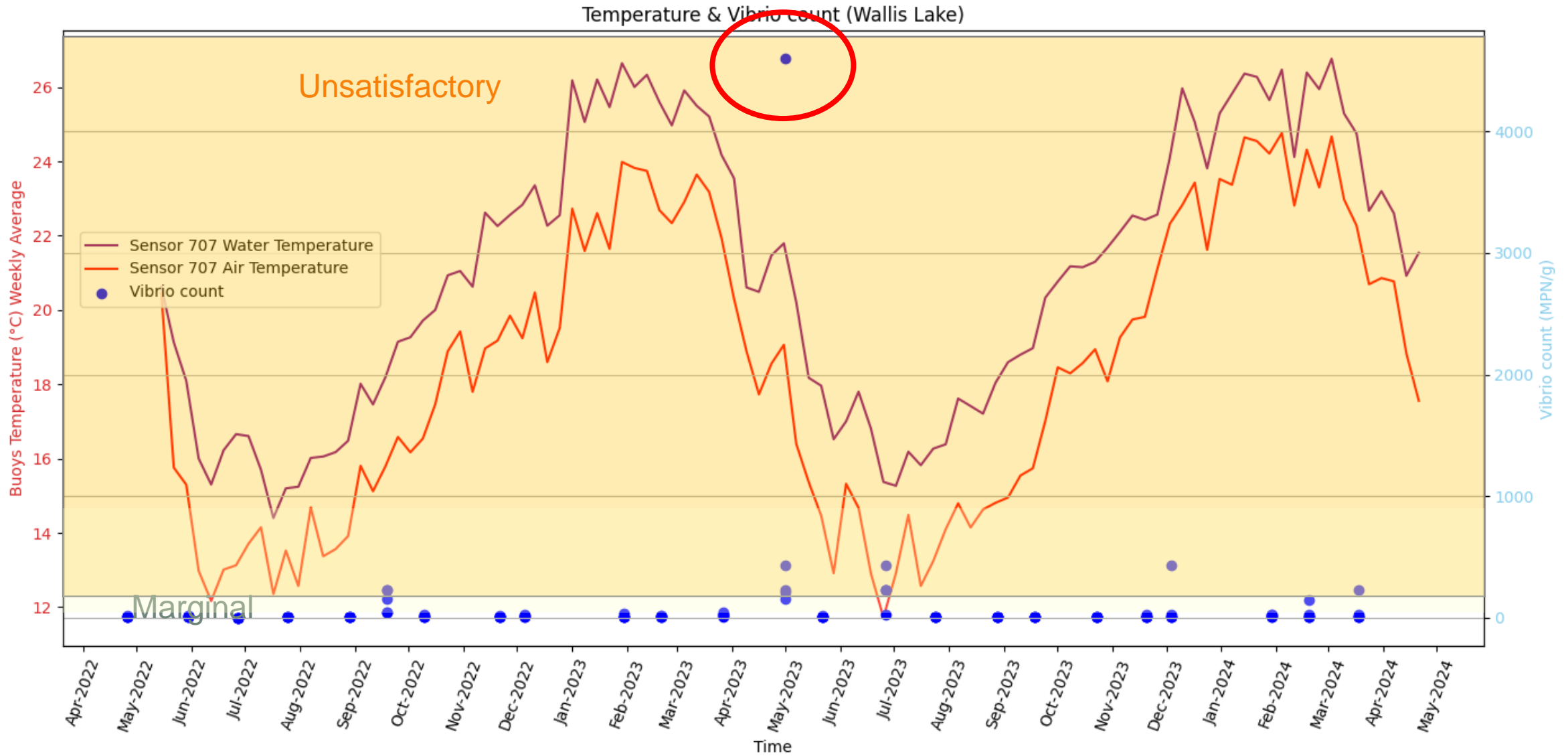
Temperature & Vibrio count (Clyde River)

