

# **Building capability in food safety in Australian shellfish**

**M. Boulter, P. Baker, S. Murray and A. Turnbull**

University of Tasmania

**2025**

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## **Building capability in food safety in Australian shellfish 2021 – 053**

**2025**

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### **Researcher Contact Details**

Name: Dr Alison Turnbull  
Address: Program leader fish health, biosecurity and seafood safety  
Program Manager SafeFish  
15-21 Nubeena Crescent, Taroona, TAS, 7053  
Institute for Marine and Antarctic Studies (IMAS)  
College of Sciences and Engineering  
University of Tasmania  
Phone:  
Fax: +61 3 6226 8365  
Email: N/A  
[Alison.turnbull@utas.edu.au](mailto:Alison.turnbull@utas.edu.au)

### **FRDC Contact Details**

Address: 25 Geils Court  
Deakin ACT 2600  
Phone: 02 6122 2100  
Email: [frdc@frdc.com.au](mailto:frdc@frdc.com.au)  
Web: [www.frdc.com.au](http://www.frdc.com.au)

In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

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A special thanks goes to Phil Baker from NSW DPIRD (Food Authority) for all his help during this project both with on water filming in NSW and with face-to-face workshops held down in Hobart and to Shauna Murray for her help in pulling together the 2024 ASQAAC Science Day at UTS in Sydney.

We would also like to thank the team at UTAS Short Courses who pulled the training materials together into an accessible user-friendly online format particularly the Educational Technologist / cameraman / video editor David Quinn.

# Abbreviations

ASQAP – Australian Shellfish Quality Assurance Program

ASQAAC – Australian Shellfish Quality Assurance Advisory Committee

CI – Co-investigator

DAFF – Department of Agriculture, Fisheries and Forestry (Federal)

FAO – Food and Agriculture Organisation of the United Nations

FRDC – Fisheries Research and Development Corporation

FSANZ – Food Standards Australia New Zealand

HABs – Harmful Algal Blooms

IAFI – International Association of Fish Inspectors

ICMSS – International Conference on Molluscan Shellfish Safety

IMAS – Institute of Marine and Antarctic Studies

NRE – Department of Natural Resources and Environment Tasmania

NSW DPIRD - New South Wales Department of Industry and Rural Development

OA – Oysters Australia

OT – Oysters Tasmania

PI – Principal Investigator

RAC – Research Advisory Committee

RTO - Registered Training Organisation

SAOGA – South Australian Oyster Growers Association

SMT – Seafood and Maritime Training

UTAS – University of Tasmania

UTS – University of Technology Sydney

VET – Vocational Educational Training

WSC – World Seafood Congress

# Executive Summary

To achieve the industry's growth and expansion aims over the next decade and to maintain trade requirements it was clear that dedicated food safety training regarding bivalve shellfish, which are a high-risk food group, would be required both for industry and for incoming government regulatory staff. The Fisheries Research and Development Corporation (FRDC) and Oysters Australia funded UTAS to develop dedicated training resources. Working with a strong steering committee comprising personnel from peak bodies, FRDC and government regulators, the food safety team within IMAS at UTAS built three training courses and piloted them over a 12–18-month period. Two courses were aimed at industry staff and a longer, university subject level course, was aimed at new industry regulators or people wanting to transition into these roles. The project team chose to use the online UTAS Short Course Unit as the suitable course delivery platform for these courses and the UTAS Short Course Team made suitable resources available to facilitate the building of the courses. During the piloting phase of this project 285 persons have enrolled on one or other of the three courses and there have been 149 completions.

## Background

In 2017 the Australian National Aquaculture Strategy was released, aiming to double the value of aquaculture production to \$2B per annum by 2027. The oyster industries 2020 strategic plan also recognised that in order to achieve this level of growth in their high-risk industry, there needed to be a concomitant increase in personnel with food safety expertise. Specialised training to strengthen the aquaculture workforce was also a recommendation of the Standing Committee on Agriculture and Water Resources report into Supporting a Strong Future for Australian Aquaculture (Recommendation 3).

Consequently, a project was conceived initially in consultation with the Tasmanian shellfish industry following a high turn-over of staff in the regulatory program. There was a concern that the lack of expertise in this technical field could adversely impact industry activities. It was recognised that a similar problem could also exist in other states and territories particularly in the developing industries in WA and NT, and the lack of formalised training also presented a risk for the established programs in NSW, Vic and SA, due to the small pool of experts nationally.

In addition, industry training provision varies greatly between states, and was non-existent in some states. Given the importance of food safety in this high-risk seafood category, a training program was sought to fill this gap and provide an on-going means for training of new entrants for both industry and regulators.

## Aims/objectives

There were 4 objectives to this project:

1. Understand the training needs to support the continued development of the Australian bivalve shellfish industries covered by the Australian Shellfish Quality Assurance Program
2. Develop technical training modules for regulators and industry in bivalve shellfish food safety risk management
3. Deliver the training modules in a manner that suits both industry and regulators, and supports learning from existing Australian experts and adoption of successful risk management strategies
4. Provide a pathway for longevity of the training

## Methodology

To achieve objective one of the project, a horizon scan was undertaken of the available training courses available in any format in Australia and internationally that could be accessed remotely. The scan was followed by an online anonymous survey of both industry members and government regulators to determine what training stakeholders felt was required and what formats it would best be delivered in.

Once it was clear what was wanted by industry and government regulators three courses were built;

1. A 3 hour fully online self-paced **Introduction to Shellfish Safety** course which aligned with the universities SC1, short course 1 level, course structure. [An Introduction to Shellfish Safety | University of Tasmania \(utas.edu.au\)](https://utas.edu.au)
2. A full day course which aligned with the universities SC2 Short Course 2 level. This course became known as the **Shellfish Safety Supervisors** course, as this then also aligns in terms of course length and knowledge depth with the nationally recognised Food Safety Supervisors courses that have been developed to meet various state food regulator requirements. [Shellfish Safety Supervisors course | University of Tasmania](#)
3. A **Managing and Regulating Food Safety Risks in Bivalve Shellfish** course that aligns with a SC3 level. SC3 level courses are equivalent to a university degree unit and with the right approvals can then also be eligible for a 12.5 unit credit, equivalent to a university bachelor’s degree unit. [Managing and Regulating food safety risks in Bivalve Shellfish | University of Tasmania](#)

These three courses were piloted to see how they ran and to gain relevant student feedback. Once this had been achieved, the project team could then map out an ongoing legacy pathway.

## Results

The horizon scan and stakeholder survey were successfully carried out and the Training Needs Analysis that followed determined the best way forwards in terms of what needed to be developed. The three courses were successfully developed and piloted over a 12 – 18 month period. The courses dates and attendance are provided in Table 1 below.

*Table 1. Details of courses produced, running dates and attendance.*

<b>Course</b>	<b>Dates</b>	<b>Attendance</b>
Introduction to Shellfish Safety course	April 2024 - ongoing	199 registrations and 116 completions
Shellfish Safety Supervisors course	July 2024 - ongoing	64 registrations and 24 completions
Managing and Regulating Food Safety Risks in Bivalve Shellfish	Dec 2024 – September 2025	21 registered and 9 completions

Post completion of the courses, students were sent surveys requesting course feedback. Analysis of these surveys (and other relevant course completion rate data) by the project team demonstrated that the Introduction to Shellfish Safety course was well received and was running well.

The students that completed the Shellfish Safety Supervisors course also demonstrated a positive regard for the course. However, the course had a drop-off of student engagement at the legislation module, Module 2, with the project steering committee recommending that all legal parts of the course be put as the modules later in the course to improve the student retention and completion rate.

For the Managing and Regulating Food Safety Risks in Bivalve Shellfish course, which will likely attract smaller number of students, the project team needs to make this course as attractive as possible in order to ensure enough participation to guarantee longevity. At the same time, the University notified the project team that they would not be adding new undergraduate courses to their framework in 2026 and therefore completion of this course could not be credited towards an undergraduate degree. On this basis, the steering committee considered that shortening this course to around 90 hours in length to reduce it from

an SC3 to an SC2 level would make the course a more attractive from both a time and price point. This decision aligns with feedback from some of the initial cohort of students that the course was too long.

With regard to achieving objective 4, a pathway for longevity of training, these three courses can continue to be delivered by the UTAS Short Course Unit.

## **Discussion**

The project team has successfully achieved the objectives by creating the professional training courses needed by the bivalve shellfish industry and regulators in Australia. The courses have the ability to train the next generation of shellfish producers and regulators, supporting a thriving Australian aquaculture industry.

The IMAS project staff who have delivered this project (Dr Alison Turnbull and Mark Boulter) look forward to continuing to deliver these three courses. The ongoing challenge is to market the three courses appropriately to their relevant target audiences to attract a pipeline of students to the three courses. The industry peak bodies, FRDC, Seafood Industry Australia, SafeFish and the Australian Shellfish Quality Assurance Advisory Committee (ASQAAC) can all help to facilitate the awareness of these courses to relevant industry and government stakeholders to ensure a continuation of students into the three courses and the flow on benefits to industry that this provides in having well trained staff and government regulators.

## **Implications for relevant stakeholders**

These three courses now offer a mechanism for both industry and government regulatory agencies to ensure staff are suitably trained to the correct level for their roles. This is particularly important given the high-risk nature of this food group.

The active involvement in this project by so many ASQAAC members, both on the steering committee and in terms of providing useful content for the courses, demonstrates the value that ASQAAC members see in these three courses.

The government regulator in Tasmania, ShellMAP, runs an industry sampler training program and they have now made completion of the Shellfish Safety Supervisors course a part of that training process. This highlights the value given to some of this training by a state regulator. Other state regulators could consider making similar recommendations in their jurisdictions.

## **Recommendations**

We recommend that the peak industry bodies, FRDC extension officers and government regulators continue to promote the courses to their industry members.

We also recommend that state government agencies consider acknowledging the existence of these industry training courses in their state pro-forma Food Safety Management System documentation, as a mechanism by which businesses can demonstrate that they are meeting their staff training obligations, with regards to food safety training.

# Introduction

In 2017 the Australian National Aquaculture Strategy was released, aiming to double the value of aquaculture production to \$2B per annum by 2027. The oyster industries 2020 strategic plan also recognised that in order to achieve this level of growth in their high-risk industry, there needed to be a concomitant increase in personnel with food safety expertise. Specialised training to strengthen the aquaculture workforce was also a recommendation of the Standing Committee on Agriculture and Water Resources report into Supporting a Strong Future for Australian Aquaculture (Recommendation 3).

Consequently, a project was conceived initially in consultation with the Tasmanian shellfish industry following a high turn-over of staff in the regulatory program. There was a concern that the lack of expertise in this technical field could adversely impact industry activities. It was recognised that a similar problem could also exist in other states and territories particularly in the developing industries in WA and NT, and the lack of training also presented a risk for the established programs in NSW, Vic and SA, due to the small pool of experts nationally.

In addition, industry training provision varied greatly between states, and was non-existent in some states. Given the importance of food safety in this high-risk seafood, a training program was sought to fill this gap and provide an on-going means for training of new entrants for both industry and regulators.

The need to fill these gaps was discussed at the Australian Shellfish Quality Assurance Advisory Committee (ASQAAC) meeting in 2020 and received support from all industry and government members, with volunteers from ASQAAC agreeing to support the development of new training to meet this need. The project proposal was supported by Oysters Australia and all state shellfish RACs.

The project developed addressed the following Fisheries Research and Development Corporation (FRDC) strategic goals: Program 2: Risk Management; Program 3: People and Knowledge; and Program 5: Industry Profile & Regulation, specifically:

- addressing the fundamental need for people development and on-boarding both now and into the future by developing guidance and training programs for both industry and regulatory authority stakeholders
- supporting and enabling sharing of learnings and approaches from existing state programs so that Australia can quickly adopt current successful strategies nationally and collaboratively draw on the national experience to manage novel issues as they emerge in each state
- underpinning the development of new shellfish industries as they grow in Australia providing for strong foundations and coordination of these developing industries, ensuring they do not undermine the strong safety reputation of existing industries.
- future proof and prepare the industry for emerging threats, ensuring market access and provision of safe product to consumers

This project aimed to meet the essential needs of industry and regulatory stakeholders, as without robust and agile shellfish quality assurance programs (SQAP) market access can be reduced and states have no certainty of investment and growth in this sector. The strength of national growth is dependent on all the states providing safe product to the market and being appropriately supported to do this long term.

ASQAAC is a volunteer organisation comprised of state and federal regulators, industry representatives, Food Standards Australia New Zealand and associated stakeholders including researchers, SafeFish, seafood importers and laboratories. ASQAAC sets the requirements for market access in Australia through the Australian Shellfish Quality Assurance Program (ASQAP), and influences industry's ability to grow and further develop its low input, carbon friendly and job intensive industry. The ASQAP is best practice, and ASQAAC

strives to include safe and appropriately innovative and validated measures to ensure market access is maximised - important for future proofing the national shellfish industry.

With ASQAAC support the development of specialised food safety training for the bivalve shellfish sector can help to grow a food safe industry and develop new regulators with the specialist skills required in this niche area of food safety management. In the words of the past ASQAAC Chair Phil Baker: “The last decade has seen the exit of significant knowledge and history with long-term regulators being replaced with new recruits to the technically complex shellfish regulatory role. Currently there is little to guide them, particularly as ASQAP has transitioned to an outcome-based program. The vital knowledge required is often only learned through experience.”

The development of a targeted training program aims to take advantage of the pool of experts that currently do exist in Australia, to the benefit of all existing and developing bivalve shellfish sectors of industry.

The development of industry orientated training courses not only helps people to understand how they can address their legal food safety obligations, but also highlights steps that could be taken by industry to minimise food safety risks, through adoption of best practice processes within their businesses and hence strengthen their brands.

## Objectives

The objectives of this project were:

1. Understand the training needs to support the continued development of Australian shellfish industries covered by ASQAP
2. Develop technical training modules for regulators and industry in bivalve shellfish food safety risk management
3. Deliver the training modules in a manner that suits both industry and regulators, and supports learning from existing Australian experts and adoption of successful risk management strategies
4. Provide a pathway for longevity of the training.

These objectives were maintained throughout the lifetime of this project.

## Scope

This project scope covered all bivalve fisheries included in the Australian Shellfish Quality Assurance Program i.e. all edible species of bivalve molluscs such as oysters, clams, scallops, pipis and mussels harvested for human consumption. This does not include spat, or scallops and pearl oysters where the consumed product is only the adductor muscle or non-bivalves such as abalone.

# Method

Step one was the formation of a steering committee for the project. This comprised of Anthony Zammit, New South Wales Shellfish Program Manager; Shelly Alderman, Dairy, Fish and Eggs Branch at the Commonwealth Department of Agriculture Fisheries and Forestry (DAFF) Export Standards Division; Duncan Spender, Chief Executive of Oysters Tasmania (OT); Lynlee Lowe, Executive Officer of the South Australian Oyster Growers Association (SAOGA); Karen Loone, Program Manager of Primary Produce Safety at Natural Resources and Environment (NRE) Tasmania and Matt Jones, Extension Officer from FRDC, who also has past experience working for a registered training organisation. The defined function of the steering committee was to review and approve the communication and extension strategy; assist the project investigators to identify all key stakeholders; review and approve the work plan at the STOP/GO point (see below); ensure the training material developed is relevant to the bivalve species covered by ASQAP; and assist in ensuring a legacy for the training materials developed during the project.

The next key task was for the PI, Dr Alison Turnbull, to hire a suitable person to take a lead on the project. Mr Mark Boulter who had previously been a Chair of ASQAAC and was also the past Chair of the NSW Food Authorities Shellfish Committee was hired to work on the project at initially 0.6 FTE which dropped down to 0.5 FTE part way through the project. All project staff, steering committee members and major contributors are listed in Appendix 1.

The project was undertaken in several distinct phases:

## **Phase 1. Understand the training needs to support the continued development of Australian shellfish industries covered by ASQAP.**

This was done in two ways, a horizon scan of the available training courses in terms of what was available in any format in Australia and internationally that could be accessed remotely., This was followed by an online anonymous survey of both industry members and government regulators to determine what training stakeholders felt was required and what formats it would best be delivered in. These two processes then allowed the project team to conduct a training needs analysis of what was required.

## **Phase 2. Develop training courses (modules) for regulators and industry in bivalve food safety risk management**

Following on from phase one's horizon scan, survey and training needs analysis process, a workplan was developed to address the training needs and deliver the proposed training package(s). The adoption of this workplan by the steering committee was an FRDC stipulated project Stop / Go point.

At project inception, there had been a vision that at least four training modules would be developed. What was proposed once the training needs analysis had been conducted was to develop three separate distinct training courses, two for industry and one for government regulators, with the government regulator course comprising of 4 training modules.

Beyond the Stop / Go point process the three course outlines, including an outline of their proposed contents and the defined learning objectives for each course, were developed with support from the University of Tasmania short-course development team. The three courses were aligned to specific recognised teaching levels and their development / delivery strategy agreed to by the University.

Once the above was achieved, the three proposed courses were developed with the long-term future in mind, such that content would be relevant for current and future employees in the industry / regulatory fields. A combination of on-line self-paced, online face-to-face zoom and in-person workshop content was created, using the UTAS provided Short Course platform for the delivery of the on-line self-paced content. Course development was carried out in close consultation with the steering committee.

**Phase 3. Deliver the training courses (modules) in a manner that suits both industry and regulators, and supports learning from existing Australian experts and adoption of successful risk management strategies**

A communication and extension strategy was developed and approved by the steering committee, following which the courses were publicised to their relevant target audiences. Course introduction websites / enrolment portals were set up, flyers developed outlining the courses' availability and a promotion video created for the two industry orientated courses. The project PI and CI attended relevant state shellfish conferences in Tasmania, South Australia and New South Wales to promote the availability of the courses and the courses were listed on the Seafood Careers website managed by SIA.

The courses were then trialled (piloted) for a period of up to 12 – 18 months to determine if the courses were achieving their desired outcomes.

**Phase 4. Provide a legacy pathway for the training**

During the piloting phase, the students who successfully completed the courses were surveyed on the course content and delivery style. The survey results were presented to the steering committee who then made recommendations for changes to the courses, if required. Courses were then updated to reflect these recommendations (or an adequate argument for no-change accepted by the steering committee).

The project team worked closely with the UTAS short-course team so that UTAS can continue to deliver the three courses as part of their short-course post-graduate, undergraduate and community engagement programs to produce a pipe-line of job-ready students.

# Results

## Phase 1. Understand the training needs to support the continued development of Australian shellfish industries covered by ASQAP

### Horizon Scan

A horizon scan of available related courses both nationally (online and face-to-face) and internationally (online) was undertaken.

Initial liaison was carried out with Skills Impact, the Australian skills standards body. It was determined that 14 Registered Training Organisations (RTO) had aquaculture courses in their scope though it was clear that there was little focus on food safety in these courses. Oceanwatch / NSW Farmers was running a Unit of Competency on Environmental Management that includes a small amount of shellfish food safety elements. Seafood and Maritime Training (SMT) in Tasmania incorporate shellfish food safety training into a Risk Management Unit of Competency in their Certificate IV aquaculture course. No course was identified that was dedicated to food safety for bivalve shellfish. There is also no existing 'Unit of Competency' that suitably covers this topic. This was an issue as creating a new Unit of Competency Vocational Educational Training (VET) qualification usually takes around 2 years.

With respect to the Seafood and Maritime Training Cert IV, the project co-investigator Mark Boulter, has been a guest speaker into this course in 2024 and 2025 to cover off on some of the food safety issues related to bivalve shellfish. These were conducted face-to-face in Launceston, Tasmania.

The list of available course providers found are listed in Appendix 2.

There is one unit of competency that is part of a Diploma in Food Auditing - Audit Bivalve Mollusc growing and harvesting processes. This covers many relevant topics but specifically not Harvest Area Classification. At the time of the horizon scan in 2022, two trainers had this Unit of Competency on their RTO scope (Goulburn Valley and UTAS), though at that time this course had not been delivered in the previous 4 years.

In March 2023, the ex-UTAS trainer, now retired, partnered up to deliver the course in Hobart through Goulburn Valley RTO for some federal and state govt food safety auditors. The project co-investigator, Mark Boulter, also attended this course as a guest lecturer and covered relaying, wet storage and depuration topics.

With regard to online internationally available courses at the time of the horizon scan, the following were identified;

- Two Food and Agriculture Organisation (FAO) online self-paced training courses in Shellfish Harvest Area classification, developed in conjunction with CEFAS in the UK, that are available free of charge.
- Two fee paying UK Depuration courses run by Seafish / UK Institute of Environmental Health Officers.
- 5 online US courses mostly run by State Shellfish Sanitation Agencies and 1 US online video based industry new entrants course, covering all aspects of oyster growing / harvesting operations. These courses appear to be free.

See Appendix 2 for the full table of courses identified.

Since the horizon scan was undertaken, the FAO course modules have expanded and now covers 4 interrelated areas. These are fully self-paced online modules with an examination at the end of each one.



