SAFEFISH ACTIONABLE RISK REGISTER

RISK IDENTIFICATION FOR BIVALVE SECTORS



Dr. Cristina Lesseur
CL ADVISORY
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Cristina Lesseur Advisory

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The scope and approach for the actionable risk register have been agreed and co-developed by a voluntary steering group from SafeFish: Dr. Cristina Lesseur, Program Lead, Natalie Dowsett (SARDI) – SafeFish Executive Officer, Dr. Alison Turnbull (SafeFish/UTAS), Erik Poole (Sydney Fish Market), Mark Boulter (Food and Beverages Importers Association), Dr. Carolyn Stewardson (FRDC), Dr. Andrew Keller (FSANZ) and Veronica Papacosta (Seafood Industry Australia, SIA).

The research team would like to thank and acknowledge the participants that joined our brainstorming sessions, follow up meetings and feedback sessions, as well as the interviewees who kindly provided their time to help us understand the views and challenges for the bivalve sectors' current and future risks.

DISCLAIMER

The current results are based on data obtained from conversations and meetings, interactive brainstorming sessions, email feedback and interviews completed by a group of bivalve industry stakeholders from industry, government, regulators, researchers and consultants. The sample size is limited and not fully comprehensive of all aspects of the practices and risk perceptions. It does not have statistical significance and is mostly qualitative in nature. Quantitative data and rankings are indicative and solely based on the responses obtained by study methods. The authors have captured the concerns and opportunities, strictly based on the information provided.

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EXECUTIVE SUMMARY

Although it might seem like we have achieved a certain level of normalcy after the challenging global events like the COVID-19 pandemic, the one certainty we have is that change and volatility are here to stay. Auditing processes are face to face again, inflation is growing, and environmental events are impacting the ways we can produce safe and enjoyable seafood. SafeFishs' actionable risk register program has been developed to improve our ability to manage the associated risks more effectively and collaboratively, as well as raise preparedness.

This report focuses on the identification of the top material risks in relation to food safety and market access for the Australian bivalve sectors, that can impact the industry now and in the near future. This was achieved by gathering insights and knowledge from key stakeholders/experts within the SafeFish network. The methodology used was a mix of email feedback and virtual workshop sessions. These were facilitated to capture the most relevant concerns and challenges that the bivalve industry faces, prioritise them and explore potential actionable solutions and future opportunities. The stakeholder group included 25 experts, from industry, government, regulatory bodies, researchers and consultants that are actively working for or in the bivalve sector. The data was collected, summarised and analysed, and the results were shared to validate and understand the potential applications and delivery tools that were required to disseminate the findings effectively.

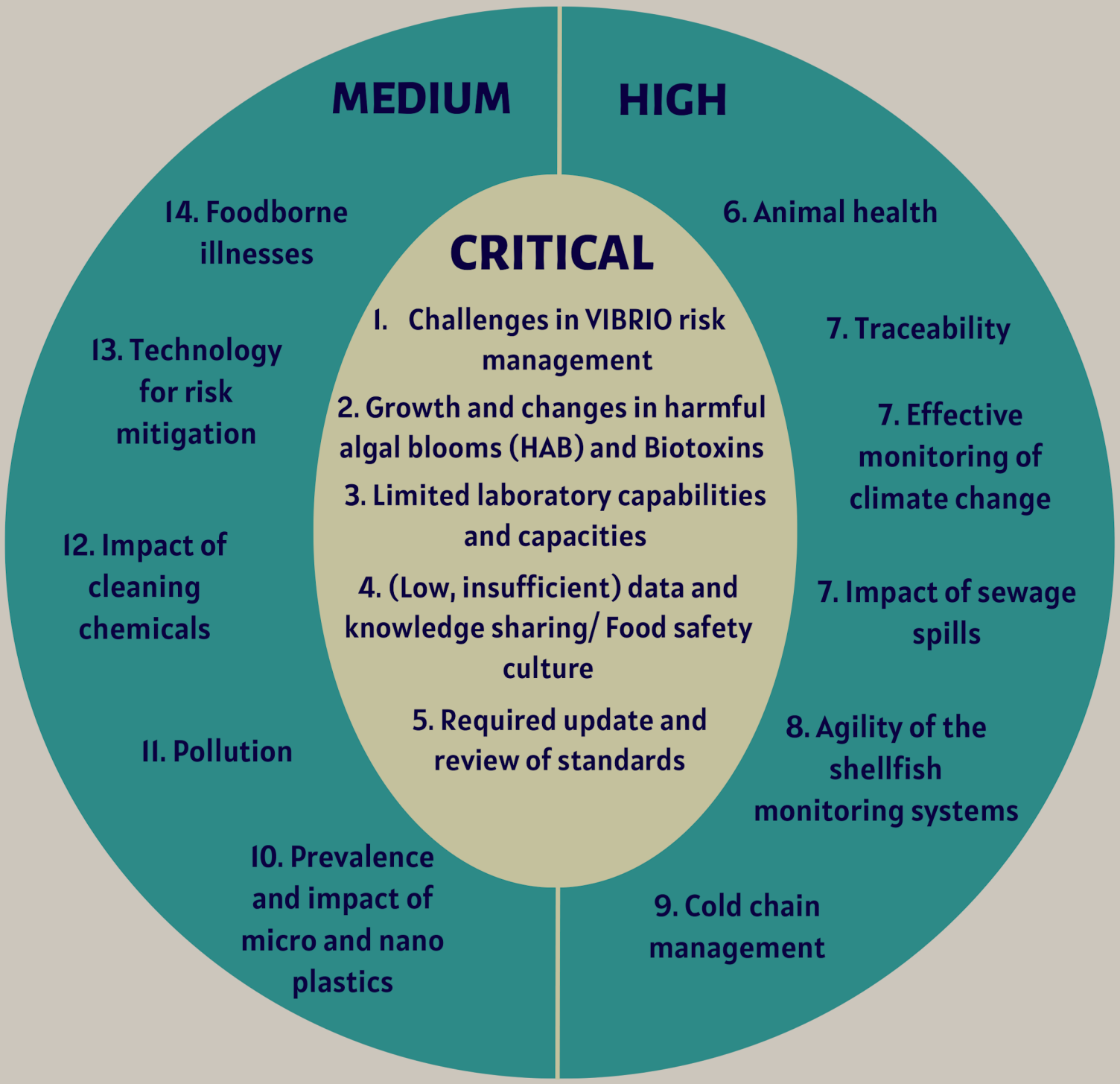
Figure 1 is a simplified view of the top risks identified, organised in a bullseye format showing the most critical risks in the center, and those deemed high/medium on the outer ring. The top five critical risks identified were:
1. The challenges in Vibrio risk management,
2. The growth and changes of harmful algal blooms (HAB) and biotoxins,
3. The limitations in laboratory capabilities and capacities,
4. The low or inefficiency of data and knowledge sharing which was also referred to as low food safety (FS) culture,
5. The need to update and review the current standards for shellfish.