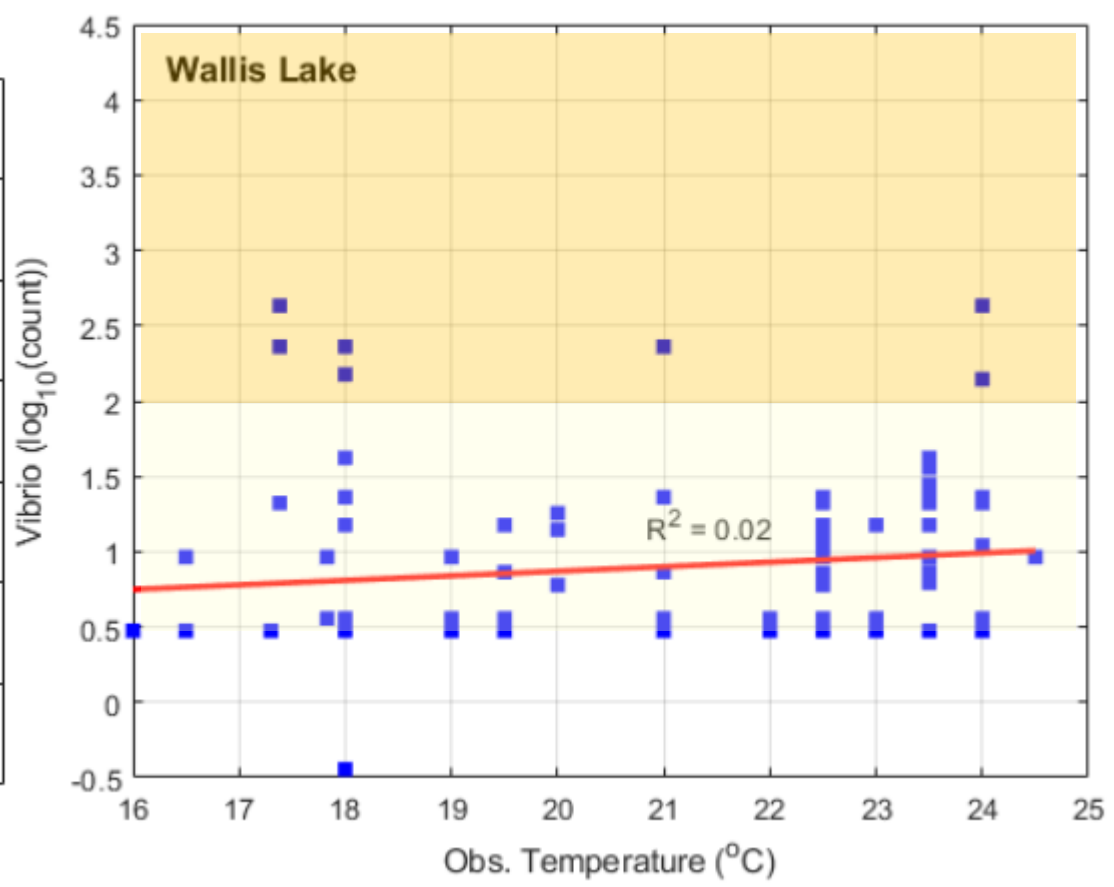
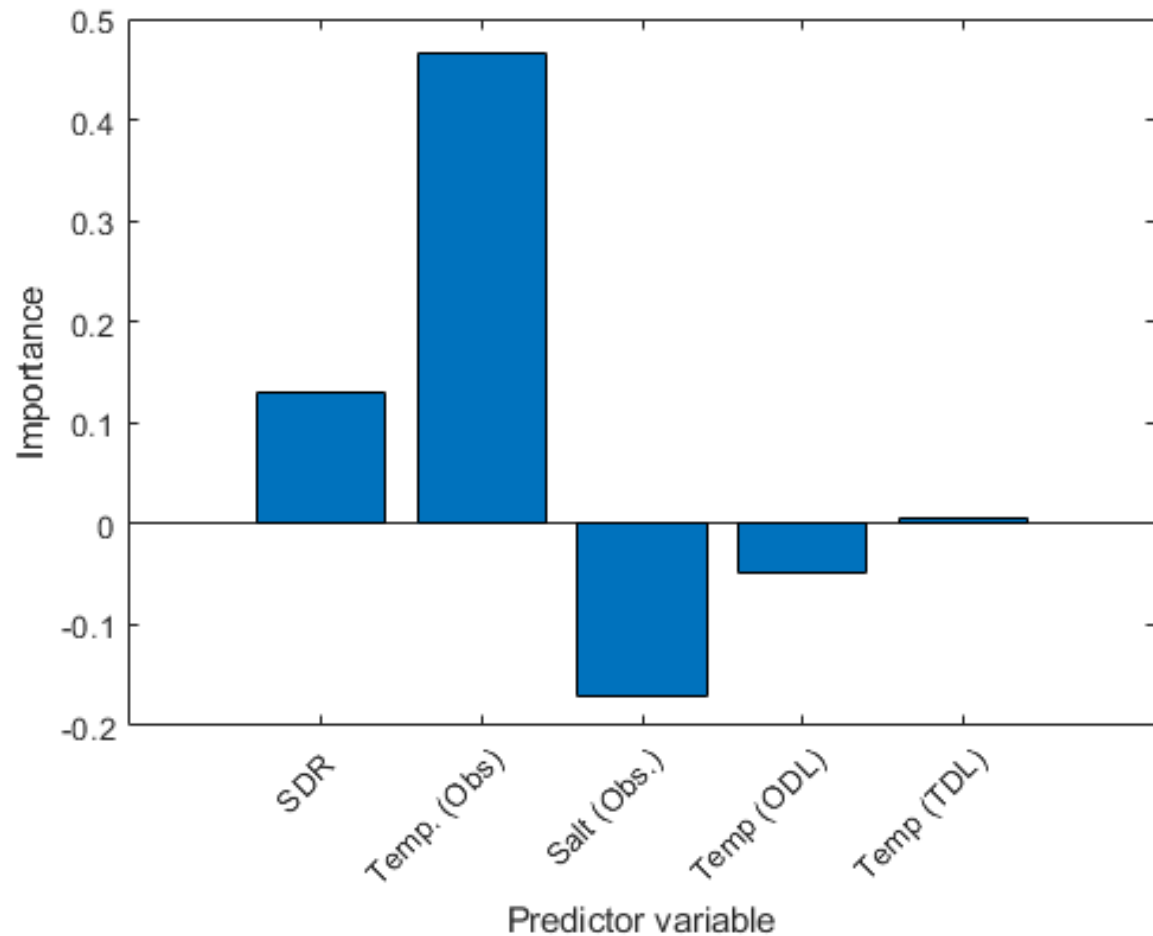