### Bivalve mollusc sanitation: Growing area risk profile

AUGUST 2019 2 h 30 m



### Bivalve mollusc sanitation: Growing area assessment and review

OCTOBER 2020 5 h

[Course: Bivalve mollusc sanitation: Growing area risk profile | FAO elearning Academy](#)

[Course: Bivalve mollusc sanitation: Growing area assessment and review | FAO elearning Academy](#)



### Bivalve mollusc sanitation: Growing area monitoring

SEPTEMBER 2023 2 h 30 m



### Bivalve mollusc sanitation: Growing area classification and management

JUNE 2024 2 h 10 m

[Course: Bivalve mollusc sanitation: Growing area monitoring | FAO elearning Academy](#)

[Course: Bivalve mollusc sanitation: Growing area classification and management | FAO elearning Academy](#)

The 4 FAO / CEFAS courses were seen to be very relevant for the regulator level and permission was obtained from FAO to incorporate these courses into the pilot run of the Managing and Regulating Shellfish Safety Risks course that was developed.

The project co-investigator, Mark Boulter, attended the two Seafish shellfish depuration courses, one aimed at industry, and one aimed at regulators and also completed the 4 FAO / CEFAS bivalve shellfish water classification courses to evaluate their effectiveness.

The two Seafish depuration courses were very specific to UK requirements and were not seen as particularly relevant to an Australian audience. They were also online zoom courses that would require Australian participants to be up all of the night to attend the courses.

**Stakeholder Survey**

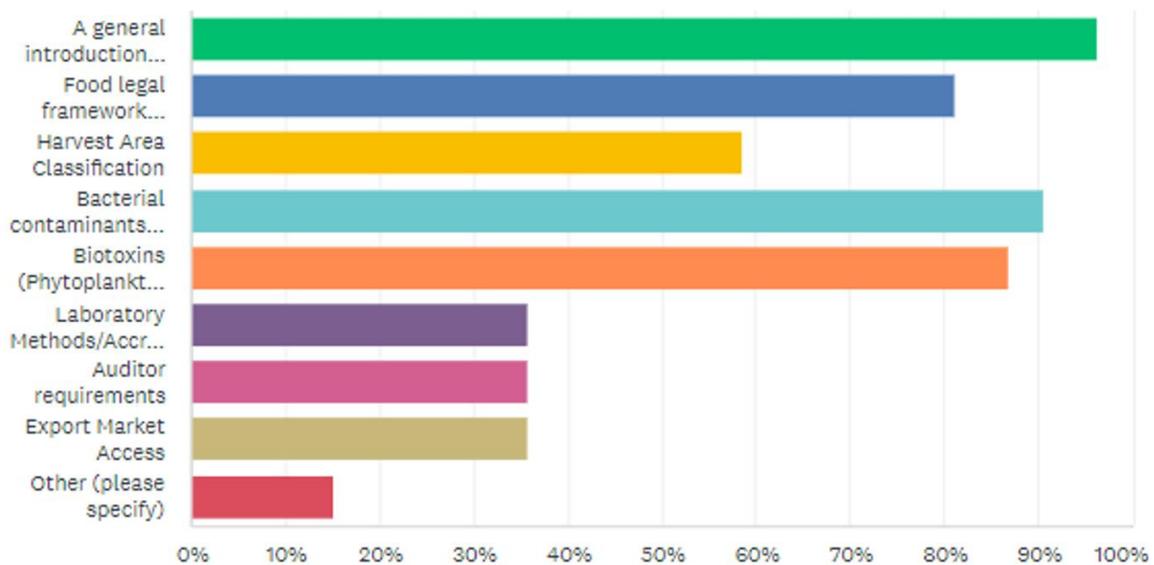
In September 2022, an anonymous stakeholder survey was built to determine stakeholders perceived training needs and preferred format of delivery. Ethics approval was obtained from the University and the survey ran during November 2022 through SurveyMonkey. Sixty responses were received; 30 from industry, 16 from government regulators and 14 from other industry stakeholders.

**Stakeholder Survey Results – Industry responses on industry orientated training**

Topics - Support for a cross section of topics to be incorporated, particularly food law (80%), bacterial contaminants (89%) and biotoxins (86%)

**What topics should be included in an industry course? (Tick any you f... \*\*\***

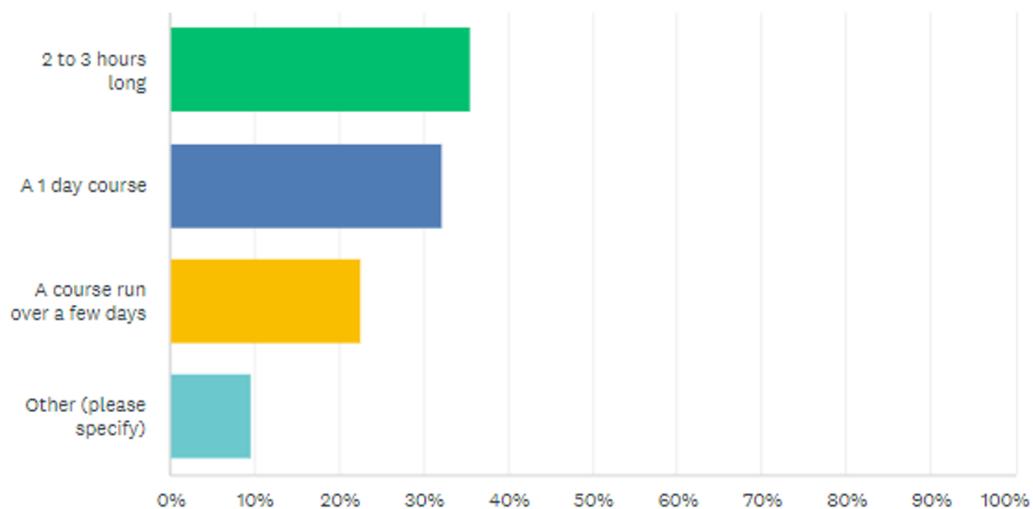
Answered: 53 Skipped: 7



Length - Strongest support for courses 2-3 hours long (34%), then second choice was a day course (31%)

**What length would you see as appropriate for industry training modul...**

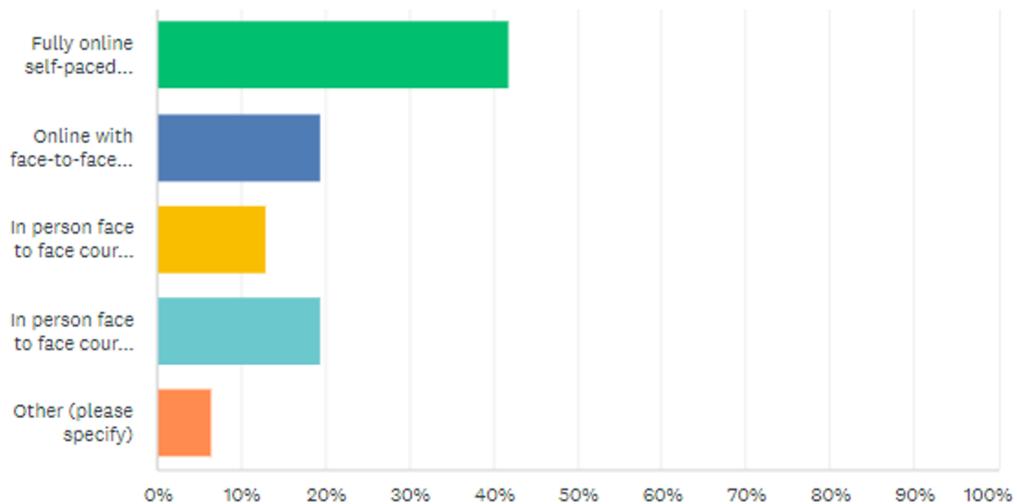
Answered: 31 Skipped: 1



Delivery Method - Strongest support for a fully online self-paced course module (41%), second support was for online face-to-face delivery (21%)

**In what format would you like to see these industry-orientated course...**

Answered: 31 Skipped: 1



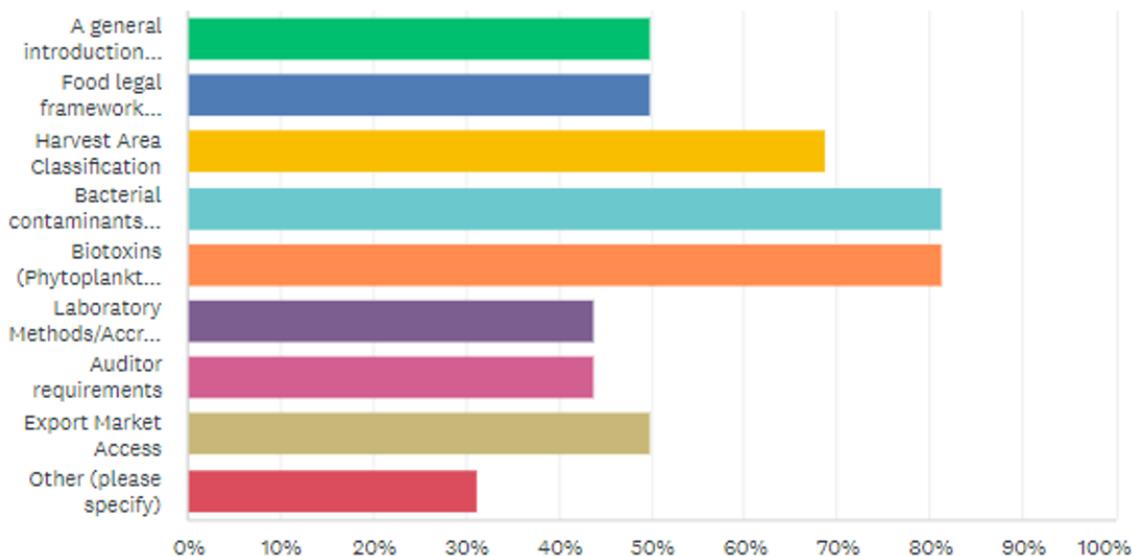
Accredited Course - Highly supportive of being an accredited course (86%)

**Stakeholder Survey Results – Regulators responses to regulator orientated modules**

Topics - Strong support for Harvest Area Classification (68%), bacterial contamination (82%) and biotoxins (82%) but also a desire for a bit of everything - other topics 46%

### For regulators what shellfish safety training modules would you most ...

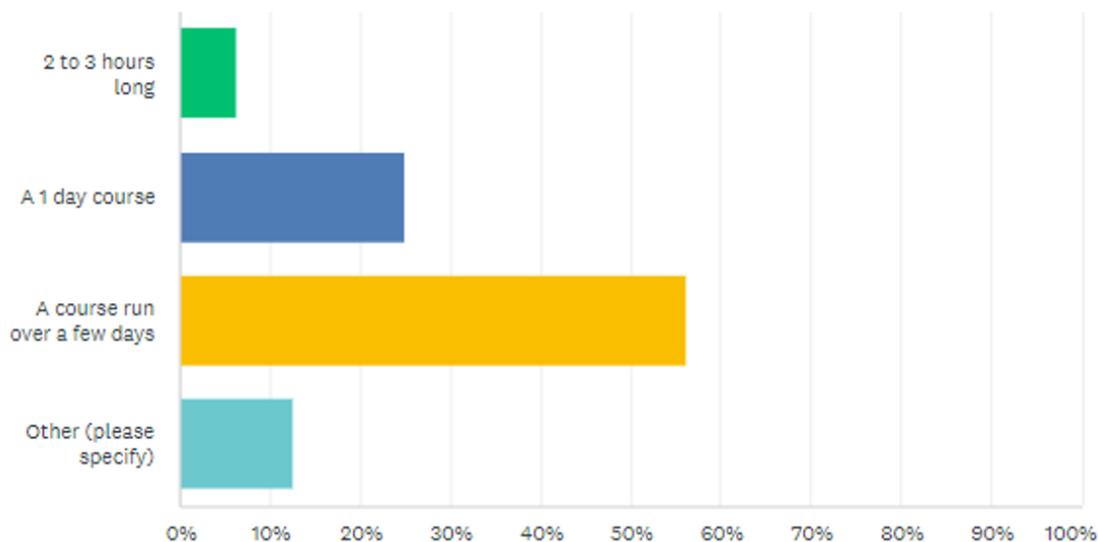
Answered: 16 Skipped: 1



Length - Strongest support for a series of modules run over a number of days (53%)

### What length would you see as appropriate for regulator training modu...

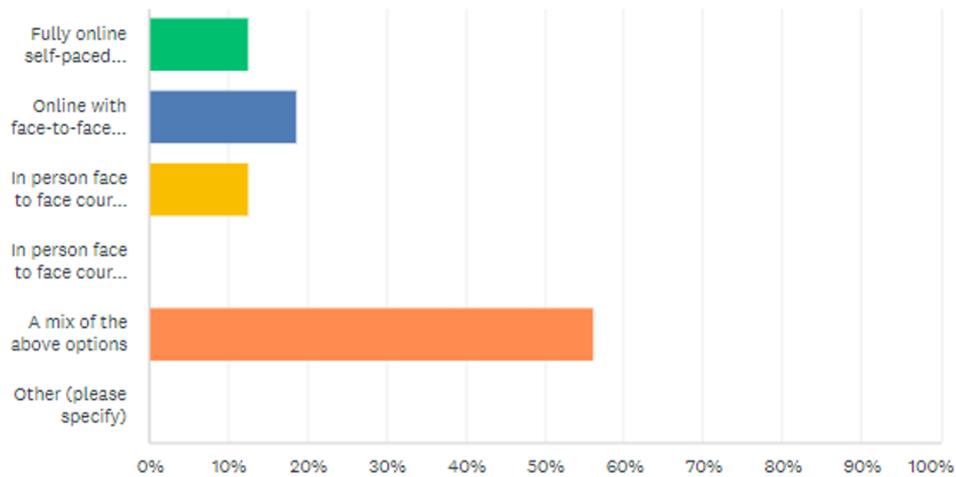
Answered: 16 Skipped: 1



Delivery Method - Strongest support for a mix of delivery options (60%)

### In what format would you like to see these course modules for regulat... \*\*\*

Answered: 16 Skipped: 1



Accredited Course - Highly supportive of being an accredited course (85%).

All the details from the survey can be found in Appendix 3.

The horizon scan and the survey results then allowed the project team to conduct a training needs analysis of what was required.

## Next Steps

Following on from the horizon scan and survey processes, the steering committee signed off on the following pathway forward for the project.

The development and piloting of two Industry orientated courses:

1. A fully online self-paced Introduction to Shellfish Safety course for any industry member, including new entrants. This to be of around 2-3 hours in length.
2. An online face-to-face more detailed Shellfish Safety Supervisors course suited for owners, managers and industry members who sit on state government liaison committees. This to be between half a day and a day in length.

A Managing and Regulating Food Safety Risks in Bivalve Shellfish course with 4 modules:

- An introduction including legal framework, FSANZ, Hazard Analysis Critical Control Point, ASQAP, Export Regs.
- Harvest Area Classification (utilising the FAO course material, as a self-paced element).
- Bacterial Contaminants Inc. management of sewage, and vibrio issues.
- Biotoxin management.
- Then if time permits a further module on Wet Storage / Depuration (Noting that the UK course exists).

With respect to platforms for training delivery, the steering committee decided to go with the UTAS Short Course platform for the industry courses, noting that the VET 'Unit of Competency' channel will be slow to initiate. UTAS micro-credentialled short course(s) will be faster and easier to get up and running.

The steering committee also noted; The UTAS short course platform seems to be the logical place for the Managing and Regulating Food Safety Risks in Bivalve Shellfish course, utilising UTAS software, administration and technicians, and simplifying any future updates suggested by the delivery team. This makes the online material readily accessible and access to UTAS shellfish safety specialist lecturers for any face-to-face elements of the course. In the longer term, legacy pathway context the plan was to see if it was possible to morph this course into a university topic for 3rd year graduates or Masters students.

## Phase 2. Develop training courses (modules) for regulators and industry in bivalve food safety risk management.

Following on from phase one's training needs analysis, a detailed work plan was created to developed and deliver the three proposed training courses. The adoption of this workplan by the steering committee was an FRDC stipulated project Stop / Go point. The FRDC was satisfied with the direction being proposed and the project proceeded.

Three course outlines, including the proposed contents and the defined learning objectives for each course, were developed with support from the University of Tasmania short-course development team. The three courses were aligned to specific recognised teaching levels and their development / delivery strategy was agreed to by the University to ensure that the curriculums were consistent with university methodologies and met recognised course levels.

The 3 hour long fully online self-paced Introduction to Shellfish Safety course aligned with the universities SC1 short course 1 level course structure.

The Shellfish Safety Supervisors full day hybrid course with a mixture of online self-paced elements and face-to-face zoom sessions on key topics aligned with the universities SC2 Short Course 2 level. This course aligns

in terms of course length and knowledge depth with the nationally recognised Food Safety Supervisors courses that have been developed to meet various state food regulator requirements.

A structure was proposed for the Managing and Regulating Food Safety Risks in Bivalve Shellfish course that would align this course with a SC3 level course. SC3 level courses are equivalent to a university degree unit and with the right approvals can then also be eligible for a 12.5 unit credit. The Managing and Regulating Food Safety Risks in Bivalve Shellfish course curriculum was designed to comprise of 4 modules of around 30 hours learning each, with each module to have an online portion and a face-to-face workshop, both of roughly 15 hours each followed by a module final assignment. The online portion was a mixture of self-paced learning on the Short Course Platform and guided learning through online presentations by course lecturers.

The course structure contained four modules:

- Biological factors and legislative framework
- Harvest area classification
- Bacterial contaminants including management of sewage, vibrio's, depuration and wet storage
- Harmful algal blooms and their management

The curriculums for the three courses are outlined in Appendix 4.

Once the three courses' curriculums had been built to the satisfaction of all parties, these had to be approved by the University. By August 2023, the Introduction to Shellfish Safety course had been approved, allowing this course to move to a build / development phase whilst the other two courses were getting their approvals. Once the University Short Course Unit accepted the course, this then opened up access to their staff resources to help build the course materials. This course acceptance also allowed for the future courses to be publicised to industry through industry conferences.

In September 2023, the project Principal Investigator (PI) and Co-investigator both attended the Oysters Tasmania (OT) Shellfish Futures conference and the international World Seafood Congress / International Conference of Molluscan Shellfish Safety (WSC/ICMSS) conference. The project PI had her travel expenses paid by the International Association of Fisheries Inspectors, the WSC/ ICMSS conference organisers, to provide a keynote paper. This opportunity also allowed for discussions with FAO around seeking FAO approval to incorporate course materials into the Managing and Regulating Food Safety Risks in Bivalve Shellfish course.

University approval also allowed field work to be carried out. A few days of filming was undertaken on Wallis Lake in NSW. This footage would then be appropriately edited for all three courses.

The course build on the Introduction to Shellfish Safety course was completed by late 2023 and a 'soft launch' of this course was undertaken in early 2024 with a 'hard launch' completed post easter 2024.

By Easter 2024, the Shellfish Safety Supervisors course had been built and was out to the steering committee for review. This course was launched in July 2024.

The Managing and Regulating Food Safety Risks in Bivalve Shellfish course was launched in December 2024. The introduction and the first two modules were built by this point. The final two modules and a supplementary fifth module continued to be built whilst the course was running during early 2025.

To garner additional technical content for the Managing and Regulating Food Safety Risks in Bivalve Shellfish course, the project ran an ASQAAC Science Day in November 2024 at UTS in Sydney (Figure 1), organised with one of the projects co-investigators, Prof. Shauna Murray. This allowed for strong information transfer to 40 in room attendees and 10 online attendees. It also allowed for 8 of the key presentations to be filmed so that they could be incorporated into the 3<sup>rd</sup> and 4<sup>th</sup> modules of the course. .

Keynote Speaker <b>What does the future of harmful algal bloom monitoring look like in New Zealand for the shellfish industry?</b> Dr Tim Harwood, Cawthron Institute NZ
Keynote Speaker <b>Environmental DNA, sensors, qPCR, rapid tests, predictive models – How can we improve shellfish safety monitoring in Australia by integrating new and old approaches?</b> Prof Shauna Murray, UTS / Chair NSW Shellfish Committee
Keynote Speaker <b>Shellfish safety and climate change</b> Dr Alison Turnbull IMAS/UTAS and SafeFish
<b>Building Capability in Shellfish Safety – an update on the industry training course</b> Mark Boulter, IMAS / UTAS
Lunch
<b>An update on the NSW <i>Vibrio</i> issue in 2024</b> Anthony Zammit, NSW DPIRD / Food Authority
<b>PST dynamics in different seafood species: update on UTAS PST research</b> Dr Andreas Seger, IMAS/UTAS and SafeFish
<b>A perspective on interagency cooperation using the recent Wallis Lake Norovirus incident as an example</b> Phil Baker, NSW DPIRD / Food Authority
<b>Monitoring Marine Biotoxins in European Aquaculture: Focus on Paralytic Shellfish Toxins in Ireland</b> Francesca Cucchi, ATU Ireland

Figure 1. Program for the ASQAAC Science Day at UTS, 13 November 2024

### **Phase 3. Deliver the training courses (modules) in a manner that suits both industry and regulators, and supports learning from existing Australian experts and adoption of successful risk management strategies**

The courses dates and attendance are provided in Table 1 below.

Table 1. Details of courses produced, running dates and attendance.