This report provides a richer level of information around the top risks, by delivering a snapshot summary of the descriptors and practical relevance of the risk, the existing actions in place or in progress to mitigate it, as well as the potential opportunities for further actions and collaborative efforts.

A short view of the potential areas captured from the experts around future focus is also described briefly. The sentiment was clear regarding the need for better preparedness, new tools to detect and manage existing risks, as well as data and knowledge sharing efforts between various stakeholders. Additional mentions were the potential advantage of real time monitoring systems in the field and throughout the cold chain to inform decisions and risk management. The team also felt that there were knowledge gaps that required research, such as understanding oysters bio-flora or stress markers and the impact of sewage spills to determine which infrastructure changes should to be considered. Finally, the experts felt that the current regulatory approach would benefit from being more holistic and with a national view, as this would enable better collaboration and a more efficient and proactive industry.

Based on the feedback we received from the participants, we will develop other tools for practical applications beyond this report, such as a two-page summary of these results and an infographic. They will be used by the sector for strategic planning, for informing, justifying funding, making decisions on risk management and mitigation actions, for education, raising awareness, forecasting, and improving preparedness.

Figure 1.-Safefish Risk Register bullseye for the bivalve sector



INTRODUCTION- OVERALL CONTEXT AND METHODOLOGY

SafeFish identified the need to develop a thorough understanding of the current and future risks for the Australian seafood industry and build a framework for preparedness and mitigation that improves resilience and adaptability. This should translate into a much more effective, actionable, and collaborative way to deal with challenges when they arise. The program created for this objective is the SafeFish Actionable Risk Register (ARR).
The model consists of a series of steps that allow us to identify the top risks for industry sectors, and then develop, where possible, risk mitigation plans for short- and long-term actions to help stakeholders:
1) Further understand the risk/where appropriate address the risk,
2) Have the guidance/tools and information to better navigate the management of the risks, individually or collectively; and
3) Improve their preparedness and outcomes.
To identify the risks multiple tools are used which include emails, surveys, virtual guided feedback sessions and interviews. All participants are stakeholders from the seafood industry, the specific sector, government/regulation or have expertise around the specific risk.
The process facilitation and governance is led by CL Advisory (engaged consultancy for the program), and monitored by a steering group of SafeFish partners and funders, who validate its progress, and make sure the deliverables are an appropriate representation of the 'whole of seafood' or the 'specific sector' views. The risk framework process is described in Figure 2.