Clyde River – risk driven by temperature



Wallis Lake





VIBRIO PARAHAEMOLYTICUS

A Guide for Tasmanian Shellfish Growers



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What can growers do right now?

It's all about temperature control

- Cease harvesting
- Relaying to colder/saltier waters
- Harvest curfews
- Re-submerge
- Time to cool chain
- Packing practices

VIBRIO PARAHAEMOLYTICUS

A Guide for Tasmanian Shellfish Growers



How are other states managing this?

Vibrio Control Plans

- Required in SA and Tas in all areas that have been associated with illness
- Strict temperature control
- Strict record keeping or time of harvest, time to cool room, time of dispatch

Nov 1 st – April 30 th	Air temp >30 °C	Water temp >19 °C	Selling to public?
<12 hours to cool chain	<7 hrs to cool chain	<7 hrs to cool chain	Oysters <10 °C

RISK ROADMAP
SAFEFISH RISK REGISTER

SafeFish

IMAS
Institute for the Future of Aquaculture Studies

PRDC
Primary Producers Research Centre

NSW
Department of Primary Industries

SA
Department of Primary Industries

RISK: VIBRIO

DEFINITION

The risk of being unable to manage the risks associated with *Vibrios* effectively, including detection of total *Vibrio* numbers and pathogenic strains; new strains of *Vibrio parahaemolyticus*; increased presence and prevalence of *Vibrios* in aquatic environments; post-harvest management.