<b>Course</b>	<b>Dates</b>	<b>Attendance</b>
Introduction to Shellfish Safety course	April 2024 - ongoing	199 registrations and 116 completions
Shellfish Safety Supervisors course	July 2024 - ongoing	64 registrations and 24 completions
Managing and Regulating Food Safety Risks in Bivalve Shellfish course	Dec 2024 – September 2025	21 registered and 9 completed

The introduction web pages can be found at:

[An Introduction to Shellfish Safety | University of Tasmania \(utas.edu.au\)](#)

[Shellfish Safety Supervisors course | University of Tasmania](#)

[Managing and Regulating food safety risks in Bivalve Shellfish | University of Tasmania](#)

The project team developed a promotional video for the two industry courses that could run at trade events in time for the NSW oyster industry conference in September 2024. This helped to promote the courses, along with two industry flyers (see Appendix 6).

By late 2024, it was becoming clear that the online face-to-face elements of the Shellfish Safety Supervisors course were creating a roadblock for course completion. At the Steering Committee meeting in November 2024, a decision was made to move this whole course into an online self-paced mode. This also led to the need to make the three course assignments short written elements that had to be uploaded by the students. This transfer process was completed by February 2025, and the course has run in fully self-paced mode since then. Ten participants have fully completed the course, including the assignments, since this changeover occurred.

The Managing and Regulating Food Safety in Bivalve Shellfish course has 9 online modules, including the 4 from FAO and 5 that were specifically built for this course, that students could work through in a self-paced manner. Each module also had a fixed timeslot online face-to-face zoom/teams lecture session, to introduce each new module. The course also incorporated two workshops that could be either attended face-to-face or online.

The first of these workshops was run on March 11<sup>th</sup> and 12<sup>th</sup> 2025 at IMAS in Taroona. Phil Baker, one of the co-investigators, attended as a guest lecturer alongside Alison Turnbull and Mark Boulter. Day 1 covered legislation and desktop elements of the shellfish harvesting area water classification process. Day 2 was a field day looking at water classification issues around a shellfish growing area near to Hobart. 6 people attended in person and another 6 attended online.

The second workshop was run on 8<sup>th</sup> and 9<sup>th</sup> September 2025, also held at IMAS in Taroona. Nine persons attended the workshop in person and two others attended online. This workshop covered two key areas; vibrios and harmful algal blooms (HAB's). Day 1 was more science orientated and had guest lectures from Andreas Segar and Claire Hedges, both researchers at IMAS, alongside Alison Turnbull and Mark Boulter. Day 2 was more legislation / management orientated and covered these hazards from a management perspective. Anthony Zammit, one of the projects steering committee and Phil Baker, both from the NSW shellfish safety regulatory agency, gave guest lectures on the subject matters. Anthony also provided a historical perspective on Shellfish QA both globally and nationally.

This final workshop was timed to coincide with both the ASQAAC annual meeting and the OT Shellfish Futures conference, held in Hobart on Sept 10<sup>th</sup> and 11<sup>th</sup>-12<sup>th</sup> respectively. This allowed the students to also attend the annual ASQAAC meeting as observers, to see how the national process works and also if they wished, stay on for the industry conference. We feel that this process worked very well and that the students got a lot out of the whole week of events.

## **Phase 4. Provide a legacy pathway for the training**

- a. Participants in the training modules will be surveyed on the content and delivery style of the modules**

The two online self-paced courses have a participant survey at the end, for people who complete the course. From these two surveys, we can determine how those who have completed the courses feel about the process and the user experience of undertaking the course.

### Introduction to Shellfish Safety course

118 persons have completed the survey. The results are presented numerically below (Table 2) and visually in Appendix 5.

The six questions were:

- Please indicate how much you agree or disagree with this statement: The course content was presented in an engaging way.
- Please indicate how much you agree or disagree with this statement: The course included high-quality learning content.
- Please indicate how much you agree or disagree with this statement: The course was a good length for a short course.
- Please indicate how much you agree or disagree with this statement: I found the website easy to navigate.
- Please indicate how much you agree or disagree with this statement: Overall, I was satisfied with my short course experience.
- Please indicate how much you agree or disagree with this statement: I would be happy to recommend this course to a friend.

*Table 2. Numerical representation of Introduction to Shellfish Safety course survey results. -2= strongly disagree, 2 = strongly agree. Number of respondents =118*

Questions	Average score
Please indicate how much you agree or disagree with this statement: The course content was presented in an engaging way.	1.09
Please indicate how much you agree or disagree with this statement: The course included high-quality learning content.	1.25
Please indicate how much you agree or disagree with this statement: The course was a good length for a short course.	1.18
Please indicate how much you agree or disagree with this statement: I found the website easy to navigate.	1.21
Please indicate how much you agree or disagree with this statement: Overall, I was satisfied with my short course experience.	1.18
Please indicate how much you agree or disagree with this statement: I would be happy to recommend this course to a friend.	1.24

So it can be seen that for the people who complete the Introduction to Shellfish Safety course, there is a positive feedback about all course aspects.

### Shellfish Safety Supervisors Course

27 persons have completed the survey. The results are presented numerically below (Table 3) and visually in Appendix 5. The questions and the scoring process are the same as the shellfish introduction course outlined above.

*Table 3. Numerical representation of Shellfish Safety Supervisors Course survey results. -2= strongly disagree, 2 = strongly agree. Number of respondents = 27*

Questions	Average score
Please indicate how much you agree or disagree with this statement: The course content was presented in an engaging way.	1.26
Please indicate how much you agree or disagree with this statement: The course included high-quality learning content.	1.48
Please indicate how much you agree or disagree with this statement: The course was a good length for a short course.	1.26
Please indicate how much you agree or disagree with this statement: I found the website easy to navigate.	1.15
Please indicate how much you agree or disagree with this statement: Overall, I was satisfied with my short course experience.	1.37
Please indicate how much you agree or disagree with this statement: I would be happy to recommend this course to a friend.	1.22

So it can be seen that for the people who complete the Shellfish Safety Supervisors Course, there is a positive feedback about all course aspects

### Managing and Regulating Food Safety Risks in Bivalve Shellfish Course

For the Managing and Regulating Food Safety Risks in Bivalve Shellfish Course, an anonymous SurveyMonkey was used for review. It was performed twice, halfway through the course and at course completion. The full results from both surveys are shown in Appendix 5.

The following is a summary of the results of the mid-course survey. 7 out of the 11 active participants in the course filled out this survey.

- Please rate the level of detail presented in Modules One and Two on a scale of 1 to 5, with 1 being too detailed and 5 being not detailed enough
  - 3 = 85% of responses
- Please rate the mode of delivery in Modules One and Two on a scale of 1 to 5, with 1 being too much on-line delivery and 5 being too much in-person
  - 3 = 85% of responses
- Please rate the course materials presented on a scale of 1 to 5, with 1 being dry and boring and 5 being interesting and engaging
  - 4 = 57% of responses
- Please rate the teaching on a scale of 1 to 5, with 1 being dry and boring and 5 being interesting and engaging
  - 4 = 43% of responses

- Do you feel that you are learning new information that will be useful in your job / in the future:
  - Yes, I am picking up lots of useful stuff = 85% of responses
- Would you recommend the course to others entering into industry regulatory roles?:
  - Yes = 100% of responses

From the comments in the detailed survey feedback , the one thing that stood out was that some of the students found the online FAO modules on shellfish harvest area classification from an international context either; too much, too hard, or unrequired. This is a point that could be reviewed if this course is decided to be shortened.

The second survey, also via SurveyMonkey was released to the students once the course had been completed in mid-September 2025. By mid-October, we had only received 3 responses to this second survey indicating survey fatigue from the course attendees. The results are shown in Appendix 5. Albeit only from 3 people, the survey results are positive . The face-to-face workshops were a highlight of the course for the students.

Verbal ad hoc feedback once the course had ended, after the second workshop, was very positive with students indicating they have really enjoyed the course and thought that all new / novice shellfish safety regulators should attend the course in the future. Regulators who were multidisciplinary food safety auditors indicated it was maybe too long a course for them. It was suggested that maybe the 8 hour Shellfish Safety Supervisors course would better suit their requirements.

**b. Survey results will be presented to the steering committee who may then recommend changes to be made to the modules**

The course feedback reports for all three courses were reviewed at the Steering Committee meeting held on 10<sup>th</sup> October 2025. The steering committee were comfortable with the level of engagement and the respondent feedback from the Introduction to Shellfish Safety course.

The steering committee view was that the course completion numbers for the Shellfish Safety Supervisors was a bit disappointing and raised some questions for the UTAS short course team as to whether the 42% completion rate was considered normal for this kind of fully online short course, particularly for a course currently being offered for free.

The steering committee acknowledged that survey responses from those that completed the course were good. The committee queried whether the courses second module on legislation could be either shortened, moved to the end or blended somehow into the other modules, as there was a feeling that this module might impact completions .

The UTAS Short Course team provided the extra student data requested. The graph below (Figure 2), based on the data provided, shows how much of the course is being completed by industry people enrolled in this course. This graph is based purely on industry participants - anyone with a .gov.au or .edu.au email address who has undertaken the course has been excluded from this analysis.

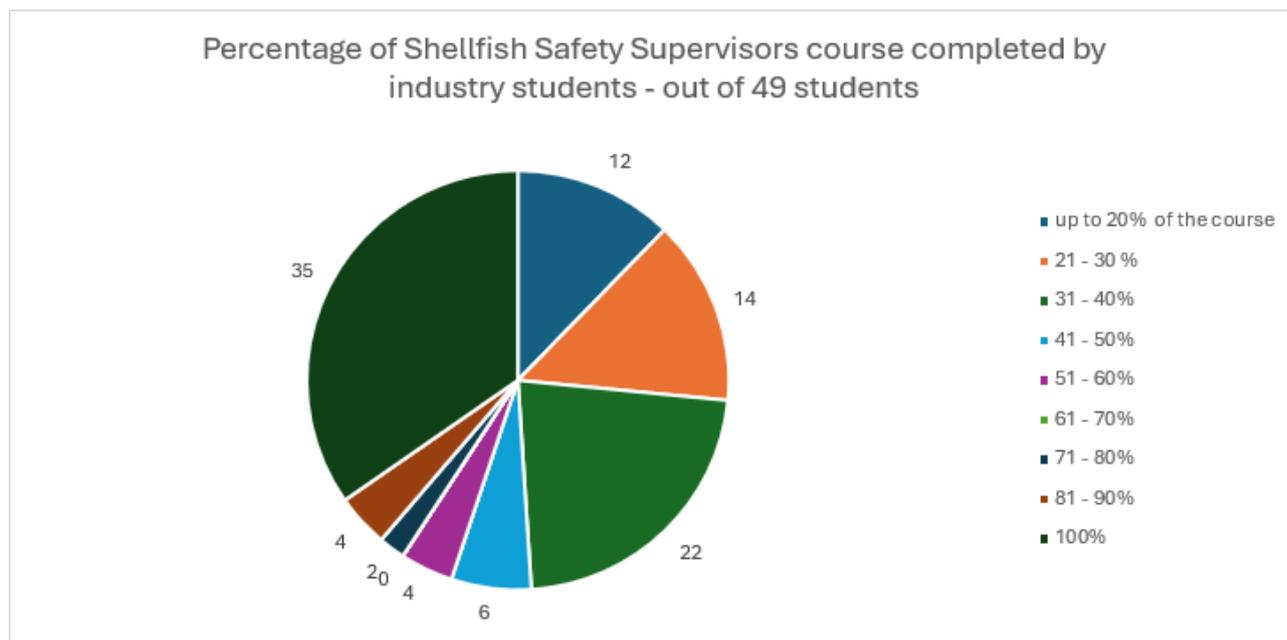


Figure 2. Progress of industry participants in the Shellfish Safety Supervisors course (% course completed by October 2025)

This demonstrates that about 50% of participants are dropping out by 40% through the course, which aligns with the courses’ legislation module. Those that get past this point mostly go on to complete the course, with an overall completion rate of 35%.

The UTAS Short Course team provided feedback that this completion / drop out rate is not unusual for online short courses, especially those being offered for free. That being said, the Steering Committee suggested either shortening the legislation module or moving this module to the end of the course, to see if this achieves a higher course completion rate. A third option, to blend the legislation through all the other modules was also suggested. However, it is clear that this process would be too difficult and time consuming to achieve at this point in the project.

The Steering Committee acknowledged the positive responses from the participants on the Shellfish Safety Regulators course though questioned whether this course could be offered with a shorter timeframe / time impost than the current 120 hours of learning, thus make it more appealing to a wider audience. However, it was noted that shortening the content would then likely move this course from an SC3 level down to an SC2 level. This would make it not equivalent to a university degree course unit which might impact appeal to participating university students in the future.

Recent changes to the UTAS course organisation have meant that the Managing and Regulating Food Safety Risks in Bivalve Shellfish course will be available to UTAS University students but will not be able to count as an elective unit for their degree. It would be additional course work that provides advantage in giving them “job ready” qualifications. Whilst potentially reducing student numbers, it does open up the possibility of shortening the course in the future.

In questioning the current cohort of students as to whether they felt the course was the right length or they would have preferred a shorted version, two different sets of responses were recorded. Those who were dedicated shellfish safety staff felt it was an appropriate length, whereas some of those who were food safety auditors across multiple food commodities felt the course was too long and would have preferred it did not have the FAO international element.

- c. Modules will be updated if necessary to reflect these recommendations (or an adequate argument for no-change is accepted by the steering committee)**

As flagged earlier, the Shellfish Safety Supervisors course was modified in late 2024 / early 2025 based on student engagement with the course elements. This change was endorsed by the Steering Committee and actioned by February 2025. Following Steering Committee meetings in both October and November 2025 it was agreed that the shellfish specific legislation module, Module 2, should be moved towards the back of the course and become Module 6.

For the Managing and Regulating Food Safety Risks in Bivalve Shellfish course, particularly in regard to the continued delivery post-project and aiming to make this course as attractive to students as possible, a decision was made to drop this course down to a 90 hour SC2 level course by referencing the FAO courses rather than making them a mandatory part of this course. The steering committee had approved this decision pending advice from the University as to whether the course could be counted towards an undergraduate degree if it remained at SC3. As this was not possible, the team thought a shorter, cheaper course would be more attractive to future participants.

**d. The project team will work closely with the UTAS short-course team so that UTAS can continue delivery of the updated modules as part of their short-course post-graduate, undergraduate and community engagement programs or as a component of larger courses offered by the University to produce a pipe-line of job-ready graduates.**

UTAS has indicated that these courses should continue to be hosted on the Short Course Platform. The Steering Committee has proposed the following fee structure to the University (Table 4). This is in line with the cost of other generic food safety courses being offered in Australia for both industry and academic courses and would cover the costs of teaching the course.

*Table 4. Proposed course lengths and fees for the three courses*

Course Name	Course Length	Proposed fee rate	Target Student numbers
Introduction to Shellfish Safety course	3 hours	\$ 60	50
Shellfish Safety Supervisors course	8 hours	\$160	20
Managing and Regulating Food Safety Risks in Bivalve Shellfish course	90 hours	\$2000	10

Recent changes to the management of course organisation for the whole of UTAS have meant that the Managing and Regulating Food Safety Risks in Bivalve Shellfish course will be available to University students but will not be able to count as an elective unit for their degree. It would be provided as an additional course subject that provides advantage in giving them “job ready” qualifications.

Whilst potentially reducing student numbers, this broader university change does open up a future possibility of shortening the course as it would not have to comply with the 120 hours of teaching needed to meet the 12.5 unit credit threshold. Being on the Short Course Platform enables access to anyone wishing to enrol in the course, even if they are not a UTAS University student. As stated above, this issue is still being canvassed with the University at the point of writing this report.

## Discussion and Conclusions

The objectives of this project were:

1. Understand the training needs to support the continued development of Australian shellfish industries covered by ASQAP
2. Develop technical training modules for regulators and industry in bivalve shellfish food safety risk management
3. Deliver the training modules in a manner that suits both industry and regulators, and supports learning from existing Australian experts and adoption of successful risk management strategies
4. Provide a pathway for longevity of the training.

As outlined in the results section above, the project team feel that all four of these objectives have been adequately addressed in the delivery of this project.

Step 1, understanding the training needs, provided a clear direction as to which way this project should go in terms of the course build process. This led to a clear pathway forward with the end goal being the development and piloting of three similar (in terms of general subject matter) but distinctly different courses for different target audiences.

Step 2, the actual course build process, was heavily facilitated by the UTAS Short Course unit making one of their Educational Technologists, David Quinn, the sole go-to person for the build of the online course materials. This allowed for a strong build process for all three courses as he gained an understanding of the topic and its complex subject matters. David also is a video cameraman and video editor, which boosted the ability to provide information in multiple formats thus making the courses very engaging for the students. The courses made use of this both in terms of on water filming, the filming of talking heads with current regulators and the filming of ASQAAC science days. David also played a pivotal role in the production of the promotional video for the industry short courses.

Step 3, the pilot delivery of the training courses progressed smoothly throughout the back half of 2024 and through the first 9 months of 2025. To date, 285 persons have enrolled in one or other of the three courses and there have been 149 completions.

Step 4, a pathway for longevity of training, can be delivered by the UTAS Short Course Unit.

No changes are required for the Introduction to Shellfish Safety course. For the Shellfish Safety Supervisors course, the Steering Committee have recommended that the shellfish specific legislation module, Module 2 be moved and become Module 6, with the aim to improve the student retention rates. As discussed above, the Managing and Regulating Food Safety Risks in Bivalve Shellfish course after some deliberation has been reduced down to a 90 hour SC2 level course by removal of the FAO international elements .

The ongoing challenge is to market the three courses appropriately to their relevant target audiences to attract a pipeline of students to the three courses. Industry peak bodies, including SIA and regulator forums such as ASQAAC will, it is hoped, continue to raise stakeholder awareness about these courses. University lecturers in Dr Alison Turnbull's Fish Health, Biosecurity and Seafood Safety team will also help to spread the word about the course to undergraduate students undertaking units of the Bachelors of Marine and Antarctic Science at UTAS, making them aware that by undertaking the Managing and Regulating Food Safety Risks in Bivalve Shellfish course they could make themselves 'job ready' for shellfish safety regulatory roles or industry QA roles.

## Implications

The project application outlined the need for such training to help facilitate trade and to ensure the food safety of consumers for this high-risk food group.

The National Aquaculture Strategy aims to double the value of aquaculture production to \$2B per annum by 2027. To do this, there needs to be a concomitant increase in personnel with food safety expertise both within and serving the aquaculture industry, particularly the high-risk bivalve shellfish sector. Specialised training to strengthen the aquaculture workforce was Recommendation 3 of the Standing Committee on Agriculture and Water Resources report into Supporting a Strong Future for Australian Aquaculture.

This project was developed initially in consultation with the Tasmanian shellfish industry following a high turn-over of staff in the regulatory program. The lack of expertise in this technical field was thought to adversely impact industry activities. It was recognised that a similar problem exists in the developing industry in WA and NT, and the lack of training also presented a risk for the established programs in NSW, Vic and SA, due to the small pool of experts nationally.

In addition, training for industry varies between states, and is non-existent in some states. Given the importance of food safety in this high-risk seafood, a program was sought to fill this gap and provide an on-going means for training of new entrants for both industry and regulators.

These three courses now offer a mechanism for both industry and government regulatory agencies to ensure staff are trained to the correct level for their roles. This is particularly important given the high-risk nature of this food group. The funding of this course by OA shows the industry recognises the importance of having food safety experienced personnel and is indicative of industry taking a more proactive risk management approach for on-farm activities.

The active involvement in this project by so many ASQAAC members, both on the Steering Committee and in terms of providing useful content for the courses demonstrates the value that ASQAAC members see in these three courses.

The government regulator in Tasmania, ShellMAP, runs an industry sampler training program and they have now made completion of the Shellfish Safety Supervisors course a part of that training process. This highlights the value given to some of this training by a state regulator. Other state regulators could consider making similar recommendations in their jurisdictions.

## Recommendations

The project PI Alison Turnbull and CI Mark Boulter both remain committed to continuing to deliver these three courses that have been developed, including undertaking annual reviews to ensure the materials are still up to date. The ongoing challenge is to market the three courses appropriately to their relevant target audiences to attract an ongoing pipeline of students to the three courses. The longevity of the courses will depend on their commercial viability i.e. fees from students must meet or exceed teaching and marketing costs. Target annual student numbers for the courses are: 50 for the Introduction to Shellfish Safety course; 20 for the Shellfish Safety Supervisors course; and 10 for the Managing and Regulating Food Safety Risks in Bivalve Shellfish course.

The industry Peak Bodies, SafeFish and ASQAAC can all help to facilitate the awareness of these courses to relevant industry and government stakeholders to ensure that continuation of students into the three courses and the flow on benefits to industry of having well trained staff and government regulators.

We recommend that the peak industry bodies, FRDC Extension Officers and Government regulators continue to promote the courses to their industry members. Follow up dialogue should be undertaken with FRDC and the peak industry bodies to get the links to the three courses imbedded, where appropriate, on these other organisations websites.

FRDC should consider if they have any funding sources that could be used to film some ‘talking heads’ clips from industry persons who have completed the courses in the pilot phase to help attract other participants towards the courses.