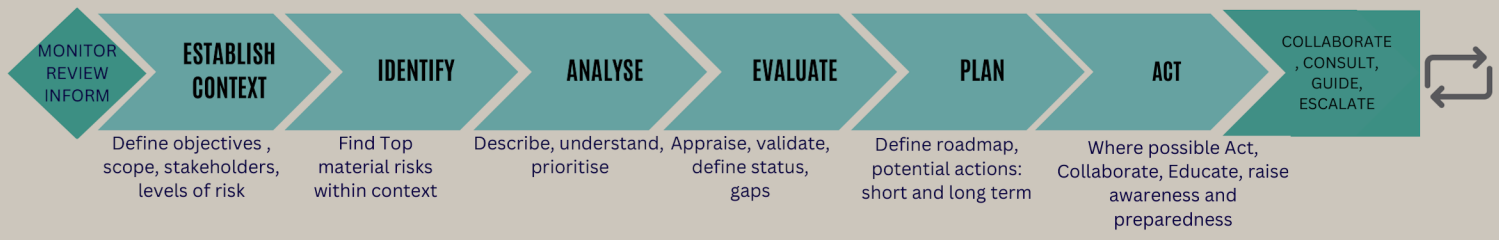


Figure 2- Safefish's Actionable Risk Register process.

The program began with the identification of the top risks for the entire Australian seafood industry as well as developing an understanding of the most relevant and critical risks (establish context, identify, analyse). A risk mitigation working group was set up for the most critical risk (Vibrio) and has been supported by SafeFish to develop a pathway forward to address this top priority through agreed actions, aligned with the set process described above (evaluate, plan, act). An infographic of the national process and results to date is provided in Appendix 1.
SafeFish then began engaging the sectors to begin their journey through the process. The current report focuses on the identification of risks for the bivalve sectors, which was the first sector team to come onboard.
The methodology used was focused mainly on conversations, interviews, and virtual feedback sessions held with a group of participants that voluntarily offered their time. The group provided insights into current issues and challenges that the bivalve sector faces from a food safety and market access perspective. They had been approached to contribute because they were experts or active operators in the Bivalve sector industry or its major stakeholders. The participants represented industry, regulators, government, seafood consultants, and researchers.

Two sessions were run with a total of 21 participants, including stakeholders from industry (oysters and mussels; mainly retailer groups), government and regulators (Biosecurity Tasmania, the Department of Agriculture, Fisheries and Forestry (DAFF), the Department of Primary Industries and Regions South Australia (PIRSA), Food Standards Australia New Zealand (FSANZ), the NSW Food Authority, SafeFood Queensland), researchers (University of Tasmania (UTAS), South Australia Research and Development Institute (SARDI), Charles Darwin University), and consultants in shellfish. A 1:1 interview occurred with one representative from the scallop industry. Three feedback sessions were also facilitated which included additional participants from industry that were not initially involved. A visual representation of the distribution of participants is summarised in the following graphic (Figure 3)

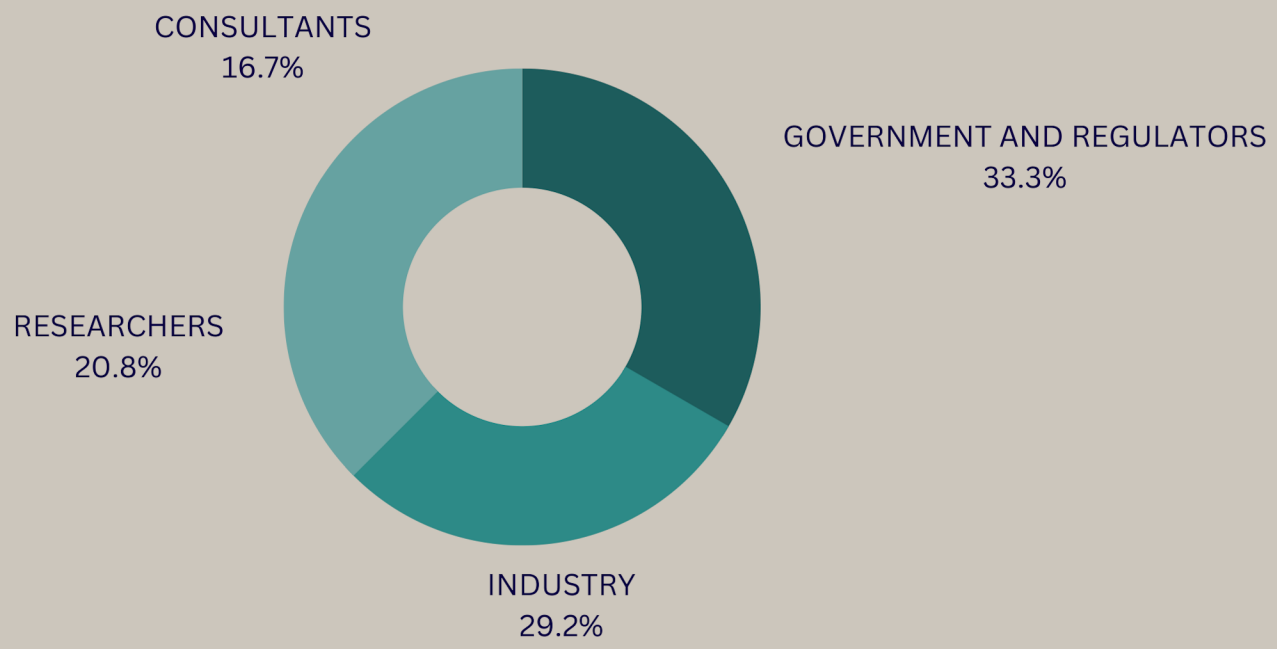


Figure 3- Distribution of participants in virtual sessions.