CAUSES

- Bacteria proliferation in warm conditions (Climate change impacts)
- Inappropriate temperature control post-harvest
- Evolution on new pathogenic strains
- Difficulties in risk management
- Lack of international standards/ local guidance
- Increased production
- Changing consumer profiles and preferences
- Insufficient/inappropriate detection methods and surveillance practices

CONSEQUENCES

- Outbreaks and increased human [illnesses](#)
- Closing/shutting down harvest areas and businesses
- Reputational damage to some/all Australian shellfish/fish
- Loss of products
- Loss of profit or income
- Loss of license to [operate](#)
- Loss of license to [export](#)
- Exit from [industry](#)

ASSESSMENT

SEVERITY ●

LIKELIHOOD ●

CURRENT RISK LEVEL (IF UNMANAGED) ●

RESIDUAL RISK LEVEL ●

EFFECTIVENESS OF MITIGATION ●

KEY SECTORS IMPACTED

- Bivalves
- Prawns

KEY STATES AND TERRITORIES IMPACTED

- Queensland
- Western Australia
- Tasmania
- South Australia
- New South Wales
- Victoria
- Northern Territory

Confidential document - April 2024 - Version 2.1
Developed by multidisciplinary team led by Cristina Lesueur of CL Advisory. Assessment as of current evidence and perceived

SafeFish activities

✓ ✓ *Better understanding of local risks: Tas, North Aus, NSW*

✓ ✓ *Resources for industry and government*

SafeFish webpage: <https://safefish.com.au/vibriosis-in-seafood>

- Detection methods summary
- Vibrio fact sheet
- Vibrio FAQs
- Vibrio webinar
- Vibrio testing

SafeFish recall workshop

✓ *Improved fundamental knowledge: SA outbreak, genome studies*

✓ *Industry, State, and National guidance on risk management*

Long term aspirations:

- Research to support measurement and response
- Data sharing between states
- National guidance
- Reduction options

Email to get involved: info@safefish.com.au

Vibrios in Seafood

Vibrio Science Day – 2022

See The FAQs For Industry

Vibrio Fact Sheet

Vibrio Webinar Series

Vibrio Testing Information

Vibrios are naturally occurring marine bacteria, some of which are pathogenic to humans. There have been 5 recent outbreaks and >310 illnesses of *Vibrio parahaemolyticus* in Australia associated with oysters. The risk of Vibrio associated with seafood was identified as a critical issue in SafeFish risk register national process. There are currently no national standards for *Vibrio* spp. in seafood and management is based on responding to outbreaks by limiting harvest of seafood and tightening temperature controls in areas that have been associated with outbreaks.

Vibrio risk is predominantly a concern for bivalves, but in New Zealand over the 2021/2022 summer, illnesses were associated with lobster, abalone, urchin, and finfish species. This is a complex issue with poor knowledge on prevalence in Australian aquatic environments, pathogenicity of strains, environmental triggers of pathogenic strains, relationship between pathogenicity and illness, and difficulty in identifying pathogenicity targets for use in identifying pathogenic strains. These factors have together resulted in a low capability to detect pathogenicity in Australia. Compounding risk management, *V. parahaemolyticus* is currently not a notifiable pathogen in every Australian state and consequently illnesses are under-reported. Internationally, outbreaks are less common than sporadic illnesses and this is also true of illnesses in Australia thus far. As Vibrio risk is closely related to an increase in temperature and other environmental triggers and Vibrio are opportunistic bacteria with fast growth rates and high plasticity, this issue is likely to increase with the changing environments expected with climate change.