FRDC could also consider if there are any other funding sources that could be used to subsidise the course fees for indigenous groups that are starting up in bivalve shellfish aquaculture.

We also recommend that the person delivering the course takes on the role of marketing the course through industry and government networks, as well as updating the course if needed after changes made to the ASQAAC manual or guidelines. These are generally infrequent.

Delivery of the course should be summarised at the annual ASQAAC meetings, providing an opportunity to promote the course to industry and government and discuss any further steps needed to ensure longevity.

We recommend that state Government agencies consider acknowledging the existence of these industry training courses in their state pro-forma Food Safety Management System documentation, as a mechanism by which businesses can demonstrate that they are meeting their staff training obligations, with regards to food safety training.

The Managing and Regulating Food Safety Risks in Bivalve Shellfish Course will be the most difficult to maintain long-term due to specialised nature of the course and the small number of likely participants. We recommend that the course continue to be marketed to students through the Seafood Quality and Safety, and Aquatic Botany courses at UTAS and to ASQAAC members. Further promotion could also be made to our neighbouring Pacific Islands communities that are also developing bivalve aquaculture efforts. This could be achieved through aid agencies such as the Pacific Community <https://www.spc.int/>.

## Extension and Adoption

Having a strong Steering Committee comprising members of Peak Bodies and existing Government regulators has been a cornerstone of information extension, as these people have been fully abreast of the projects progress and able to pass on relevant information at the right time to stakeholders. The Steering Committee met 7 times during the life of this project, on the following dates: 06/10/2022, 14/12/2022, 17/11/2023, 07/05/2024, 19/11/2024, 10/10/2025 and 03/11/2025.

The project PI and CI have both used multiple opportunities to make all relevant stakeholders aware of the development and availability of the three courses through presentations at Peak Body Industry Conferences, ASQAAC meetings and also short mentions at two Seafood Directions conferences. See Table 5 below for details.

*Table 5. Table of key events and conferences attended during the project.*

Event / Conference	Date
OT Shellfish Futures Conference	01-02/09/2022
Seafood Directions 2022- Brisbane	13-15/09/2022
SAOGA Oysters SA Seminar 2022	12-14/10/2022
OT Shellfish Futures Conference	7-8/09/2023
Combined IAFI World Seafood Congress / ICMSS International Conference on Molluscan Shellfish Safety - Portugal	25-28/09/2023
ASQAAC training day and Meeting 2023	17-18/10/2023
SAOGA Oysters SA Seminar 2023	26-27/10/2023
NSW Farmers Oyster Conference	03-04/09/2024
Seafood Directions 2024 - Hobart	11-12/09/2024
OT Shellfish Futures Conference	13-14/09/2024
ASQAAC Science Day and Meeting 2024	13-14/11/2024
ASQAAC Meeting 2025	10/09/2025
OT Shellfish Futures Conference	11-12/09/2025

Also, project updates have been given every 4 months over the last three years to the SafeFish Partnership online meetings which incorporate all industry stakeholders with an interest in the food safety aspects of seafood.

During the lifetime of the project the CI Mark Boulter was also the Chair of ASQAAC, (2023-2025) so dissemination of the projects courses to that key target audience has also occurred over the last three years. Dr Alison Turnbull, the projects PI is the new Chair of ASQAAC, so that opportunity will continue into the future.

As outlined earlier, to date 285 persons have enrolled in one or other of the three courses and there have been 149 completions.

## Project materials developed

This project developed three training courses, these are accessed from here:

[An Introduction to Shellfish Safety | University of Tasmania \(utas.edu.au\)](#)

[Shellfish Safety Supervisors course | University of Tasmania](#)

[Managing and Regulating food safety risks in Bivalve Shellfish | University of Tasmania](#)

Course content is also available from the project team directly if required.

# An Introduction to Shellfish Safety

A short industry induction course to outline the key topics workers need to be aware of in the production of safe bivalve shellfish.



[Home](#) > [Study with us](#) > [Short courses](#) > [An Introduction to Shellfish Safety](#)

 <p><b>Price</b> Free</p>	 <p><b>Duration</b> 3 hours</p>	 <p><b>Delivery</b> Online</p>	 <p><b>Starts</b> 31 January (Anytime)</p>
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## About this course

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

The Introduction to Shellfish Safety course was designed to:

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

Upon completion of the course, you will have a clear understanding of why bivalve shellfish must be harvested and handled following a tight set of requirements to ensure that the product sent to market is safe to eat, and you and your business's role in meeting these food safety requirements.

[REGISTER NOW](#)

[ENQUIRE](#)

[SIGN-IN FOR REGISTERED PARTICIPANTS](#) 

## Who should do this course?

New entrants to the bivalve shellfish industry at all levels.

## Course Structure

The course is fully online and self-paced and is estimated to take around 3 learning hours. You will be provided access to your course learning online via the University's Short Course Platform which you can enter and exit any time, to enable you to study anytime and anywhere.

The course will outline the biology and marine environmental conditions required to grow bivalve shellfish safely. It will outline the legislative and monitoring requirements for the safe harvest, transport and storage of bivalve shellfish. It will explain that bivalve shellfish are a high-risk food and therefore need to be managed by a highly prescriptive set of food safety rules.

The course includes basic knowledge of:

- the biology and physiology of bivalve shellfish and related sources of food safety risk
- pathogens that can occur in bivalve shellfish including: *Salmonella*, *E. coli* (indicator organism) *Hepatitis A Virus*, *Norovirus*, *Vibrio parahaemolyticus*
- algal biotoxins that pose a food safety risk in bivalve shellfish, including: amnesic shellfish poisoning (ASP), neurotoxic shellfish poisoning (NSP), diarrhetic shellfish poisoning (DSP) and paralytic shellfish poisoning (PSP)
- aspects of food law relevant to bivalve shellfish production and sale
- sources of environmental contamination that can present a food safety risk in the growing and harvesting of bivalve shellfish, and related food safety controls, including risks associated with both aquaculture and wild fisheries
- harvest area classification and the various categories of growing areas and the concept of closed harvest times, due to unfavourable conditions
- risks and related control methods to prevent cross-contamination, including sorting and cleaning
- actions that they must take to maintain product integrity and safety

The course has been designed to be a fully online self-paced course, with a variety of learning tools to provide you with an engaging study experience.

You will be required to complete an online quiz/assessment to successfully complete your course. On completion, you will receive a digital certificate. Access to materials and course completion will be in place for 6 months from the date you register in the course.

## What you will learn

On completion of the course, you will be able to:

1. Explain the biology and marine environmental conditions required to grow bivalve shellfish safely
2. Explain the legislative and monitoring requirements for the safe harvest, transport, and storage of bivalve shellfish.



Appreciate the complexity of growing filter feeding animals in a shared waterway environment



Why bivalve shellfish are classified as high-risk foods



On completion you will receive a digital Certificate of Attendance



Study anytime and anywhere with our fully online course

## Meet your instructors

### Mark Boulter

The course has been developed by Mark Boulter who has 35 years of bivalve shellfish and finfish QA experience.

Currently employed by the University of Tasmania, Mark is also the current Chair of the Australian National Shellfish Safety Committee and is the past-president of the International Association of Fish Inspectors.



## Project partners

This course was developed by the University of Tasmania's, Institute for Marine and Antarctic Studies (IMAS) and was funded by Oysters Australia and FRDC as part of a project that seeks to develop three educational programs focused on shellfish safety, with programs developed with workers, supervisors and regulators in mind.



[REGISTER NOW](#)

[ENQUIRE](#)

[OPPORTUNITIES FOR YOUR EMPLOYEES](#) 

## 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.



[Home](#) > [Study with us](#) > [Short courses](#) > [Shellfish Safety Supervisors course](#)

 <p><b>Price</b> Free</p>	 <p><b>Duration</b> 8 hours</p>	 <p><b>Delivery</b> Online</p>	 <p><b>Starts</b> Anytime</p>
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### About this course

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

The Shellfish Safety Supervisors course was 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.
- To outline the complexity of growing filter-feeding animals in shared waterways.
- To help employers demonstrate to potential commercial customers/food auditors that they have a skilled and knowledgeable workforce that understands their food safety requirements.

On completion of the course, you will have a clear understanding of why bivalve shellfish must be harvested and handled following a tight set of requirements to ensure that product sent to market is safe to eat, and your business's role in meeting these food safety requirements.

[REGISTER NOW](#)

[ENQUIRE](#)

[SIGN-IN FOR REGISTERED PARTICIPANTS](#) 

### Who should do this course series?

Supervisors/managers/business owners in the bivalve shellfish industry or staff wanting to step up to one of those positions.

### Course Structure

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. You will be provided access to your course online via the University's Short Course Platform. The self-paced element you can enter and exit any time, to enable you to study anytime and anywhere. The face-to-face online element will be offered once per month.

The course will outline the biology and marine environmental conditions required to grow bivalve shellfish safely. It will outline the legislative and monitoring requirements for the safe harvest, transport and storage of bivalve shellfish. It will explain that bivalve shellfish are a high-risk food and therefore need to be managed by a highly prescriptive set of food safety rules.

The course includes basic knowledge of:

1. Regulations and guidelines pertinent to shellfish safety
  - basic understanding of aspects of food law relevant to bivalve mollusc production and sale including relevant sections of the FSANZ food standards code, the ASQAP manual, State and Territory Food Acts definitions of safe food, The Export Control Act
2. Factors of shellfish that make them a high-risk food group
  - basic biology and physiology of bivalve molluscs and related sources of food safety risk
3. Contaminants of concern
  - pathogens that can occur in bivalve molluscs including Salmonella, E.coli (indicator organism), Hepatitis A virus, Norovirus, Vibrio parahaemolyticus
  - algal biotoxins that pose a food safety risk in bivalve molluscs, including amnesic shellfish poisoning (ASP), neurotoxic shellfish poisoning (NSP), diarrhetic shellfish poisoning (DSP) and paralytic shellfish poisoning (PSP)
  - chemical contaminants such as heavy metals and Agvet chemicals
4. Controls of risks pre-harvest
  - Understanding sources of environmental contamination that can present a food safety risk in the growing and harvesting of bivalve molluscs, and related food safety controls, including risks associated with both aquaculture and wild fisheries
  - harvest area classification processes including the need for defined water and product sampling to maintain a harvest areas classification status
  - basic principles of water sampling and test methods
  - the understanding of the harvest area opening and closure process and the periods for which harvest areas might be closed depending on the cause of the closure
  - the concept of Harvest Area Management plans and Marine Biotoxin Management plans and how these are operated
5. Control of risks post-harvest
  - risks related to vibrio's and the temperature and other control methods being adopted by industry to reduce these risks
  - principles and associated control measures relating to effective purging of shellfish, including methods, including relaying and depuration, when practised according to state and territory legal and regulatory requirements
  - stock handling and storage risks and control methods
  - risks and related control methods to prevent cross-contamination, including sorting and cleaning, Good Hygiene Practices
  - facilities and equipment used in the growing and harvesting of bivalve molluscs, including features required to meet regulatory requirements
6. Recall procedures and the requirements under the FSANZ Food Industry Recall Protocol including the benefits of mock recall training.

The course has been designed with a mix of teaching styles, to provide an engaging platform for study.

You will be required to engage in some discursive assignments in the second half of this course to complete your course successfully. On completion, you will receive a digital certificate. Materials will be available for 6 months after completing the course.

## What you will learn

On completion of the course, you will be able to:

1. Explain the biology and marine environmental conditions required to grow bivalve shellfish safely
2. Explain the legislative and monitoring requirements for the safe harvest, transport and storage of bivalve shellfish
3. Describe how to implement a product recall using the FSANZ protocol



Appreciate the complexity of growing filter feeding animals in a shared waterway environment



Why bivalve shellfish are classified as high-risk foods



The complex food safety legal landscape businesses have to meet to grow and sell bivalve shellfish



On completion you will receive a digital Certificate of Attendance



Study anywhere with our fully online course

## Meet your instructors

### Mark Boulter

The course has been developed by Mark Boulter who has 35 years of bivalve shellfish and finfish QA experience.

Currently employed by the University of Tasmania, Mark is also the current Chair of the Australian National Shellfish Safety Committee and is the past-president of the International Association of Fish Inspectors.



## Program Partners and Sponsors

This course was developed by IMAS and the University of Tasmania and was funded by Oysters Australia and FRDC as part of a project that is funding the development of three levels of shellfish safety courses, workers, supervisors and regulators.



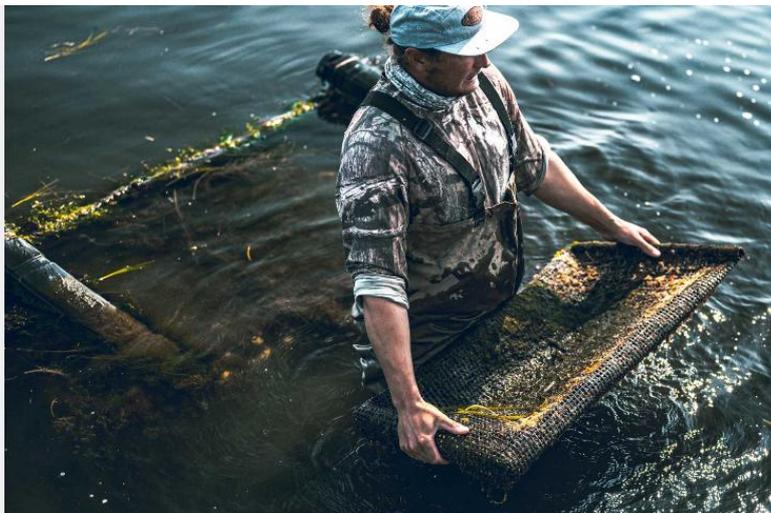
[REGISTER NOW](#)

[ENQUIRE](#)

[OPPORTUNITIES FOR YOUR EMPLOYEES](#) 

# Managing and Regulating food safety risks in Bivalve Shellfish

A course aimed at shellfish regulators, covering key aspects to ensure appropriate control over the production of safe bivalve shellfish.



[Home](#) > [Study with us](#) > [Short courses](#) > [Managing and Regulating food safety risks in Bivalve Shellfish](#)

 <p><b>Price</b> Free</p>	 <p><b>Duration</b> 120 hours</p>	 <p><b>Delivery</b> Online</p>	 <p><b>Starts</b> October 2024</p>
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The University of Tasmania is pleased to have partnered with Oysters Australia and Fisheries Research and Development Corporation (FRDC) to develop this shellfish safety regulators course.

The Managing and Regulating food safety risks in Bivalve Shellfish course is designed to provide new regulators or persons wishing to move into this career path with the necessary knowledge required to embark on this employment pathway. The course is comprised of 4 modules and these are structured to cover the following topics:

- Biological factors and legislative framework
- Harvest area classification
- Bacterial contaminants inc. management of sewage, vibrio's, depuration and wet storage
- Harmful Algal Blooms and their management

On completion of the course, you will have a clear understanding of why bivalve shellfish must be harvested and handled following a highly complex set of requirements to ensure that the product the industry sends to market is safe to eat, thus maintaining consumer confidence in seafood sales and in maintaining market access to overseas markets.

[REGISTER NOW](#) [ENQUIRE](#) [SIGN-IN FOR REGISTERED PARTICIPANTS](#) 

## Who should do this course series?

New regulators or persons wishing to move into this interesting career path.

## Course Structure

This course is a blended course utilising a mixture of online self-paced, online face-to-face sessions and face to face component. The course will be operated once per year.

The Managing and Regulating food safety risks in Bivalve Shellfish course is made up of 4 modules of around 30 hours learning each. Each module to comprise of an online portion and a face-to-face portion both of roughly 15 hours each. Then an assignment (per module).

The online portion will be a mixture of self-paced learning on the Short Course Platform and guided learning through online presentations by course lecturers.

The course is made up of four modules:

- Biological factors and legislative framework
- Harvest area classification
- Bacterial contaminants inc. management of sewage, vibrio's, depuration and wet storage
- Harmful Algal Blooms and their management

You will be provided initial access to your course online learning via the University's Short Course Platform. This will then be followed by a face to face component for each module.

The course will review the biological and environmental factors that affect the ability to grow and safely harvest bivalve shellfish. It will explore the legislative and monitoring requirements for the safe harvest of bivalve shellfish. It will look into the control processes for managing pathogens and the opening and closing of bivalve shellfish harvest areas. Also it will examine the different methods of control used to ensure shellfish safety in a post-harvest context, including cross-contamination, temperature control and / or depuration.

The course includes detailed knowledge related to:

### 1. Biological factors and legislative framework

This includes knowledge of:

- basic biology and physiology of bivalve molluscs and related sources of food safety risk
- pathogens that can occur in bivalve molluscs including: Salmonella, E. coli (indicator organism) Hepatitis A Virus, Norovirus, Vibrio parahaemolyticus
- algal biotoxins that pose a food safety risk in bivalve molluscs, including: amnesic shellfish poisoning (ASP), neurotoxic shellfish poisoning (NSP), diarrhetic shellfish poisoning (DSP) and paralytic shellfish poisoning (PSP)
- detailed aspects of the Australian legal framework for food law, as relevant to bivalve mollusc production and sale including: State and Territory Food Acts, the FSANZ food standards code, the ASQAP manual, the Export Control Act and its underpinning requirements and State based Shellfish Operations Manuals and other risk control tools
- the concept of Food Safety Culture in businesses

### 2. Harvest area classification

This includes knowledge of:

- sources of environmental contamination that can present a food safety risk in the growing and harvesting of bivalve molluscs, and related food safety controls, including risks associated with both aquaculture and wild fisheries
- risk assessment processes for potential new harvest areas
- detailed risk evaluation processes for new harvest areas
- principles of water sampling and test methods
- classification standards - harvest area classification processes including the need for defined water and product sampling to obtain / maintain a harvest areas classification status (ASQAP section 3) including understanding the requirements for these different classifications:
- maintaining the classification status - harvest area annual and triannual review processes
- the understanding of the harvest area opening and closure process and the periods for which harvest areas might be closed depending on the cause of the closure

### 3. Bacterial Contaminants Inc. management of sewage, vibrio's, depuration and wet storage

This includes knowledge of:

- Harvesting controls and surveillance
- Investigation of illness associated with shellfish including:
- Post-harvest handling, storage and labelling prior to receipt of shellstock
- Relaying, depuration and wet storage

### 4. Harmful Algal Blooms and their management

This includes knowledge of:

- General Marine Biotoxin Requirements
- Sampling Frequency
- HAB Action Levels
- Marine Biotoxin regulatory closure levels
- Managing opening and closures
- Laboratory and Analytical Requirements

The course has been designed with a mix of teaching styles, to provide an engaging platform for study.

You will be required to engage in an assignment for each module of this course to successfully complete your course. On completion, you will receive a digital certificate.

## What you will learn

On completion of the course, you will be able to:



Explain the biological and environmental factors that affect the ability to grow and safely harvest bivalve shellfish



Explain the legislative and monitoring requirements for the safe harvest of bivalve shellfish



Explain the control processes for managing pathogens and the opening and closing of bivalve shellfish harvest areas



Describe the different methods of control used to ensure shellfish safety in a post-harvest context, including cross-contamination, temperature control and / or depuration



On completion you will receive a digital Certificate of Completion.

## Meet your instructors

### Mark Boulter

The course has been developed by Mark Boulter who has 35 years of bivalve shellfish and finfish QA experience.

Currently employed by the University of Tasmania, Mark is also the current Chair of the Australian National Shellfish Safety Committee and is the past-president of the International Association of Fish Inspectors.



## Program Partners and Sponsors

This course was developed by IMAS / UTAS and was funded by Oysters Australia and FRDC as part of a project that is funding the development of three levels of shellfish safety courses; workers, supervisors and regulators.

The course host is Mark Boulter who has 35 years of bivalve shellfish and finfish QA experience. He is the current Chair of the Australian national shellfish safety committee and is the past-president of the International Association of Fish Inspectors. He is employed part-time by IMAS/UTAS to develop this series of shellfish safety courses.



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## Appendices

### Appendix 1 – List of Project Staff

Project PI – Dr Alison Turnbull.

The project co-investigators were Mark Boulter, Associate Professor Shauna Murray and Phil Baker.

The Steering Committee comprising of Anthony Zammit, Shelly Alderman, Duncan Spender, Lynlee Lowe, Karen Loone and Matt Jones.

The team at UTAS Short Courses particularly the Educational Technologist / cameraman / video editor David Quinn.

Guest Lecturers – Phil Baker, Anthony Zammit, Andreas Seager and Claire Hedges.

Talking Heads - Dr Alison Turnbull, Anthony Zammit, Phil Baker, Clinton Wilkinson, Ed Forbes, Dr Andreas Seager, Associate Professor Chris Bolch, and Dr Tim Jordan.