RESULTS

The most concerning themes, or potential risks for the teams were captured and clustered, based on individual issues that people considered were a challenge now, or would become more difficult to manage in the next 5 years. These were 16 in total and were derived from 84 direct issues. As an example, some of the themes were:
1) The challenges faced by Vibrio risk management, described further by its unpredictability, large knowledge gaps and disparity in reporting between states,
2) The growth and change of harmful algal blooms and biotoxins, with emphasis on the difficulty for monitoring and the higher prevalence in warmer waters, as well as emerging novel toxins,
3) The shellfish monitoring system as it currently exists as of today, raising the question of its ability to be sustainable or future-proof,
4) The many challenges of dealing with pollution and bioaccumulation of pollutants, as well as the impacts of sewage spills,
5) The nameless limitations of laboratory testing capacities and capabilities in Australia,
6) The need to update and review current standards for shellfish,
7) The animal health impacts of the climate, human and microbial derived threats, such as plastics, toxins, pathogens, run-offs, urban encroachment and declining water quality catchment, and the
8) Food safety culture and knowledge sharing amongst stakeholders, limiting collaboration and synergies to mitigate the risks collectively.

The participants from both groups voted and ranked their themes and issues, then this was collated into a funnel and a bullseye that represent the most relevant risks. These are visualised in Figures 1 and 4.

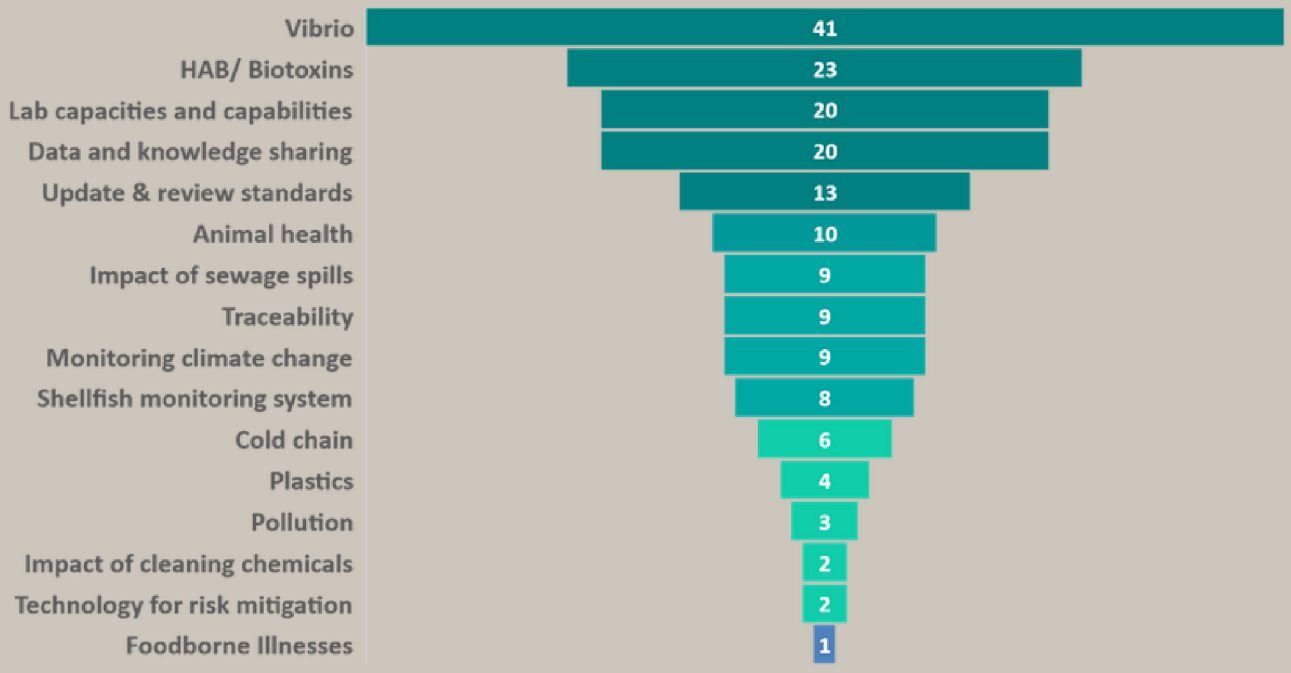


Figure 4- Top Bivalve sectors' risks identified and ranked. The numbers represent the total votes from the two virtual workshops.