There are significant knowledge gaps in environmental risk and human health response to Vibrio and currently there is no uniform national policy for risk management. Cold chain management and traceability is linked to this issue and have been highlighted as areas that need improvement in the recent outbreaks. Also, a recent change to the Australian Standard Method of analysis from a quantitative to a qualitative test could have impact on outbreak response activities and is likely hinder the collection of additional information to inform future risk management.

Current SafeFish Activities

There are a number of processes that are currently occurring to address the research gaps for Vibrio and SafeFish is heavily involved in several of these. This project will focus on improving the knowledge and tools necessary to effectively manage Vibrio risk. We have recently undertaken the following activities:

- Conducted a review of available international testing methods for vibrio detection to highlight which would be appropriate for implementation in Australia
- Determined the national volume of Vibrio testing in seafood required in Australia and liaise with Australian commercial laboratories to identify laboratories that will offer NATA certified quantitative Vibrio analysis.

<https://safefish.com.au/vibrios-in-seafood/>

Food Recall Workshop for Seafood Businesses

Calling all businesses producing, processing, or selling seafood!
When did you last do a product trace check or mock recall?

A food recall plan lets you quickly and easily recall food from the market with minimal business disruption. This free online workshop with leading experts will show you **how to do a mock food recall**. Bring your recall plan, production records, and receive/dispatch records for a chosen product (and your thinking hats!) and get ready to do your own product trace check.

Wednesday 6th November | Friday 10th November

Clare Winkel

Integrity Compliance
Solutions



How to do a mock recall
and effective product
trace check?

Dr. Alison Turnbull

Institute for Marine and
Antarctic Studies



How can SafeFish support
seafood businesses during
food recalls?

Dr. Adele Yates

Food Standards Australia
New Zealand



What policies and
procedures are in place to
guide rapid product recalls?

Wed 6th November registration

[click here](#) or scan QR



Fri 8th November registration

[click here](#) or scan QR



OR



An Introduction to Shellfish Safety

An induction course for industry to build awareness of key topics in the production of safe bivalve shellfish.

The University of Tasmania has partnered with Oysters Australia and FRDC to develop this shellfish safety workers induction course, which is designed to:

- Provide those working in the industry with a clear understanding of the food safety requirements that apply to bivalve shellfish and actions they should take to produce safe bivalve shellfish.
- Outline the complexity of growing filter-feeding animals in shared waterways.
- Help employers demonstrate to customers/food auditors that they have a skilled and knowledgeable workforce that understands their food safety requirements.

The course is fully online, and self-paced and is estimated to take around 3 learning hours to complete.

To learn more and enrol, scan the QR code or visit utas.edu.au/study/shellfish-safety



Shellfish Safety Supervisors Course

A detailed industry food safety course outlining the key topics that supervisors need to be aware of in the production of safe bivalve shellfish.

The University of Tasmania is pleased to have partnered with Oysters Australia and FRDC to develop this shellfish safety supervisors course. The course is designed to:

- Provide supervisors/managers/business owners with a clear understanding of the food safety requirements that apply to bivalve shellfish and actions they (or their workers) should take to produce safe bivalve shellfish.
- Outline the complexity of growing filter-feeding animals in shared waterways.
- Help employers demonstrate to customers/food auditors that they have a skilled and knowledgeable workforce that understands their food safety requirements.

The course is fully online. It is delivered 50:50 through a self-paced component and a half-day face-to-face online presentation/discussion session. It is estimated to take around 8 learning hours.

To learn more, please scan the QR code.





FRDC

FISHERIES RESEARCH &
DEVELOPMENT CORPORATION



www.safefish.com.au

UNIVERSITY of
TASMANIA 

Thank you



Government
of South Australia

Department of Primary
Industries and Regions

SARDI



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