Voice-over for assisted reading – Claire Hedges

# Appendix 2 – Horizon Scan

Table 6. Aquaculture VET Course providers in 2022

Code	NameSort Click on a column header to sort data by the Name column Modify filter options of the 'Name' column in Click on a column header to sort	Website	General enquiriesSort Click on a column header to sort Modify filter options of the 'General enquiries' column in Click on a column header to sort	Registration
<a href="#">52789- Central Regional TAFE</a>	Central Regional TAFE WA	<a href="#">Visit the Central Regional TAFE website (external link)</a>	90886702	Current
<a href="#">0373- Charles Darwin University</a>	Charles Darwin University Trading as: NORTHERN TERRITORY RURAL COLLEGE NORTH FLINDERS INTERNATIONAL HOUSE CDU BOOKSHOP TRAINING SOLUTIONS CHARLES DARWIN UNIVERSITY FOUNDATION UNIPRINT NT CENTRE FOR YOUTH MUSIC DESERT LANTERN RESTAURANT EDTRAVEL NORTHERN TERRITORY KARAWA RESTAURANT TERRITORY FM CDU Child Care Centre CDU Northern Editions CDU PRESS International House Darwin IH Darwin	<a href="#">Visit the Charles Darwin University website (external link)</a>	889467640	Current
<a href="#">30270- Chiton Pty Ltd</a>	Chiton Pty Ltd Trading as: Professional and Technical Training Australia	<a href="#">Visit the Chiton Pty Ltd website (external link)</a>	400093810	Current
<a href="#">52395- Department of Training and Workforce Development</a>	Department of Training and Workforce Development Trading as: TAFE International Western Australia	<a href="#">Visit the Department of Training and Workforce Development website (external link)</a>	892182161	Current
<a href="#">31871- Envirotech Education Pty Ltd</a>	Envirotech Education Pty Ltd Trading as: Envirotech Education	<a href="#">Visit the Envirotech Education Pty Ltd website (external link)</a>	755353766	Current
<a href="#">30387- Kirwan State High School</a>	Kirwan State High School	<a href="#">Visit the Kirwan State High School website (external link)</a>	747738111	Current
<a href="#">32341- LMC Training Pty Ltd</a>	LMC Training Pty Ltd	<a href="#">Visit the LMC Training Pty Ltd website (external link)</a>	457383963	Current
<a href="#">50552- Newton Moore Senior High School</a>	Newton Moore Senior High School	<a href="#">Visit the Newton Moore Senior High School website (external link)</a>	897222451	Current
<a href="#">52788- North Regional TAFE</a>	North Regional TAFE WA	<a href="#">Visit the North Regional TAFE website (external link)</a>	1300996573	Current
<a href="#">90440- NSW Fishing Industry Training Committee Ltd</a>	NSW Fishing Industry Training Committee Ltd Trading as: Seafood Training NSW Maritime & Safety Training NSW Maritime and Safety Training Victoria Rail Ready Maritime Safety Training	<a href="#">Visit the NSW Fishing Industry Training Committee Ltd website (external link)</a>	243441366	Current
<a href="#">7074- Seafood and Maritime Training Inc.</a>	Seafood and Maritime Training Inc. TAS Trading as: Seafood and Maritime Training Seafood Training Tas	<a href="#">Visit the Seafood and Maritime Training Inc. website (external link)</a>	362860400	Current
<a href="#">52787- South Metropolitan TAFE</a>	South Metropolitan TAFE WA	<a href="#">Visit the South Metropolitan TAFE website (external link)</a>	1800001001	Current
<a href="#">52790- South Regional TAFE</a>	South Regional TAFE WA	<a href="#">Visit the South Regional TAFE website (external link)</a>	63713126	Current
<a href="#">41026- TAFE SA</a>	TAFE SA Trading as: TAFE South Australia	<a href="http://www.tafesa.edu.au/">http://www.tafesa.edu.au/</a>	1800882661	Current

Table 7. Audit Bivalve Shellfish VET Course providers in 2022

Code	NameSort Click on a column header to sort data by the Name column Modify filter options of the 'Name' column in Click on a column header to sort	Website
<a href="#">View details for RTO code21751</a>	Bendina Pty Ltd (Goulburn Valley Food Safety Services)	<a href="#">Visit the Bendina Pty Ltd website (external link)</a>
<a href="#">View details for RTO code60131</a>	University of Tasmania	<a href="#">Visit the University of Tasmania website (external link)</a>

There is one unit of competency that is part of a Diploma in Food Auditing - Audit Bivalve Mollusc growing and harvesting processes. This covers many relevant topics but specifically not Harvest Area Classification.

Two trainers have it on their RTO scope – Goulburn Valley and UTAS. Though at the time of the horizon scan it had not been delivered in at least 4 years. UTAS had ceased offering this course though the ex-UTAS trainer, now retired, partnered up to deliver the course through Goulburn Valley RTO for federal and state govt food safety auditors in March 2023. The project co-investigator, Mark Boulter, also attended this course as a guest lecturer and covered off on relaying, wet storage and depuration topics.

Table 8. Online internationally available courses at the time of the horizon scan in 2022

Overseas		
<a href="https://foodsafetytrainingcertification.com/">https://foodsafetytrainingcertification.com/</a>	Seafood Safety to Prevent Food Illness	<a href="https://foodsafetytrainingcertification.com/food-safety/">https://foodsafetytrainingcertification.com/food-safety/</a>
Seafish UK	Bivalve Shellfish Safety Training Courses	<a href="https://www.seafish.org/safety-and-training/onshore-">https://www.seafish.org/safety-and-training/onshore-</a>
South Carolina Dept Health and Environment	South Carolina Shellfish Harvester Education Program	<a href="https://scdhec.gov/sites/default/files/assets/shellfish/">https://scdhec.gov/sites/default/files/assets/shellfish/</a>
South Carolina Dept Health and Environment	South Carolina 2022 summer season harvesting training	<a href="https://scdhec.gov/sites/default/files/assets/shellfish/">https://scdhec.gov/sites/default/files/assets/shellfish/</a>
Maine Dept of Marine Resources	Vibrio training video	<a href="https://www.maine.gov/dmr/shellfish-sanitation-man">https://www.maine.gov/dmr/shellfish-sanitation-man</a>
New York State Dept of Environmental Conservation	Vibrio training videos	<a href="https://storymaps.arcgis.com/collections/930915501">https://storymaps.arcgis.com/collections/930915501</a>
FAO / CEFAS online course	Bivalve mollusc sanitation: growing area risk profile	<a href="https://elearning.fao.org/course/view.php?id=481">https://elearning.fao.org/course/view.php?id=481</a>
FAO / CEFAS online course	Bivalve mollusc sanitation: growing area assessment and review	<a href="https://elearning.fao.org/course/view.php?id=629">https://elearning.fao.org/course/view.php?id=629</a>
The Education Exchange	oyster farmer worker online course	<a href="https://the-education-exchange1.teachable.com/p/er">https://the-education-exchange1.teachable.com/p/er</a>

There is a fee to attend the UK Seafish courses whilst the others appear to be free.

Since the horizon scan was undertaken the FAO course modules have expanded and now covers 4 interrelated areas. These are fully self-paced online modules with an examination at the end of each one.



Bivalve mollusc sanitation: Growing area risk profile

AUGUST 2019 2 h 30 m



Bivalve mollusc sanitation: Growing area assessment and review

OCTOBER 2020 5 h

[Course: Bivalve mollusc sanitation: Growing area risk profile | FAO elearning Academy](#)

[Course: Bivalve mollusc sanitation: Growing area assessment and review | FAO elearning Academy](#)



Bivalve mollusc  
sanitation: Growing  
area monitoring

SEPTEMBER  
2023

2 h 30 m



Bivalve mollusc  
sanitation: Growing  
area classification  
and management

JUNE 2024

2 h 10 m

[Course: Bivalve mollusc sanitation: Growing area monitoring | FAO elearning Academy](#)

[Course: Bivalve mollusc sanitation: Growing area classification and management | FAO elearning Academy](#)

# Appendix 3 – Detailed Stakeholder Survey

## Questions and Results

### **Survey Questions:**

**Do you consent to this information you are providing to be used to guide this projects development?**

**What sector best represents you?**

**For regulators what modules would you most like to see developed?**

**For regulators are you interested in any courses developed being accredited qualifications?**

**In what format would you like to see these course modules for regulators delivered?**

**What length would you see as appropriate for regulator training modules?**

**What topics should be included in an industry course?**

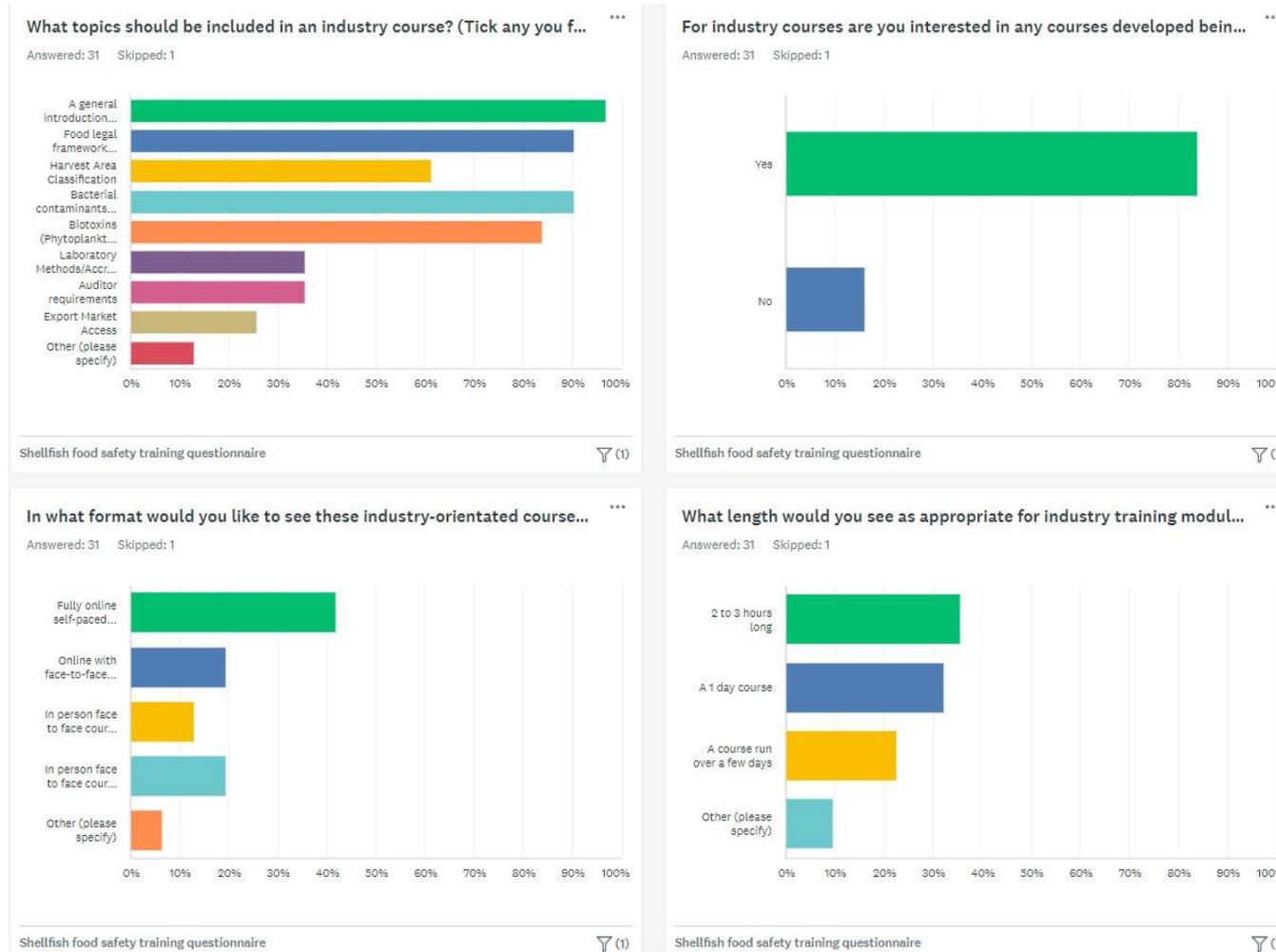
**For industry courses are you interested in any courses developed being accredited qualifications?**

**In what format would you like to see these industry-orientated course modules delivered?**

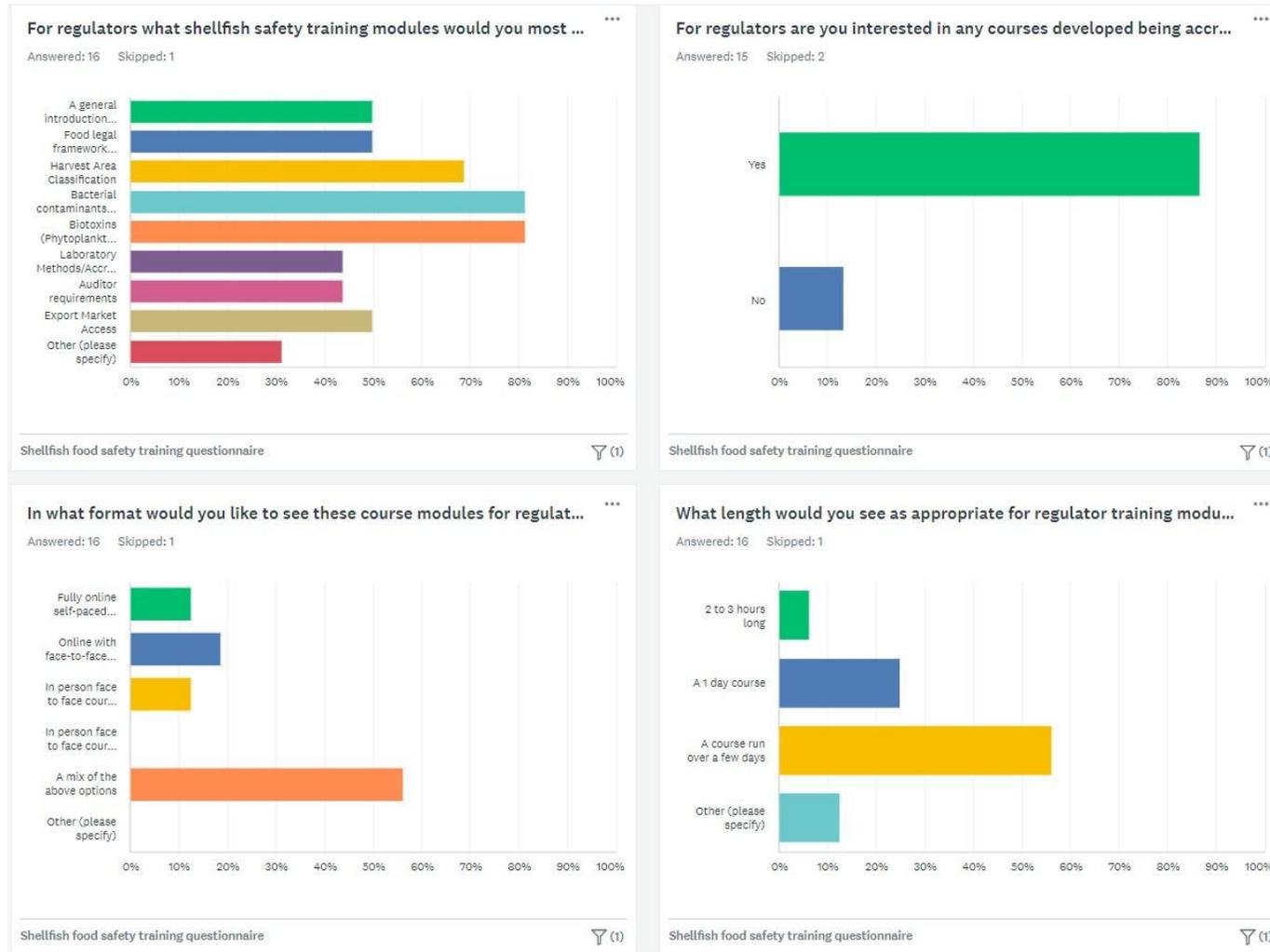
**What length would you see as appropriate for regulator training modules?**

**Please provide any further input you wish to add.**

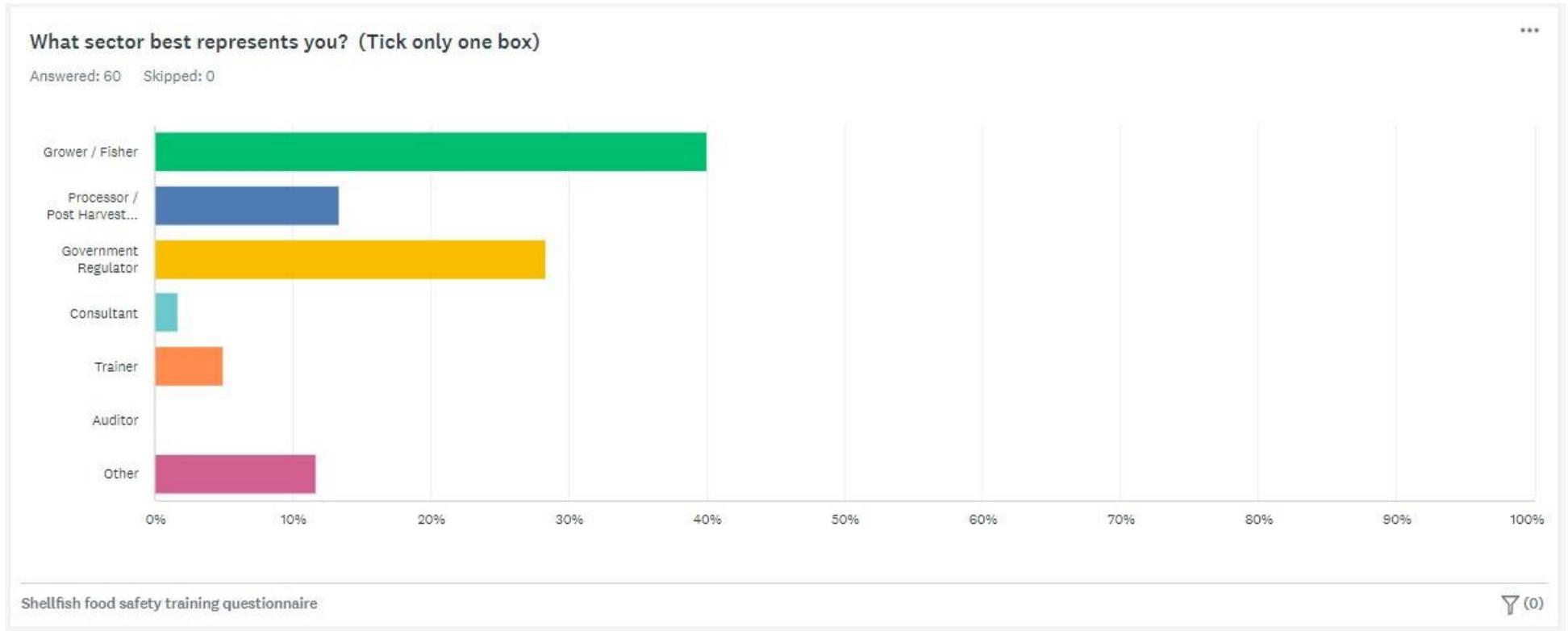
## Appendix – Detailed Stakeholder Survey Results – Industry Only



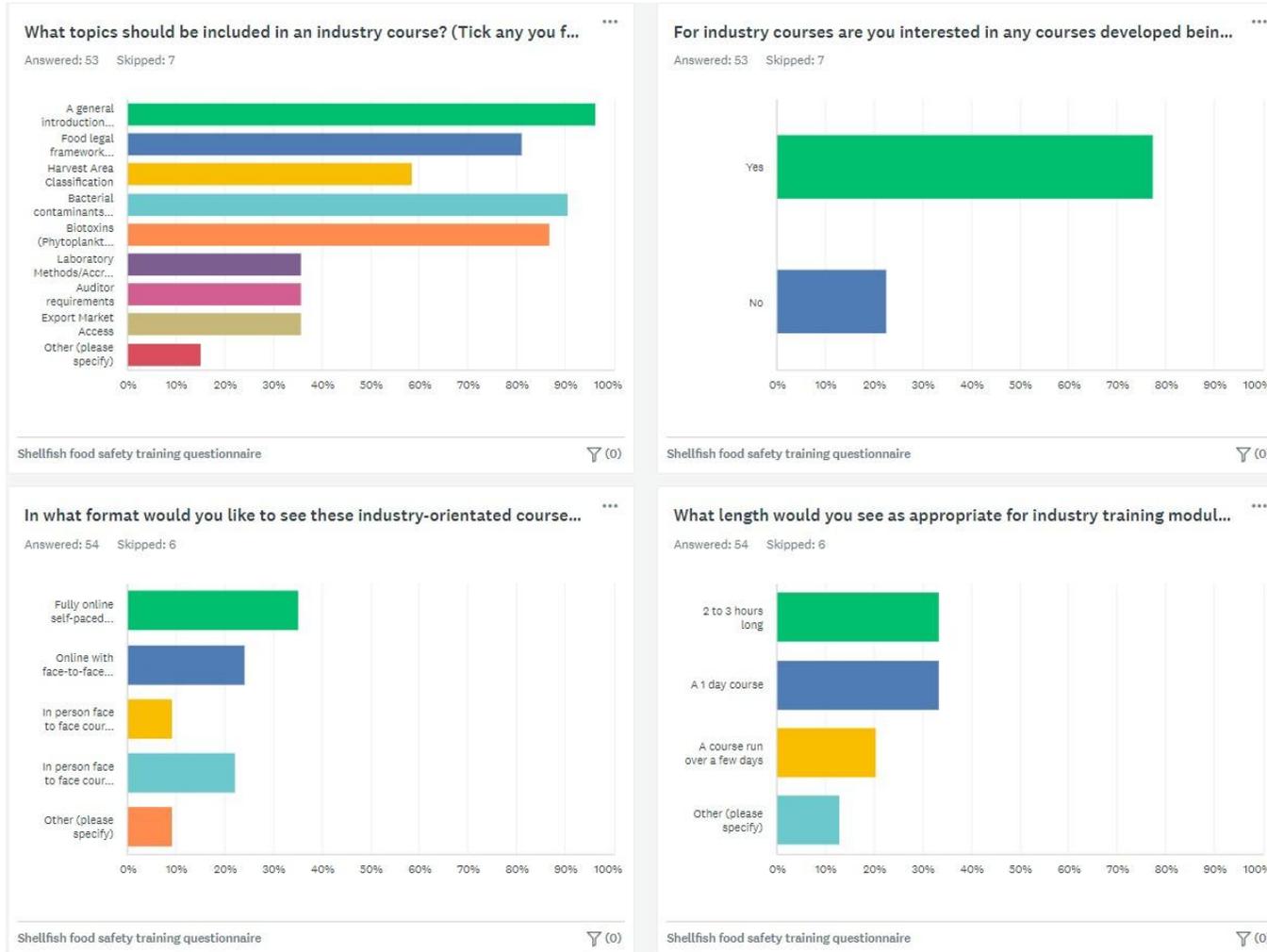
## Appendix – Detailed Stakeholder Survey Results - Regulators



## Appendix – Detailed Stakeholder Survey Results – All respondents



## Appendix – Detailed Stakeholder Survey Results – All respondents



## **Appendix – Detailed Stakeholder Survey Results**

### **Please provide any further input you wish to add. 17 Responses were received:**

There is no specific training for oyster farmers. Most learn as they go and most farms fail. There is a need to provide a forum where new farmers can learn off experienced operators.