The data shows that the top, most critical risks for the Bivalve sector are:
1) The challenges in Vibrio risk management. This clearly shows how prevalent the recent events in Oysters are in people's minds, and the fact that more actions and better preparedness is required and desired by the industry.
2) Harmful algal blooms (HAB) and biotoxins continue to be very high on the radar, and affect a broader range of subsector groups, such as scallops. The warming of waters, knowledge gaps and solutions to the management of novel toxins is particularly important.
3) The lack of capabilities and capacity to detect and validate the presence or impact of pathogens and toxins was ranked as the third most critical risk. This is no surprise, as there are clear limitations in Australia, which inhibits the ability of industry to manage these risks effectively and more proactively.
4) The (low level/weakness) in Food Safety culture and knowledge/data sharing is something the group expressed in various ways, raising the awareness that something needs to change here to promote better collaboration and potential to solve things collectively, sharing data sensibly and building better ways to approach these food safety or market access challenges.
5) The need to harmonise and update the existing standards for shellfish came across as a much-needed action, to be able to have the right guidance proactively and in a timely manner.
n addition to the top ranked risks, other areas of concern raised were animal health, as many of these food safety challenges and climate impacts have a direct impact on the bivalves themselves, generating stress, illnesses or the need to adapt to survive. The impact of sewage spills, traceability, and the effective monitoring of climate change events.

DEEP DIVE INTO TOP RISKS

To further understand the landscape of the top risks, we prepared a visual risk snapshot, that attempts to capture the issues that make the risk relevant, the existing actions in place and the potential opportunities/management recommendations that could be implemented. These are not fully comprehensive, they are a snapshot, and current as of February 2023. The snapshots are provided in Figures 5 to 9.

Figure 5.- Deep dive snapshot for the risk of managing *Vibrios*

Describing the risk or concern (*):

1.Lack of a National policy
2.Large knowledge gaps
3.Non-reportable status in some states
4.Unpredictability
5.General unpreparedness
6. Warming of water temperatures
7.Impact to aquaculture
8.Plastics carrying Vibrios
9.Which species to worry about: *V.parahaemolyticus, V.vulnificus*, other?

(*) Expressions used by the experts to describe the elements of the risk, ranked by number of votes or mentions,

Translating the risk

There is a need to harmonise approaches between states to facilitate the way industry manages the risk and controls the hazard. This includes the need for a reporting structure and sharing of data that helps drive awareness and urgency into research and better controls.

- Vibrio represents a bigger challenge due to its unpredictable nature and evolutionary fitness, adapting and changing continuously. The knowledge gaps are many and some need urgent attention.

- Vibrio is closely related to climate change, impacts and pollution.

Actions in Place

VIBRIO Risk mitigation Plan development facilitated by SafeFish (work in progress-WIP)

- Australian Shellfish Quality Assurance Program (ASQAP) Working group on Vibrio guidance
- De-risking Vibrio for food safety and human health proposal. Leads: K Gibb CDU, G Fletcher Plant and Food Research NZ, A Turnbull SafeFish and J Seymour UTS.
- Building capability in food safety in bivalve shellfish – Turnbull/Boulter UTAS
- Research surveys in place in NSW, Tas and NT
- Retrospective study of outbreak causes in SA

Opportunities

Industry needs to build preparedness and awareness for business continuity and incidents

- Regulators have to find ways to harmonise guidelines and provide a framework for better reporting and data sharing
- Stakeholders from all areas (government, research, industry, other) need to be frequently updated with evolving knowledge and data
- Actions that can improve cold chain management, laboratory capacities and capabilities would benefit Vibrio management but would also impact positively on other hazards.

Figure 6- Deep dive snapshot for the risk of growth and change in harmful algal blooms and biotoxins.

Describing the risk or concern (*):

1. Changes in distribution: fresh water flows and ocean currents
2. Which species are most affected
3. Emergence of novel toxins
4. More prevalence in warmer waters
5. Monitoring for unknowns
6. Vibrios and plastics as hosts for algae
7. Tetrodotoxin (TTX)

(*) Expressions used by the experts to describe the elements of the risk, ranked by number of votes or mentions,

Translating the risk

- Various factors are changing the distribution of HAB: freshwater flows, ocean currents and warmer waters, possibly suggesting a more comprehensive monitoring and multi-factor data collecting for managing and anticipating the risk
- We currently monitor for the biotoxins we know, but there are a range of novel ones that seem to be relevant and present in Australia. We need to fill these gaps and add them as emerging risks to measure and learn.
- Knowledge on how various bivalve species are impacted by these changes in the algae and biotoxins is required for better risk management and for the safety of consumers.

Actions in Place

- State shellfish programs have regular monitoring programs in place for bivalves at a frequency determined by current/historic risk
- .Universities have PhD projects in some states
- SafeFish scans Codex/SPS notifications for emerging regulations related to toxins
- .Laboratories do report some emerging toxins e.g. tetrodotoxin (TTX) and azaspiracids (AZA- some states)

Opportunities

Novel techniques for phytoplankton monitoring need to be developed/adapted to supplement biotoxin data and provide a better understanding of changing distributions

- Better knowledge of the ecology behind bloom formation, progression and decay to support predictions of change
- Research into TTX and AZA risk in Australia

Figure 7- Deep dive snapshot for the risk of low laboratory capabilities and capacities

Describing the risk or concern (*):

1.Capability and capacity for emerging issues (i.e. Vibrios)
2. Embrace Novel methods
3.Testing for all attributes and pathogens: mortality, viruses, algal blooms, *Vibrios*, microplastics
4.Speed of testing
5.Commercial reality: viability per number of tests
6.Increasing security from trading partners

(*) Expressions used by the experts to describe the elements of the risk, ranked by number of votes or mentions,

Translating the risk

- Existing capabilities and capacities are limited in Australia, making it challenging for industry to get the results around current and emerging issues alike (Biotoxins, Vibrios, HAB, microplastics, viruses)
- New, potential rapid or on-site methods are much needed, and should be embraced by industry to better manage the risks, make smarter decisions and anticipate hazards.
- Low numbers of tests required by local industry also represent a commercial challenge for laboratories to build and develop further capabilities and capacities.
- Existing tests are too slow to be effective for industry
- There is a growing scrutiny and requirements from trading partners in various countries

Actions in Place

SafeFish is collating information on Vibrio test methodologies to distribute to shellfish industry and regulators to build understanding of which purpose each methodology is fit for. We are also working to understand the level of commercial Vibrio testing required and the intention of commercial laboratories to supply quantitative testing into the future

Opportunities

- Is there a need for a national reference laboratory, or will identifying commercial providers be enough?
- There is no commercial provider of Norovirus testing, as demand is very low
- Rapid test kits provide an opportunity for point of care testing but require good validation prior to use. There could be more exploration of how these are used to supplement testing occurring in regulatory programs

Figure 8- Deep dive snapshot for the risk of low or insufficient knowledge and data sharing

Describing the risk or concern (*):

1.Low food safety capabilities in both industry and regulators
2.Low understanding of standards from industry
3.Need for collaboration to coordinate actions between industry and research
4.Low awareness of risks in primary industry and processors
5.Promoting public awareness of sewage spills and harmful algal bloom alerts
6.Mechanisms for prioritising research needs based on risks

(*) Expressions used by the experts to describe the elements of the risk, ranked by number of votes or mentions,

Translating the risk

- There is both low awareness and culture/capabilities within industry around existing and emerging risks and managing them properly. This includes the understanding of existing standards.
- There is a need for finding ways to connect the industry's needs with the research priorities. A collaboration effort, community of practice would enable a better understanding and addressing these needs.
- Spills and HAB alerts need to be made more public, to raise awareness and manage the risks more effectively

Actions in Place

VIBRIO:
1)VIBRIO Risk mitigation Plan development facilitated by SafeFish WIP
2)ASQAAP Working group on Vibrio guidance
3)De-risking Vibrio for food safety and human health proposal.
HAB/BIOTOXINS:
1)SafeFish scans Codex/SPS notifications for emerging regulations related to toxins
2)Laboratories do report some emerging
ALL RISKS:
1)Building capability in food safety in bivalve shellfish – Turnbull/Boulter UTAS
2)**Risk Register development at a sector level (SafeFish)**

Opportunities

- FRDC are exploring methods of national sharing of data with appropriate permissions attached
- SafeFish is developing a training resource tool for Listeria in ready to eat seafood and a recall workshop
- This risk register will promote the research needs if socialized broadly

Figure 9- Deep dive snapshot for the risk of Update/Review of standards

Describing the risk or concern (*):

1.Wet storage and depuration variability between states
2.National policy framework and state management plans for Vibrios
3.Complexity to navigate the regulatory system
4.Consistency across timing of closures (currently too late)
5.Evidence base for new threats and changes in regulation
6.Global and domestic review of microbes to be considered

(*) Expressions used by the experts to describe the elements of the risk, ranked by number of votes or mentions,

Translating the risk

- A need was expressed to establish/improve clear guidelines for wet storage and depuration, update existing for an improvement of risk management to exiting and emerging pathogens
- Review and update the existing framework, Nationally and at state level for managing Vibrios, including the consistency of closures, Biosecurity requirements.
- Industry considers it confusing and challenging to navigate the regulatory system, requires simplification and guidance
- 4)There is a need for better evidence regarding new threats to enable a change of regulation for the changing landscape, including an understanding of microbes that need consideration.

Actions in Place

•Australian Shellfish Quality Assurance Advisory Committee (ASQAAC)working group developing Vibrio guidance

•Guidance in NSW and Tasmania for wet storage and depuration. Possibly update required

•Work being developed on Vibrio risk management is collecting data that will support future regulations

Opportunities

- *ASQAAC is the appropriate forum to raise these issues*

THE FUTURE

The teams were asked to indicate what was needed to improve the progress of the sector, its ability to manage risks more effectively and be more proactive and aware. These were the ideas that were received:



Knowledge sharing and communication



Research



Real time monitoring tools



National, consistent guidance



Infrastructure for flooding

KNOWLEDGE SHARING AND COMMUNICATION

The group felt that the ability to progress more efficiently the way risks are managed, alerted, escalated or controlled was hindered by a lack of communication, data and knowledge sharing across all stakeholder groups., Below are some of the specific examples participants raised in the virtual sessions:

• There is a lack of knowledge sharing with all controlling bodies and affected personnel when an issue arises.
• Information sharing across industry, government, etc is poor.
• Data is not shared or made available easily to update/review current standards accordingly.
• Better communication between industry and all levels of regulators that are involved in shellfish industry regulation is required.
• There is a need to be aware of all of the issues and work together to try to solve them, or at least have an action plan and funding available to mitigate those risks that do arise.