Course really needs to be structured towards participants actually learning and walking away with updated knowledge. Not the typical tick box Cert II & III's we see now.

Look at an audit of current Vocational training units of competence to assess the suitability of existing requirements and if needed design new units to fill gaps or adjust existing units to specifically encompass the needs of shellfish producers.

Training certificates should be provided for inclusion in Food Safety Documentation for the business.

Needs to be targeted either for supervisors with more involved information or general info for workers to understand the importance.

Build capability for the long term not just a one-off program.

As my role crosses over multiple selections on the first screen I will attempt to complete the survey for each role. From a grower perspective fully online self-paced learning is the way to go with a certificate produced at the end so that this level of training can become the minimum requirement when applying for aquaculture farmhand positions. The content needs to be translated from government speak to grower speak and make sense! Too much information is provided to growers in legislative, regulatory language that just does not make sense. I would be interested in being a 'translator' for this sort of project in our industry.

Information provided to growers must be translated from govt legislative and regulatory speak to grower speak to be effectively communicated. Happy to be a translator!

The Tropical Rock oyster industry is very early in its development. Participants need support and training to ensure that there is a high level of understanding of shellfish quality assurance programs.

Micro credentials may be a more flexible option over VET

It would be great to do online courses at you're own pace. So you can part complete a course, save it, and come back to it at a later date. That way it'd fit well around work.

We need to have a self-assurance compliance framework/model where we build capability at the local/farm/grower level. we also need clear and interoperable standards that are understood and able to implemented.

I think the courses could also be held online with face-to-face delivery by the course trainer, run over Zoom or Teams. I could only tick one of those boxes. Thanks.

Awareness of risks of food safety issues related to water quality is needed, as is the ability to communicate to customers/members of the community about catchment health in general.

Understanding of seafood labelling requirements.

Currently there is a very broad level of understanding (and lack thereof) across industry of shellfish food

safety. Because ShellMap opens and closes growing areas means it is possible for a grower to simply rely on that as third party management of pre harvest food safety risks (which it does well). The result however is there is limited understanding of a growers post harvest food safety risks, the management thereof and the legal obligations under the Primary Produce Safety Act, the Seafood Regulation under it and of food safety management systems that cover these risks. Growers are much more engaged with ShellMap than Primary Produce Safety Branch. One of the outputs of this project should be feedback to the Tasmanian Government and FRDC on the level of complexity the legislative framework around shellfish food safety in Tasmania poses for growers in its current form. We have an Aquaculture branch within NRE Tas that covers licensing and pre harvest food safety only while the Primary Produce Safety Branch covers post harvest. It seems logical that a single point of contact for growers to engage with government on licensing and all aspects of shellfish food safety would cut red tape and foster greater understanding and engagement on food safety issues. Happy to discuss further.

Great project that is well overdue.

## Appendix 4 – Course Curriculums

(As submitted to and approved by the Short Course Unit)

### Molluscan Shellfish Safety – industry short course curriculum

#### COURSE LEARNING OUTCOMES Outline the intended learning outcomes (ILO's).

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit.

ILO's

1	Explain	the biology and marine environment	required to grow bivalve shellfish
2	Explain	the legislative and monitoring requirements	for the safe harvest, transport and storage of bivalve shellfish

This includes knowledge of:

- basic biology and physiology of bivalve molluscs and related sources of food safety risk
- pathogens that can occur in bivalve molluscs including:
  - *Salmonella*, *E. coli* (indicator organism) Hepatitis A Virus, Norovirus, *Vibrio parahaemolyticus*
- algal biotoxins that pose a food safety risk in bivalve molluscs, including:
  - amnesic shellfish poisoning (ASP), neurotoxic shellfish poisoning (NSP), diarrhetic shellfish poisoning (DSP) and paralytic shellfish poisoning (PSP)
- 
- basic understanding of aspects of food law relevant to bivalve mollusc production and sale including:
  - relevant sections of the FSANZ food standards code, the ASQAP manual, State and Territory Food Acts definitions of safe food
- sources of environmental contamination that can present a food safety risk in the growing and harvesting of bivalve molluscs, and related food safety controls, including risks associated with both aquaculture and wild fisheries
  - what to be aware of during the working day and how they can assist the business to address these risks

- harvest area classification and the various categories of growing areas and the concept of closed harvest times, due to unfavourable conditions
- risks and related control methods to prevent cross-contamination, including sorting and cleaning
- actions that they must take to maintain product integrity and safety

**In summary:**

- Bivalve shellfish are an inherently high risk food
- Hence they have a highly prescriptive set of 'rules' around what can / cannot be done when
- Food safety pre-harvest controls are managed by the state regulatory Authorities
- State based programs are aligned with the Australian Shellfish Quality Assurance Program, which is defined in the FSANZ Food Standards Code
- It is the responsibility of each farmer / gatherer to be aware of & comply with their current food safety requirements
- It is your responsibility to produce Safe Food, as defined in the Food Act relevant to your jurisdiction

**ASSESSMENT REQUIREMENTS Outline the intended assessment and how that contributes to the learning outcomes of your short course(s).**

A series of short quizzes at the end of each section and an overall multiple choice assessment at the end of the module to measure whether the learning outcomes have been understood.

## Molluscan Shellfish Safety – industry long course curriculum

### COURSE LEARNING OUTCOMES Outline the intended learning outcomes (ILO's).

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit.

1	Explain	the biology and marine environment	required to grow bivalve shellfish
2	Explain	the legislative and monitoring requirements	for the safe harvest, transport and storage of bivalve shellfish
3	Describe	how to implement a product recall	using the FSANZ protocol

This includes knowledge of:

1. Regulations and guidelines pertinent to shellfish safety
  - basic understanding of aspects of food law relevant to bivalve mollusc production and sale including relevant sections of the FSANZ food standards code, the ASQAP manual, State and Territory Food Acts definitions of safe food, The Export Control Act
2. Factors of shellfish that make them a high-risk food group
  - basic biology and physiology of bivalve molluscs and related sources of food safety risk
3. Contaminants of concern
  - pathogens that can occur in bivalve molluscs including *Salmonella*, *E.coli* (indicator organism), Hepatitis A virus, Norovirus, *Vibrio parahaemolyticus*
  - algal biotoxins that pose a food safety risk in bivalve molluscs, including amnesic shellfish poisoning (ASP), neurotoxic shellfish poisoning (NSP), diarrhetic shellfish poisoning (DSP) and paralytic shellfish poisoning (PSP)
  - chemical contaminants such as heavy metals and Agvet chemicals
4. Controls of risks pre-harvest
  - Understanding sources of environmental contamination that can present a food safety risk in the growing and harvesting of bivalve molluscs, and related food safety controls, including risks associated with both aquaculture and wild fisheries
  - harvest area classification processes including the need for defined water and product sampling to maintain a harvest areas classification status
  - basic principles of water sampling and test methods
  - the understanding of the harvest area opening and closure process and the periods for which harvest areas might be closed depending on the cause of the closure

- the concept of harvest Area Management plans and Marine Biotoxin Management plans and how these are operated
5. Control of risks post-harvest
    - risks related to vibrio's and the temperature and other control methods being adopted by industry to reduce these risks
    - principles and associated control measures relating to effective purging of shellfish, including methods, including relaying and depuration, when practised according to state and territory legal and regulatory requirements
    - stock handling and storage risks and control methods
    - risks and related control methods to prevent cross-contamination, including sorting and cleaning, Good Hygiene Practices
    - facilities and equipment used in the growing and harvesting of bivalve molluscs, including features required to meet regulatory requirements
  6. Recall procedures and the requirements under the FSANZ Food Industry Recall Protocol including the benefits of mock recall training.

**ASSESSMENT REQUIREMENTS Outline the intended assessment and how that contributes to the learning outcomes of your short course(s).**

A series of short quizzes at the end of each section.

As a group activity to review and assess in detail a Harvest Area Management Plan and a Marine Biotoxin Management Plan. Discuss what would happen if certain trigger points were reached.

As a group activity to review and discuss the Tasmanian Vp Management plan and discuss the benefits of the various controls outlined in the Vp plan.

An overall multiple choice assessment at the end of the module to measure whether the learning outcomes have been understood.

## **RESOURCES**

The Food Act (of various States eg NSW)

FSANZ Food Standards Code

Safe Food Australia – FSANZ Guide

Safe Seafood Australia – FSANZ Guide

FSANZ - Food Safety Culture online resources

Victoria Health - Hygiene and Cleaning online resources

NSW Food Authority - Shellfish Industry Manual

The ASQAP Manual

Export Control Act

Export Control (Fish and Fish Products) Rules 2021

Australian shellfish quality assurance program: Export Standards 2004

ShellMAP - industry sector HACCP plan

ShellMAP - Biotoxin Management Plan

Oysters Tasmania - *Vibrio Parahaemolyticus* A guide for Tasmania shellfish growers

PIRSA - *Vibrio parahaemolyticus* Harvest Area Detection Protocol

SafeFish - online *Vibrio* workshop resources

## Molluscan Shellfish Safety – regulator course curriculum

### COURSE FRAMEWORK

The Molluscan Shellfish Safety regulator course is made up of 4 modules of around 30 hours learning each.

Each module to comprise of an online portion and a face-to-face workshop portion both of roughly 15 hours each. Then a final assignment.

The online portion to be a mixture of self-paced learning on the Short Course Platform and guided learning through online presentations by course lecturers.

The course is made up of four modules:

- Biological factors and legislative framework
- Harvest area classification
- Bacterial contaminants inc. management of sewage, vibrio’s, depuration and wet storage
- Harmful Algal Blooms and their management

### COURSE LEARNING OUTCOMES Outline the intended learning outcomes.

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit.

1	Explain	the biological and environmental factors	that affect the ability to grow and safely harvest bivalve shellfish
2	Explain	the legislative and monitoring requirements	for the safe harvest of bivalve shellfish
3	Explain	the control processes for managing pathogens	and the opening and closing of bivalve shellfish harvest areas
4	Describe	the different methods of control used to ensure shellfish safety	in a post-harvest context, including cross-contamination, temperature control and / or depuration.

### ASSESSMENT REQUIREMENTS Outline the intended assessment and how that contributes to the learning outcomes of your short course(s).

<b>Task description</b>	Students will be required to research the topic of Module 1: Bivalve Shellfish Safety - biological factors and legislative framework and develop a presentation for a 15-minute delivery to fellow students. The presentation should be delivered using MS PowerPoint or a suitable replacement.
<b>Assessment criteria</b>	The presentation will be marked by staff using a criterion referenced

	assessment sheet.
<b>Links to unit's intended learning outcomes</b>	Outcome 1: Explain the biological and environmental factors that affect the ability to grow and safely harvest bivalve shellfish
<b>Task length</b>	15 minute presentation supported by audio visual illustrations.

Task description	Students will be expected to produce a report, based on a scenario provided, which justifies what classification status should be provided to the bivalve shellfish harvest area outlined in the scenario.
Assessment criteria	Your report should be written using appropriate scientific format. It will be assessed using a criterion referenced assessment sheet which will be given to you with the assignment instructions.
Links to unit's intended learning outcomes	Outcome 1: Explain the biological and environmental factors that affect the ability to grow and safely harvest bivalve shellfish.  Outcome 2: Explain the legislative and monitoring requirements for the safe harvest of bivalve shellfish
Task length	The report should be no more than 2000 words

Task description	Students will be expected to produce a report, based on a scenario provided, which outlines when a harvest area should be closed and then re-opened, based on the data provided in the scenario.
Assessment criteria	Your report should be written using appropriate scientific format. It will be assessed using a criterion referenced assessment sheet which will be given to you with the assignment instructions.
Links to unit's intended learning outcomes	Outcome 2: Explain the legislative and monitoring requirements for the safe harvest of bivalve shellfish.  Outcome 3: Explain the control processes for managing pathogens and the opening and closing of bivalve shellfish harvest areas
Task length	The report should be no more than 2000 words

Task description	Students will be required to choose one of the topics of Module 4, which covers post-harvest risks to bivalve shellfish, and develop a presentation for a 15-minute delivery to fellow students. The presentation should be delivered using MS PowerPoint or a suitable replacement.
Assessment criteria	The presentation will be marked by staff using a criterion referenced assessment sheet.
Links to unit's intended learning	Describe the different methods of control used to ensure shellfish safety in a post-harvest context, including cross-contamination, temperature

outcomes	control and / or depuration.
Task length	15 minute presentation supported by audio visual illustrations.

## RESOURCES

The Food Act (of various States)

FSANZ Food Standards Code

Safe Food Australia – FSANZ Guide

Safe Seafood Australia – FSANZ Guide

NSW Food Authority - Shellfish Industry Manual

The ASQAP Manual

Export Control Act

Export Control (Fish and Fish Products) Rules 2021

Australian shellfish quality assurance program: Export Standards 2004

ShellMAP - industry sector HACCP plan

ShellMAP - Biotxin Management Plan

FAO initial risk assessment online course – GARP Template

FAO detailed risk assessment course – GAA Template

UTAS Water samplers’ short course

Reference to State Harvest Area Management Plans

Oysters Tasmania - *Vibrio Parahaemolyticus* A guide for Tasmania shellfish growers

PIRSA - *Vibrio parahaemolyticus* Harvest Area Detection Protocol

SafeFish - online *Vibrio* workshop resources

Managing *Vibrio* Risk in Oysters by Angelo DePaola (Bibliographic citation: Food Protection Trends, vol. 39, no. 4, pp. 338-347, Jul 2019)

FSANZ - Food Safety Culture online resources

Victoria Health - Hygiene and Cleaning online resources

# Appendix 5 – Course Surveys

## Introduction to Shellfish Safety Course

118 persons have completed the survey. The results are presented numerically and visually.

The six questions from left to right were:

- Please indicate how much you agree or disagree with this statement: The course content was presented in an engaging way.
- Please indicate how much you agree or disagree with this statement: The course included high-quality learning content.
- Please indicate how much you agree or disagree with this statement: The course was a good length for a short course.
- Please indicate how much you agree or disagree with this statement: I found the website easy to navigate.
- Please indicate how much you agree or disagree with this statement: Overall, I was satisfied with my short course experience.
- Please indicate how much you agree or disagree with this statement: I would be happy to recommend this course to a friend.

Table 9 below shows the visual representation where a light green colour represents an agree score and a dark green colour represents a strongly agree score. A light red score aligns with a disagree score and a dark red aligns with a strongly disagree score.

Table 9. Survey results from the Shellfish Safety Induction course. Light green colour represents an agree score and a dark green colour represents a strongly agree score. A light red score aligns with a disagree score and a dark red aligns with a strongly disagree score.

0	Date Completed	Please indicate how much you agree or disagree with this statement: The course content was presented in an engaging way.	score	how much you agree or disagree with this statement: The course included high quality learning	score	how much you agree or disagree with this statement: The course was a good length for most courses.	score	how much you agree or disagree with this statement: I found the website easy to navigate.	score	how much you agree or disagree with this statement: Overall, I was satisfied with the course.	score	how much you agree or disagree with this statement: I would be happy to recommend this course to a friend.	score	average score
1	March 13, 2024 02:15	Agree	1	Agree	1	Disagree	-1	Agree	1	Disagree	-1	Agree	1	0.33
2	March 22, 2024 06:12	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
3	March 28, 2024 04:47	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	1.83
4	March 29, 2024 03:37	Disagree	-1	Disagree	-1	Agree	1	Disagree	-1	Disagree	-1	Agree	1	-0.33
5	April 01, 2024 23:52	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
6	April 02, 2024 03:34	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
7	April 03, 2024 03:32	Agree	1	Strongly Agree	2	Agree	1	Agree	1	Agree	1	Agree	1	1.17
8	April 03, 2024 07:26	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
9	April 04, 2024 04:02	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
10	April 04, 2024 09:59	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
11	April 05, 2024 01:18	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Strongly Agree	2	Agree	1	1.50
12	April 10, 2024 03:14	Agree	1	Disagree	-1	Strongly Agree	2	Agree	1	Disagree	-1	Disagree	-1	0.17
13	April 10, 2024 03:24	Disagree	-1	Agree	1	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Agree	1	1.17
14	April 10, 2024 03:51	Disagree	-1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	0.83
15	April 11, 2024 22:06	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
16	April 12, 2024 06:41	Agree	1	Agree	1	Disagree	-1	Agree	1	Agree	1	Agree	1	0.67
17	April 16, 2024 05:32	Strongly Agree	2	Agree	1	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	1.83
18	April 19, 2024 04:05	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Agree	1	Agree	1	1.33
19	April 22, 2024 03:42	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
20	April 23, 2024 06:52	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
21	April 24, 2024 02:29	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Strongly Agree	2	1.17
22	April 24, 2024 04:47	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
23	April 28, 2024 11:51	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
24	April 28, 2024 01:26	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
25	April 29, 2024 00:39	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
26	April 30, 2024 01:36	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
27	April 30, 2024 06:19	Agree	1	Agree	1	Strongly Agree	2	Agree	1	Strongly Agree	2	Agree	1	1.17
28	April 30, 2024 06:19	Agree	1	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Strongly Agree	2	1.50
29	May 01, 2024 14:19	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
30	May 05, 2024 02:06	Agree	1	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Not Applicable	0	1.50
31	May 07, 2024 06:12	Agree	1	Agree	1	Strongly Agree	2	Agree	1	Agree	1	Agree	1	1.17
32	May 07, 2024 22:33	Disagree	-1	Agree	1	Strongly Agree	2	Agree	1	Strongly Agree	2	Strongly Agree	2	1.17
33	May 13, 2024 22:13	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Agree	1	Strongly Agree	2	1.50
34	May 15, 2024 00:56	Disagree	-1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	0.67
35	May 16, 2024 02:06	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Not Applicable	0	0.83
36	May 16, 2024 02:07	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
37	May 16, 2024 02:41	Not Applicable	0	Not Applicable	0	Not Applicable	0	Not Applicable	0	Not Applicable	0	Not Applicable	0	0.00
38	May 17, 2024 00:26	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
39	May 17, 2024 00:38	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
40	May 17, 2024 00:43	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
41	May 17, 2024 00:43	Agree	1	Agree	1	Agree	1	Strongly Agree	2	Agree	1	Agree	1	1.17
42	May 17, 2024 00:46	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
43	May 17, 2024 00:49	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
44	May 18, 2024 05:28	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
45	May 20, 2024 09:05	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
46	May 22, 2024 00:49	Agree	1	Agree	1	Not Applicable	0	Strongly Agree	2	Agree	1	Strongly Agree	2	1.17
47	May 23, 2024 02:07	Disagree	-1	Agree	1	Strongly Agree	2	Agree	1	Agree	1	Not Applicable	0	0.00
48	May 23, 2024 03:39	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
49	June 07, 2024 02:44	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
50	June 12, 2024 05:36	Strongly Agree	2	Agree	1	Agree	1	Agree	1	Strongly Agree	2	Strongly Agree	2	1.50
51	June 13, 2024 07:26	Agree	1	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	1.83
52	June 13, 2024 09:06	Agree	1	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Agree	1	1.33
53	June 14, 2024 04:04	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
54	June 14, 2024 05:25	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
55	June 21, 2024 10:15	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Strongly Agree	2	1.67
56	June 27, 2024 04:47	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
57	June 28, 2024 04:56	Agree	1	Strongly Agree	2	Agree	1	Agree	1	Agree	1	Agree	1	1.17
58	July 05, 2024 00:53	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
59	July 07, 2024 13:14	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
60	July 15, 2024 02:41	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
61	July 15, 2024 04:11	Agree	1	Agree	1	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	1.83
62	July 19, 2024 04:08	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
63	July 23, 2024 05:24	Strongly Agree	2	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.33
64	July 29, 2024 02:38	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
65	August 04, 2024 23:58	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
66	August 05, 2024 02:21	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
67	August 09, 2024 02:13	Agree	1	Strongly Agree	2	Strongly Agree	2	Disagree	-1	Agree	1	Strongly Agree	2	1.17
68	August 14, 2024 03:29	Strongly Agree	2	Agree	1	Agree	1	Agree	1	Disagree	-1	Agree	1	0.83
69	August 23, 2024 03:03	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Agree	1	Strongly Agree	2	Strongly Agree	2	1.83
70	September 03, 2024 01:01	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
71	September 03, 2024 08:08	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
72	September 05, 2024 00:00	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
73	September 05, 2024 11:00	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Strongly Agree	2	1.17
74	September 11, 2024 22:22	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
75	September 17, 2024 12:00	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Strongly Agree	2	1.67
76	September 19, 2024 04:04	Agree	1	Agree	1	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	1.33
77	September 19, 2024 23:23	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
78	September 20, 2024 03:03	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
79	September 20, 2024 03:03	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
80	September 23, 2024 23:00	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
81	September 30, 2024 03:03	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
82	September 30, 2024 04:00	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Agree	1	Agree	1	1.33
83	October 01, 2024 10:06	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
84	October 03, 2024 23:44	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
85	November 06, 2024 02:00	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
86	November 14, 2024 23:23	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.17
87	November 19, 2024 03:03	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
88	November 26, 2024 03:03	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
89	December 17, 2024 06:00	Disagree	-1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	0.67
90	December 22, 2024 10:00	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
91	December 27, 2024 06:00	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Agree	1	Strongly Agree	2	Strongly Agree	2	1.83
92	January 07, 2025 19:06	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
93	January 15, 2025 23:20	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
94	January 21, 2025 00:51	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
95	February 03, 2025 06:30	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
96	February 10, 2025 22:23	Agree	1	Agree	1	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	1.33
97	March 26, 2025 08:43	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	1.00
98	March 26, 2025 09:10	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	2.00
99	April 03, 2025 10:00													

As can be seen the greens dominate the table representing a positive answer to the questions.