RESEARCH

It was identified that there are very few scientists dedicated to researching these particular risks in Australia.

• More scientists and science is needed to address the gaps identified by this process.
• A current knowledge gap around the ability to understand bacterial bio flora of oysters when they are growing to identify stress markers was identified.

STUDIES AND INFRASTRUCTURE FOR FLOODING

With the increase of flooding events in our country, there was a reflection and aspiration for better infrastructure and better understanding of the ways to limit the impact to the industry:

- Better infrastructure to limit the impact of environmental events: floods, run-offs
- Sewage impact studies for each growing area

NATIONALLY CONSISTENT GUIDANCE, PROCESSES AND DOCUMENTS

The participants indicated that they required a more consistent, national framework approach to the guidelines and regulations for this sector, as well as the need to strengthen existing programs. Specific recommendations received included:

- More pragmatic, simple supply chain approaches to simplify industry processes and practices.
- Devise a system for auditing and validating things like wet storage and High-Pressure Processing (HPP) and their effectiveness for food safety.
- National, consistent approach to Shellfish Quality Assurance Programs (SQAP's)
- Devise a regulatory framework that allows innovators and entrepreneurs to solve risks with novel solutions and implement then within the industry in a timely fashion.
- National frameworks, standards, regulation and reporting for Vibrio.
- More robust guidance in the ASQAAP manual around Vibrios, wet storage. Or at least state adoption of the wet storage "rules"
- Best practice guide for responding to different risks at each point in the supply chain that is practical and meets requirements.
- National guidance/state adoption on post-harvest practices-depuration, etc
- All states and territories have one system/process.

REAL TIME MONITORING

The industry believes that they is a need to implement rapid tools and methods for real time monitoring of the risks and drivers of impact. Participant suggestions included:

- Real time (RT) monitoring across each growing area
- RT temperature and location monitoring of batches post-dispatch from the grower
- Validation/real time temperature monitoring across the supply chain

In summary, the team suggested a clear need to improve knowledge sharing, communication and collaboration across the various Bivalve' stakeholders; they identified a few knowledge gaps, that if acted upon, could build solutions and improvement for industry: real time monitoring on growing areas and across the supply chain (cold chain), a better understanding of sewage and flood impacts to improve infrastructure and better guidance around standards and regulatory systems, including the harmonization and updating of existing regulation for shellfish.

CONCLUSIONS

1. This process has been successful in identifying the most critical and material risks for the Bivalve sector from a food safety and market access perspective. These are validated and confirmed through different methods and gather the perceptions of many experts and industry stakeholders. The top risks are also consistent with Safefishs' prioritisation exercise which is data driven as opposed to this expert driven approach. Vibrio keeps leading the list, due to its prevalence and ubiquity, followed by other food safety challenges like harmful algal blooms and the status of testing and laboratory systems to support the shellfish industry.
2. The expert representation we were able to achieve is well balanced and provides confidence in the results.
3. Many of these risks are significant to the seafood industry as a whole, or to other sectors, opening the opportunity for collaboration and collective effort to mitigate and progress.

NEXT STEPS

We will share these results further via industry meetings and gather any feedback around new actions or support, any further facilitation that SafeFish can provide to the sector.
We will develop the additional tools that were agreed by participants as their most valuable, usable formats: two-page summary and an infographic. Once developed these will be disseminated to the Bivalve industry sector as a whole, and all other stakeholders involved in this process.

FOR ADDITIONAL INFORMATION

For any further information required, please contact:

Dr. Cristina Lesseur, CL ADVISORY. Email: advisory@cristinalesseur.com

Ms. Natalie Dowsett, SafeFish Secretariat. Email: Natalie.Dowsett@sa.gov.au

The report for the National Risk Register: Identification of Risks can be downloaded in Safefish's website through the following link:
https://www.safefish.com.au/reports/technical-reports/risk-register-national-report

APPENDIX 1-

SUMMARY INFOGRAPHIC OF THE NATIONAL ACTIONABLE SAFEFISH RISK REGISTER PROCESS, RESULTS AND OUTCOMES TO DATE

MONITOR REVIEW INFORM

ESTABLISH CONTEXT — Define objectives, scope, stakeholders, levels of risk

IDENTIFY — Find top material risks within context

ANALYSE — Describe, understand, prioritise

EVALUATE — Appraise, validate, define status, identify gaps

PLAN — Define roadmap, potential actions: short and long term

ACT — Where possible Act, Collaborate, Educate to raise awareness and preparedness

COLLABORATE, CONSULT, GUIDE, ESCALATE

RESULTS

TOP 34 RISKS IDENTIFIED FOR THE AUSTRALIAN SEAFOOD INDUSTRY

CRITICAL:
1) VIBRIO
2) CLIMATE CHANGE
3) GEOPOLITICAL
4) BIOTOXINS, CIGUATERA
5) TRACEABILITY AND AUTHENTICITY

IN DEPTH ANALYSIS OF TOP 5 CRITICAL RISKS:

- CAUSES
- CONSEQUENCES
- KEY DESCRIPTORS

ACTION: CHAMPION GROUP FORMED TO ADDRESS TOP CRITICAL RISK *VIBRIO*

EXPERT COLLABORATORS
- INDUSTRY
- RESEARCHERS
- GOVERNMENT AND REGULATORS

SITUATIONAL AWARENESS TO UNDERSTAND THE RISK:

- RISK ASSESSMENT
- CAUSES AND CONSEQUENCES
- GAPS IN KNOWLEDGE
- EXISTING EXPERTS
- CURRENT ACTIVITIES IN *VIBRIO*
- BEST PRACTICE AVAILABLE
- LITERATURE AND STANDARDS
- EXISTING DETECTION METHODS

RISK MITIGATION ROADMAP DEVELOPED:

- MITIGATING ACTIONS IDENTIFIED
- URGENCY AND FEASIBILITY OF ACTIONS ASSESSED
- ADDRESSING THE HIGHEST PRIORITIES

OUTPUT TOOLS TO HELP US NAVIGATE UNCERTAINTY:

- RISK IDENTIFICATION AND RANKING PROCEDURES
- TEMPLATES FOR DEVELOPING A RISK MITIGATION ROADMAP
- COMMUNICATION MATERIALS FOR AWARENESS AND EDUCATION AROUND OUR TOP RISKS
- SITUATIONAL AWARENESS FOR PLANNING AND FORECASTING

OUTCOMES

Raised awareness with all stakeholders

Improved strategic planning and forecasting

Built collaboration and connectivity

Validated gaps and needs

Guided SafeFish's priorities

Improved risk culture and tools for preparedness

Identified key focus areas

Translated insights into actions

APPENDIX B- SUMMARY OF DEEP DIVE INTO TOP RISKS

Deep dive into risks

	CHALLENGES IN VIBRIO RISK MANAGEMENT	GROWTH OF HARMFUL ALGAE BLOOMS & BIOTOXINS	LIMITED LABORATORY CABABILITIES	LOW KNOWLEDGE & DATA SHARING	UPDATE OF STANDARDDS
RISK TRANSLATED	*Vibrio* is a big challenge (unpredictable nature, evolutionary fitness, constant changes). Its impact grows with climate change events. The knowledge gaps are many and some need urgent attention.	Distribution of HABs is changing (freshwater flows, ocean currents and warmer waters. Data collecting and knowledge of impact to bivalve species will allow to anticipate and manage risk.	Laboratory capability and capacity is limited in Australia, becoming a challenge to industry and its trading partners. New & rapid methods are needed to manage risk on-site.	Low awareness, culture and capabilities within industry around existing and emerging risks and understanding of existing standards. Industry's needs and data need to align with research priorities.	Need to harmonise and update the status quo in regulations and guidelines for *Vibrio* including biosecurity requirements, consistency of closures, and better support for industry.
ACTIONS IN PLACE	*Vibrio* Risk mitigation Plan (SafeFish)/ Australian Shellfish Quality Assurance advisory committee (ASQAAC) on *Vibrio* guidance/ Research collaboration for De-risking *Vibrio*/ Building capability-bivalves food safety (UTAS)/ Research surveys (NSW, Tas and NT)/ Outbreak retrospective SA	State shellfish monitoring programs in place for bivalves/ Universities have PhD projects in some states/SafeFish scans Codex/SPS notifications for emerging regulations related to toxins/ Laboratories report some emerging toxins	SafeFish's non technical summary on *Vibrio* test methodologies aimed at the shellfish industry and regulators to improve knowledge on fit for purpose methods/ Estimation of commercial *Vibrio* testing required in Australia, presence detection and quantitative.	Refer to *Vibrio* and HAB columns for details **ALL RISKS:** Building capability in food safety in bivalve shellfish program supported by SafeFish and UTAS Risk Register development at a sector level (SafeFish)	ASQAAC developing *Vibrio* guidance/ Guidance in NSW and Tasmania for wet storage and depuration/SafeFish biottoxin harmonisation proposal/ Work being developed on *Vibrio* risk management is collecting data that will support future regulations
OPPORTUNITIES	• Increase industry preparedness and awareness of risks and incidents • Improvement of reporting structures, data capture and sharing sharing • Actions in Cold chain management	• Novel techniques and better knowledge of ecology to supplement biotoxin data and improve risk management • Research into emerging toxins in Australia	• Is there a need for a National *Vibrio* reference laboratory? • Rapid test kits provide an opportunity for point of care testing but require good validation prior to use.	National sharing of data with proper permissions attached (FRDC)/ SafeFish developing: Training resource tool for *Listeria* in ready to eat seafood/ Recall workshop/ Socialising the risk register	• FSANZ may consider the update of these standards, and through ASQAAC the current guidelines for Shellfish and *Vibrio* are being reviewed