The data can be represented numerically whereby scores represent; -2 = strongly disagree, -1= disagree, 0 = neutral, 1 = agree and 2 = strongly agree (**Error! Reference source not found.**).

*Table 2. Numerical representation of Shellfish Safety Induction Course survey results. -2= strongly disagree, 2 = strongly agree. Number of respondents =118*

Questions	Average score
Please indicate how much you agree or disagree with this statement: The course content was presented in an engaging way.	1.09
Please indicate how much you agree or disagree with this statement: The course included high-quality learning content.	1.25
Please indicate how much you agree or disagree with this statement: The course was a good length for a short course.	1.18
Please indicate how much you agree or disagree with this statement: I found the website easy to navigate.	1.21
Please indicate how much you agree or disagree with this statement: Overall, I was satisfied with my short course experience.	1.18
Please indicate how much you agree or disagree with this statement: I would be happy to recommend this course to a friend.	1.24

## Shellfish Safety Supervisors Course

27 persons have completed the survey. The results are presented visually (Table 10) and numerically (Table 3). The questions and the scoring process are the same as the shellfish introduction course outlined above.

Table 10. Survey results from the Shellfish Safety Supervisors Course. Light green colour represents an agree score and a dark green colour represents a strongly agree score. A light red score aligns with a disagree score and a dark red aligns with a strongly disagree score

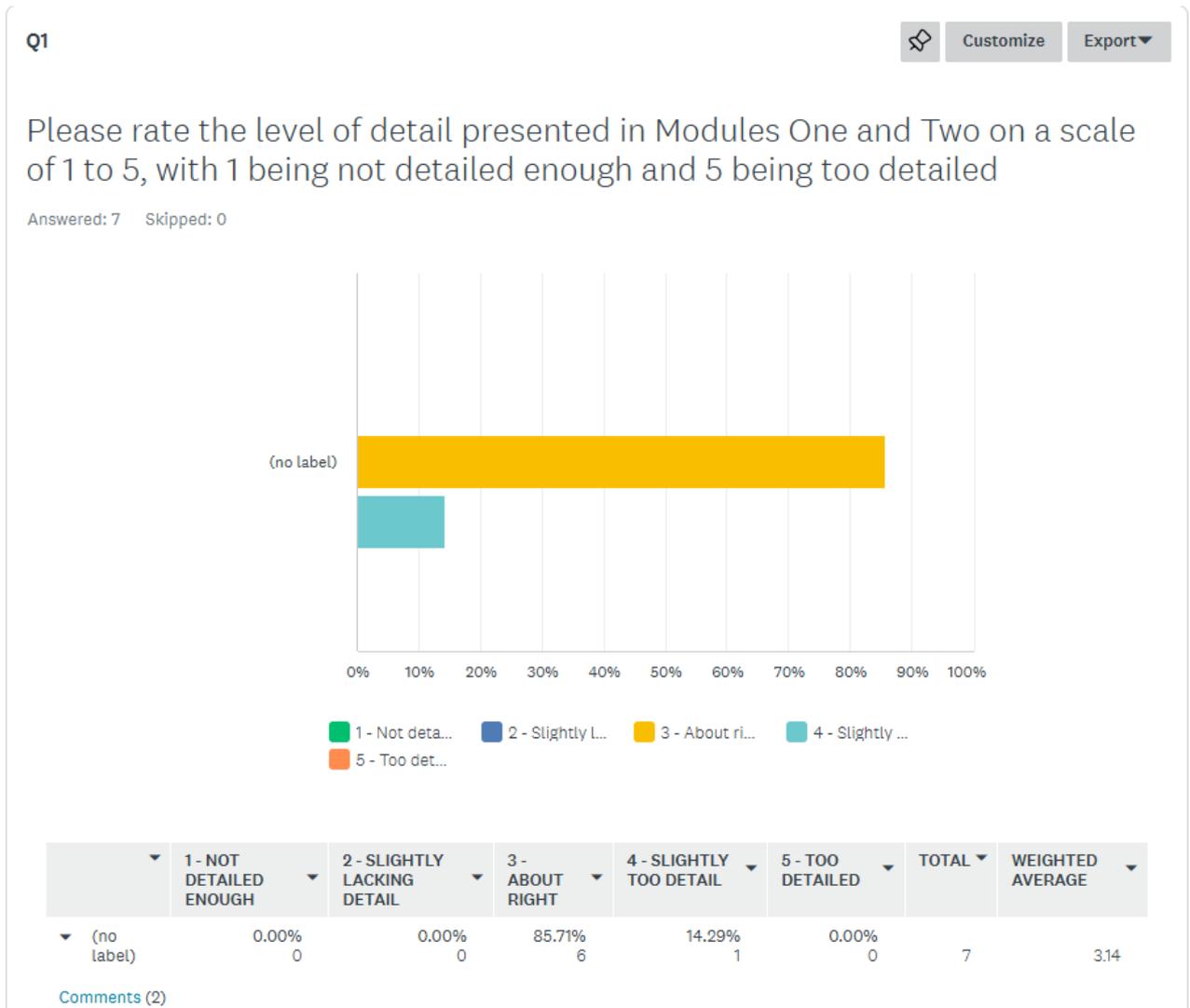
0	Date Completed	Please indicate how much you agree or disagree with this statement: The course content was presented in an engaging way.	score	Please indicate how much you agree or disagree with this statement: The course included high-quality learning content.	score	Please indicate how much you agree or disagree with this statement: The course was a good length for a short course.	score	Please indicate how much you agree or disagree with this statement: I found the website easy to navigate.	score	Please indicate how much you agree or disagree with this statement: Overall, I was satisfied with my short course experience.	score	Please indicate how much you agree or disagree with this statement: I would be happy to recommend this course to a friend.	score
1	July 06, 2024 02:03	Agree	1	Agree	1	Agree	1	Strongly Agree	2	Agree	1	Agree	1
2	July 17, 2024 06:38	Agree	1	Strongly Agree	2	Agree	1	Disagree	-1	Agree	1	Strongly Agree	2
3	July 29, 2024 07:26	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1
4	August 09, 2024 05:12	Agree	1	Strongly Agree	2	Agree	1	Agree	1	Strongly Agree	2	Strongly Agree	2
5	December 23, 2024 22:25	Agree	1	Agree	1	Agree	1	Not Applicable	0	Agree	1	Agree	1
6	August 20, 2024 00:57	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Strongly Agree	2	Strongly Agree	2
7	September 17, 2024 14:02	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1
8	September 25, 2024 07:45	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1
9	November 14, 2024 22:43	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2
10	December 11, 2024 03:21	Agree	1	Strongly Agree	2	Strongly Agree	2	Agree	1	Strongly Agree	2	Not Applicable	0
11	January 01, 2025 06:39	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2
12	January 08, 2025 03:19	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1
13	January 12, 2025 10:11	Agree	1	Strongly Agree	2	Strongly Agree	2	Agree	1	Strongly Agree	2	Strongly Agree	2
14	January 12, 2025 10:12	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2
15	January 21, 2025 03:46	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1
16	February 07, 2025 14:35	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1
17	March 11, 2025 04:51	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Not Applicable	0
18	March 14, 2025 03:56	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1
19	April 19, 2025 02:42	Agree	1	Strongly Agree	2	Agree	1	Agree	1	Strongly Agree	2	Strongly Agree	2
20	April 20, 2025 10:54	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2
21	May 07, 2025 05:35	Strongly Agree	2	Strongly Agree	2	Agree	1	Agree	1	Strongly Agree	2	Agree	1
22	June 01, 2025 11:01	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Agree	1	Strongly Agree	2	Strongly Agree	2
23	June 30, 2025 07:16	Disagree	-1	Disagree	-1	Agree	1	Strongly Disagree	-2	Strongly Disagree	-2	Strongly Disagree	-2
24	July 02, 2025 05:10	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2	Strongly Agree	2
25	July 04, 2025 06:37	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1	Agree	1
26	August 22, 2025 00:38	Agree	1	Agree	1	Disagree	-1	Agree	1	Agree	1	Agree	1
27	September 03, 2025 06:19	Agree	1	Strongly Agree	2	Agree	1	Agree	1	Agree	1	Agree	1
overall category score			1.26		1.48		1.26		1.15		1.37		1.22

Table 3. Numerical representation of Shellfish Safety Supervisors Course survey results. -2= strongly disagree, 2 = strongly agree. Number of respondents = 27

Questions	Average score
Please indicate how much you agree or disagree with this statement: The course content was presented in an engaging way.	1.26
Please indicate how much you agree or disagree with this statement: The course included high-quality learning content.	1.48
Please indicate how much you agree or disagree with this statement: The course was a good length for a short course.	1.26
Please indicate how much you agree or disagree with this statement: I found the website easy to navigate.	1.15
Please indicate how much you agree or disagree with this statement: Overall, I was satisfied with my short course experience.	1.37
Please indicate how much you agree or disagree with this statement: I would be happy to recommend this course to a friend.	1.22

## Managing and Regulating Food Safety Risks in Bivalve Shellfish Course

### Mid – Course survey review after modules 1 and 2 were completed



Showing 2 responses

I think the FAO courses are perhaps slightly too detailed, but I also understand not wanting to reinvent the wheel when those courses are already available and very comprehensive!

10/07/2025 12:59 pm

[View respondent's answers](#) [Add tags](#) ▼

FAO course was quite time intensive and detailed however if sufficient time is allowed for this it is a great resource. Potentially could've been more discussion/detail about assignment 2.

08/07/2025 10:53 am

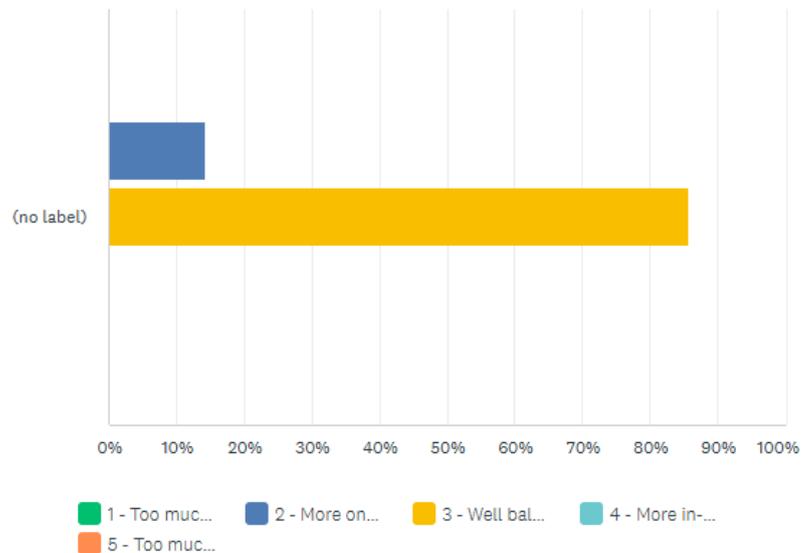
[View respondent's answers](#) [Add tags](#) ▼

Q2

[Customize](#) [Export](#) ▼

Please rate the mode of delivery in Modules One and Two on a scale of 1 to 5, with 1 being too much on-line delivery and 5 being too much in-person

Answered: 7 Skipped: 0



	1 - TOO MUCH ONLINE	2 - MORE ONLINE THAN IDEAL	3 - WELL BALANCED	4 - MORE IN-PERSON THAN IDEAL	5 - TOO MUCH IN-PERSON	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	14.29% 1	85.71% 6	0.00% 0	0.00% 0	7	2.86

[Comments \(3\)](#)

Showing 3 responses

Response is based on the fact that in-person attendance was easy for me as it was located in the same city, understand that in-person attendance was harder for others that needed to travel interstate.

14/07/2025 11:17 am

[View respondent's answers](#) [Add tags](#) ▼

The in-person delivery seemed to repeat what was covered in the online delivery but this was probably a good thing to have it presented slightly differently, and repeated, for better understanding.

09/07/2025 08:34 am

[View respondent's answers](#) [Add tags](#) ▼

Good delivery given the locations of course participants however in person discussion and practical work was definitely the most beneficial.

08/07/2025 10:53 am

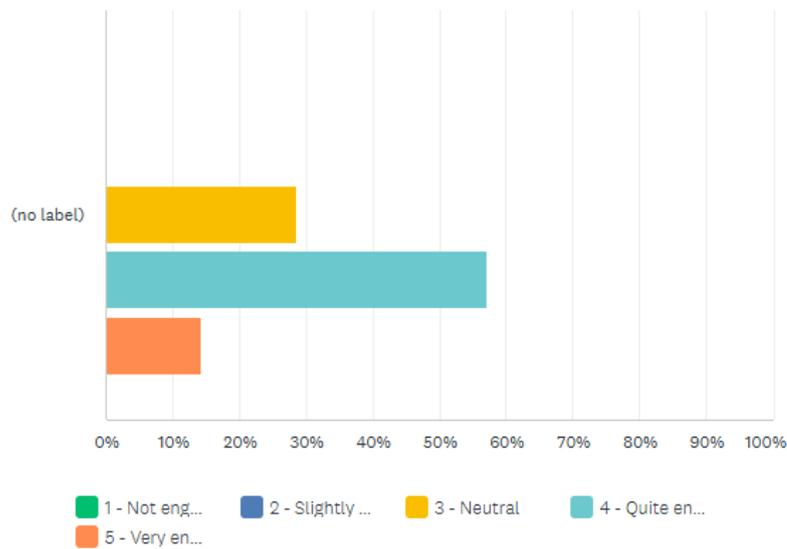
[View respondent's answers](#) [Add tags](#) ▼

Q3

[Customize](#) [Export](#) ▼

Please rate the course materials in Modules One and Two on a scale of 1 to 5, with 1 being dry and boring and 5 being interesting and engaging

Answered: 7 Skipped: 0



	1 - NOT ENGAGING OR USEFUL	2 - SLIGHTLY ENGAGING	3 - NEUTRAL	4 - QUITE ENGAGING	5 - VERY ENGAGING AND USEFUL	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	0.00% 0	28.57% 2	57.14% 4	14.29% 1	7	3.86

[Comments \(3\)](#)

Showing 3 responses

I found the FAO online courses a little heavy-going after a while, given their generalised nature, however still found a lot of value in them alongside the Australian context, and they complimented the existing course material really well.

14/07/2025 11:17 am

[View respondent's answers](#)

[Add tags](#) ▼

In depth for someone not familiar with this space, but well presented

09/07/2025 08:34 am

[View respondent's answers](#)

[Add tags](#) ▼

FAO section got quite dry at times and may be streamlined to better suit Australian similarities. Video sections and online discussions definitely the best way to relay information rather than strictly reading.

08/07/2025 10:53 am

[View respondent's answers](#)

[Add tags](#) ▼

Q4

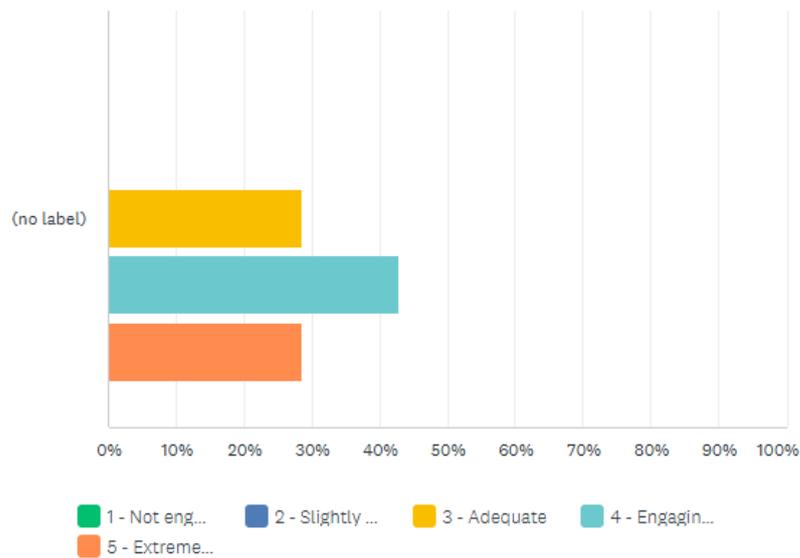


Customize

Export ▼

Please rate the teaching in Modules One and Two on a scale of 1 to 5, with 1 being dry and boring and 5 being interesting and engaging

Answered: 7 Skipped: 0



	1 - NOT ENGAGING OR EFFECTIVE	2 - SLIGHTLY EFFECTIVE	3 - ADEQUATE	4 - ENGAGING AND EFFECTIVE	5 - EXTREMELY ENGAGING AND EFFECTIVE	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	0.00% 0	28.57% 2	42.86% 3	28.57% 2	7	4.00

Showing 2 responses

Engaging teaching overall. As mentioned video calls and in person sections were most beneficial. Using real world scenarios and teaching from current state regulators was helpful. Assignments were great but #2 could've had more guidance given complexities and variance of rainfall triggers.

08/07/2025 10:53 am

[View respondent's answers](#) [Add tags](#)▼

I enjoyed the online discussions.

04/07/2025 10:56 am

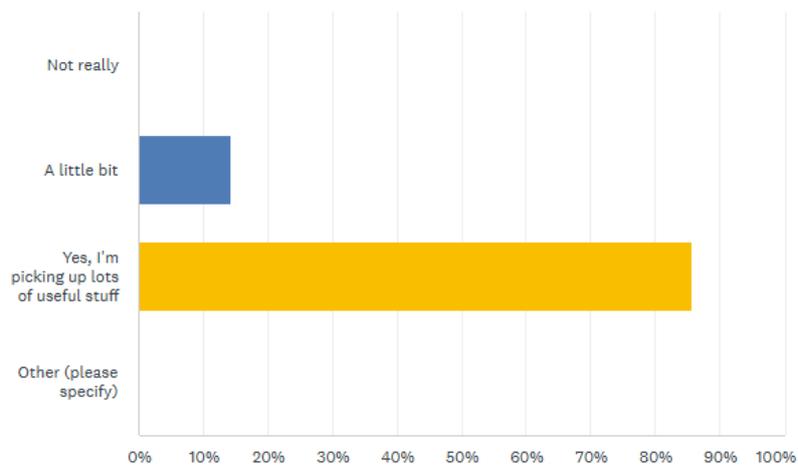
[View respondent's answers](#) [Add tags](#)▼

Q5

 [Customize](#) [Export](#)▼

Do you feel that you are learning new information that will be useful in your job / in the future?

Answered: 7 Skipped: 0





**Q7** Export

Can you suggest any ways to improve the course?

Answered: 4 Skipped: 3

**RESPONSES (4)** WORD CLOUD TAGS (0)

Showing 4 responses

---

Very good so far! It can be hard to making legislative frameworks engaging, but there are definitely interesting (yet important) components that are covered throughout the course!

10/07/2025 01:01 pm

[View respondent's answers](#) [Add tags ▼](#)

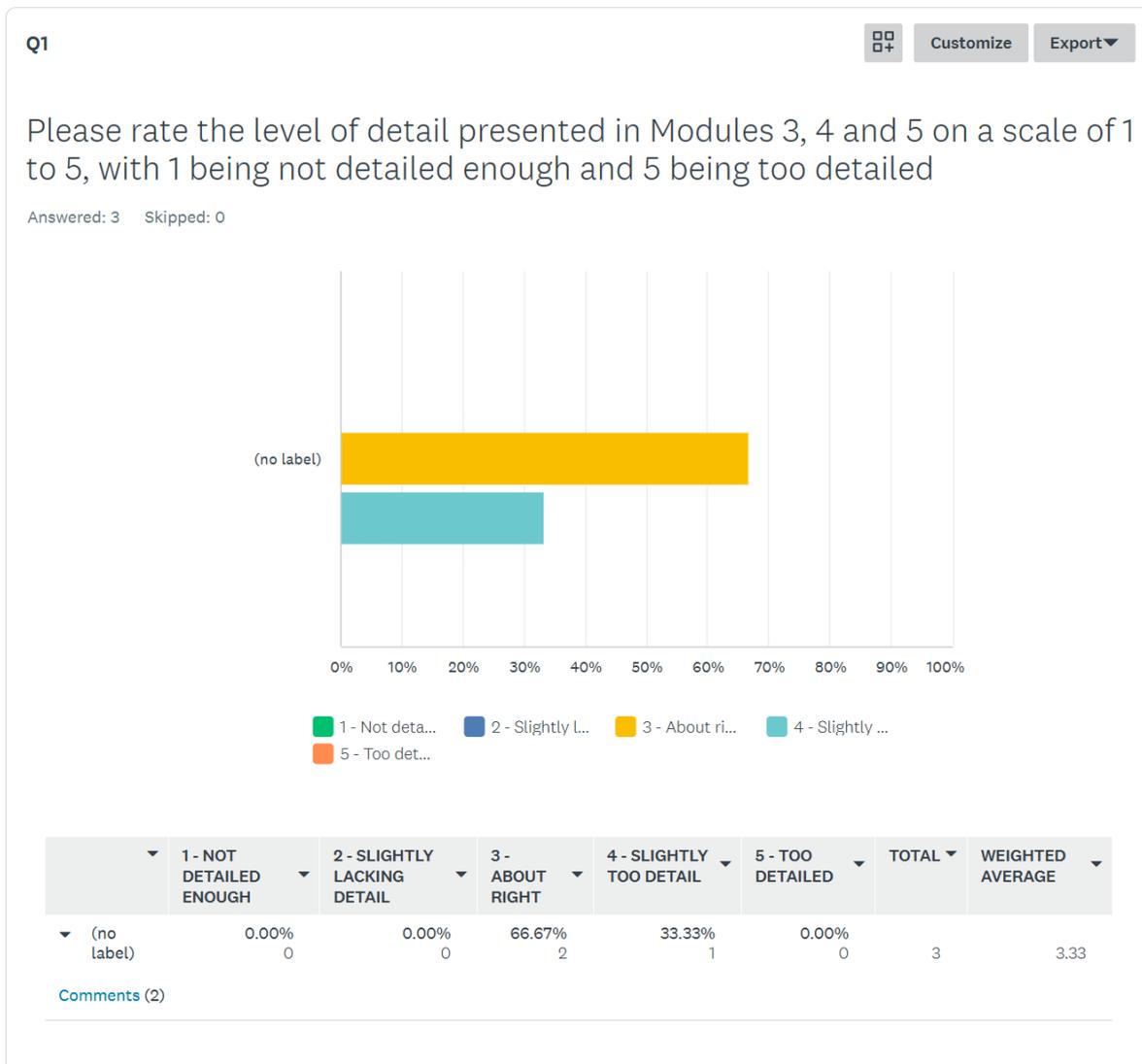
Hands on sections/assignments and open discussions about how states differ in their shellfish management provided the best learnings. These could be increased although can get tricky with travel.

08/07/2025 10:55 am

[View respondent's answers](#) [Add tags ▼](#)

If the demographic of enrolled participants support it, some in-person aspects per state/territory would be good. Rather than requiring travel interstate, having events in areas across where all participants are located would be great. I was able to attend a parallel event in my state, which others could have attended online - that was really positive. For events held in another state I used Zoom and others were in the field. It's a great aspect of the course already but can hopefully 'grow' as there are more opportunities in the future.

## Building Capability in Shellfish Safety Regulators Course 2025 End of Course survey



Showing 2 responses

I found the component about Vibrio beyond my comprehension at times - not to say it was too detailed, just above my own level of understanding.

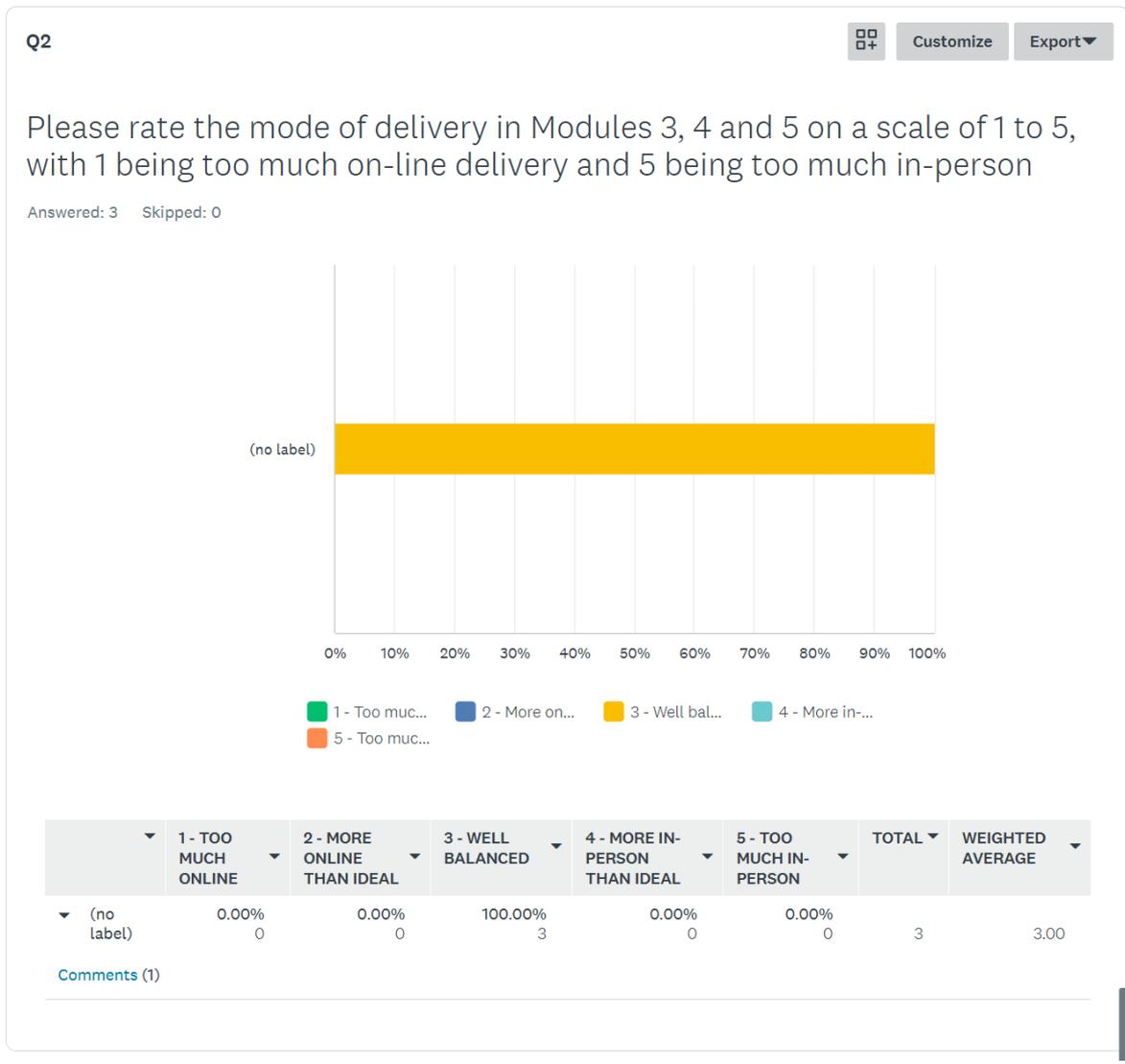
22/09/2025 03:55 pm

[View respondent's answers](#) [Add tags](#)

the detail for the "science" component for HAB and Vibrio was slightly too in depth for regulators. maybe more focus on why the scientific details and grey areas matter for regulatory decisions

17/09/2025 10:42 am

[View respondent's answers](#) [Add tags](#)



Showing 1 response

It was probably difficult for interstaters to be available for in-person days, but online options for these were a good alternative

22/09/2025 03:55 pm

[View respondent's answers](#) [Add tags](#)



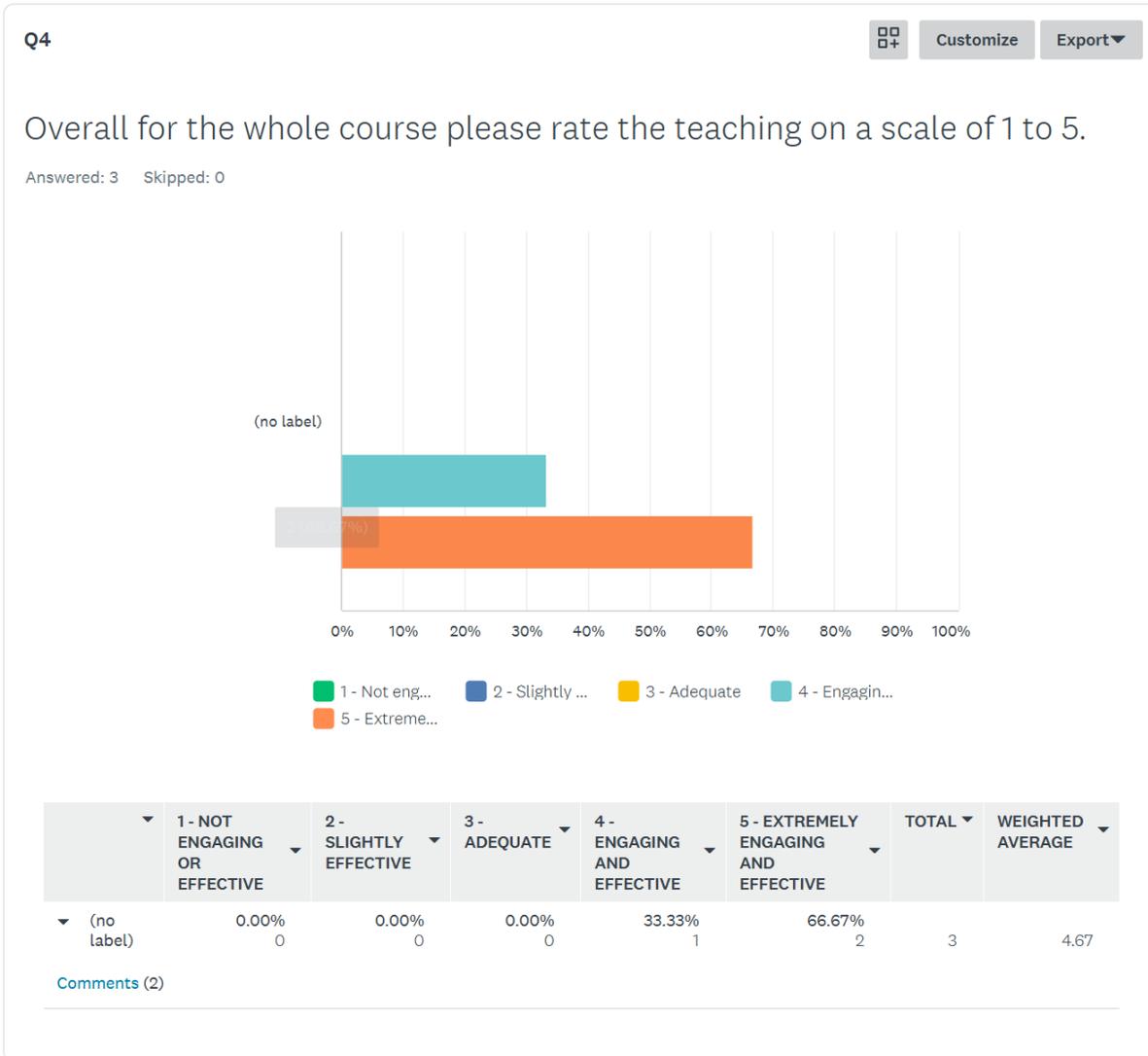
Showing 1 response

Good balance, I liked having hand-outs of printed papers (I don't like reading everything electronically)

22/09/2025 03:55 pm

[View respondent's answers](#)

[Add tags](#)



Showing 2 responses

I found the free-flowing discussion segments, with less structure, particularly valuable during the in-person sessions.

22/09/2025 03:55 pm

[View respondent's answers](#) [Add tags](#)

the second last day at Taroona on HAB and vibrio had a lot of content and felt rushed

17/09/2025 10:42 am

[View respondent's answers](#) [Add tags](#)

Q5

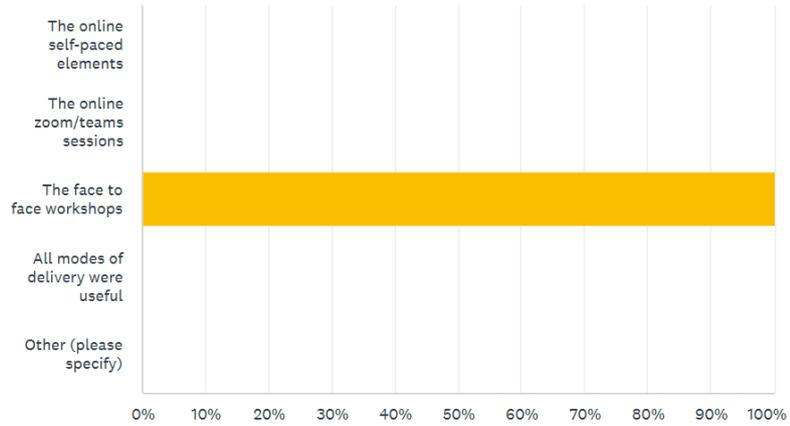


Customize

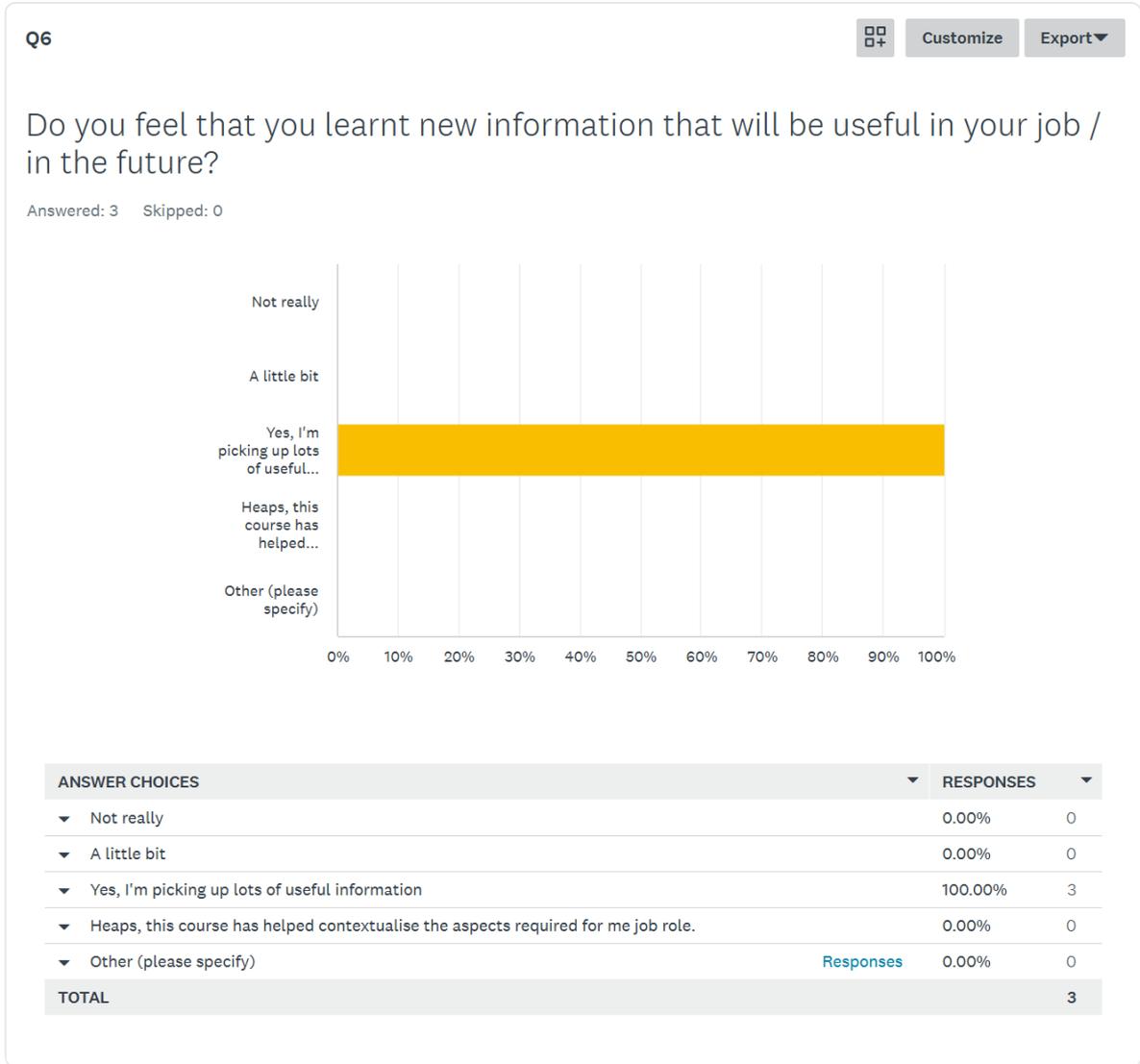
Export

### Overall which teaching style do you feel that you gained the most from?

Answered: 3 Skipped: 0



ANSWER CHOICES	RESPONSES
▼ The online self-paced elements	0.00% 0
▼ The online zoom/teams sessions	0.00% 0
▼ The face to face workshops	100.00% 3
▼ All modes of delivery were useful	0.00% 0
▼ Other (please specify) <a href="#">Responses</a>	0.00% 0
<b>TOTAL</b>	<b>3</b>



Q7

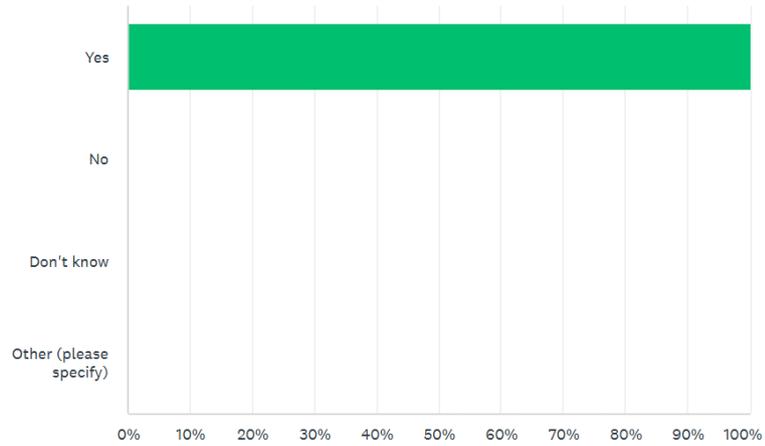


Customize

Export

Would you recommend the course to others entering into industry regulatory roles?

Answered: 3 Skipped: 0



ANSWER CHOICES	RESPONSES	
▼ Yes	100.00%	3
▼ No	0.00%	0
▼ Don't know	0.00%	0
▼ Other (please specify)	<a href="#">Responses</a> 0.00%	0
<b>TOTAL</b>		<b>3</b>

Q8  [Export](#)

### Can you suggest any ways to improve the course?

Answered: 3 Skipped: 0

---

[RESPONSES \(3\)](#) [WORD CLOUD](#) [TAGS \(0\)](#) [THEMATIC ANALYSIS](#) Beta

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Showing 3 responses

---

No real improvements but would assess the course content depending on students. A lot of the coursework was suited to regulators with some previous background but may be to intensive for those new to the field.  

08/10/2025 02:42 pm[View respondent's answers](#) [Add tags](#)

Not about the course itself, I would only suggest casting a wide net to reach more potential sign-ups. It is an excellent course, but I fear as it is such a niche space that a lot of people who might be interested may not get a chance to know that this opportunity exists.  

22/09/2025 04:01 pm[View respondent's answers](#) [Add tags](#)

the course has been great  

17/09/2025 10:42 am[View respondent's answers](#) [Add tags](#)

79

## Appendix 6 – Industry Course advertising flyers



### 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](https://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.



CRICOS CODE 00586B

