Australian Southern Bluefin Tuna Industry Association Ltd (ASBTIA)

Linking careers research and training

A PILOT FOR THE SEAFOOD INDUSTRY

TONY'S TUNA INTERNATIONAL PTY LTD.

FRDC FISHERIES RESEARCH & DEVELOPMENT CORPORATION

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Project No. 2009/302

Title: Linking careers, research and training – a pilot for the seafood industry

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FRDC Project No: 2009/302

Date: February 2013

Published by: Samara Miller, 2013.

Design and Print: Woof Media - www.woofmedia.com.au

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The Fisheries Research and Development Corporation plans, invests in and manages fisheries research and development throughout Australia. It is a statutory authority within the portfolio of the federal Minister for Agriculture, Fisheries and Forestry, jointly funded by the Australian Government and the fishing industry.

ISBN 978-0-646-59578-8

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1. GLOSSARY OF ACRONYMS AND TERMINOLOGY

ACRONYMS

APFA	Australian Prawn Farmers Association
ASBTIA	Australian Southern Bluefin Tuna Association
AQF	Australian Qualifications Framework
CPR	Cardio Pulmonary Resuscitation
CRC	Cooperative Research Centre
FRDC	Fisheries Research and Development Corporation
FTE	Full Time Equivalent
HACCP	Hazard Analysis and Critical Control Points
kW	kilowatt
MED	Marine Engine Driver
OHS	Occupational Health and Safety
ROV	Remote Operated Vehicle
RPL	Recognition of Prior Learning
RTO	Registered Training Organisation
SBT	Southern Bluefin Tuna
SEA	Seafood Experience Australia
SOP	Standard Operating Procedure
TSGA	Tasmanian Salmonid Growers Association
TAFE	Technical and Further Education
VET	Vocational Education and Training

TERMINOLOGY

AQF	A quality assured national framework of qualifications in the school, VET and higher education sectors in Australia.
Competency	The consistent application of knowledge and skill to the standard of performance required in the workplace. It embodies the ability to transfer and apply skills and knowledge to new situations and environments.
Graduate	A person who has been awarded a qualification by an authorised issuing organisation.
Pathways	Paths or sequences of learning or experiences that can be followed to attain competency.
Qualification	Formal certification, issued by a relevant approved body, in recognition that a person has achieved learning outcomes or competencies relevant to identified individual, professional, industry and community needs.
RPL	An assessment process that assesses an individual's formal and informal learning to determine the extent to which that individual has achieved the required learning outcomes, competency outcomes, or standards for entry to, and/or partial or total completion of, a VET qualification.
RTO	A training organisation listed on the National Register as a registered training organisation.
Skills	What a graduate can do. They can be described in terms of kinds and complexity and include cognitive skills, technical skills, communication skills, creative skills, interpersonal skills and generic skills.
Scope of registration	Things that a NVR training organisation is registered to do, i.e. provide training and assessments resulting in the issue of VET qualifications or VET statements of attainment.
Training Package	A nationally endorsed, integrated set of competency standards, assessment requirements, AQF qualifications, and credit arrangements for a specific industry, industry sector or enterprise.
Units of competency	The specification of industry knowledge and skill and the application of that knowledge and skill to the standard of performance expected in the workplace.

2. NON TECHNICAL SUMMARY

2009/302 Linking careers, research and training – a pilot for the seafood industry

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OBJECTIVES

1 To develop career pathways and linked training programs
2 To develop a process whereby seafood enterprises can use the most up-to-date research outcomes in their company training and operations
3 To analyse the linking of career pathways, research and training over a season and identify possible improvements
4 To develop materials that may guide other seafood enterprises through similar workforce issues

OUTCOMES ACHIEVED TO DATE:

The project outputs have contributed to or will lead to the following outcomes:

1. Raised awareness and understanding of the differences and similarities of workforce issues being experienced by five seafood sectors across Australia.
2. Greater awareness and understanding of the differences and similarities in job roles, career pathways and training levels between five different aquaculture sectors.
3. Raised profile within the seafood industry of the need for career development and outputs to champion new workforce strategies.
4. Greater opportunity for people outside the industry looking for work to have a clearer understanding of possible careers in the seafood industry.
5. A demonstration of how career pathway information can be communicated, promoted and extended to groups outside the seafood industry in easy to understand language.
6. A process to enable the seafood industry to better utilise the training system to respond to workforce challenges.
7. Increased understanding of the links between job roles to guide employers for improved workforce flexibility to meet changing demands for skills.
8. Raised awareness and understanding of the challenges being faced by trainers in sourcing information about the seafood industry.
9. Opportunities for a closer partnership between industry groups, researchers and RTOs in tackling workforce challenges being experienced by the seafood industry.
10. A mechanism for adoption of research results into the training system.

2. NON TECHNICAL SUMMARY *(CONT.)*

The Australian seafood industry is currently facing workforce challenges which are leading to widespread labour market issues with difficulty in attracting, retaining and upskilling staff. Without new strategies, capacity for the industry to reach its goals for production and value will not be realised. There are multiple factors which are contributing to this situation such as an ageing workforce, departure of experienced mature workers, increased competition for labour from other industries and the seasonal and casual nature of employment in the industry. The lack of skilled workers, a poor education and training culture in the industry and lack of succession planning strategies are also contributing to the workforce issues being felt around the country. This is compounded by a lack of understanding of the training language and system, the breadth of skills needed by workers and sometimes irrelevant and generic training that is delivered that does not fulfil the industry's training needs. The tuna industry faces many of these pressures and therefore was used as a test case that could be of help to other seafood sectors.

Two areas warranting research were investigated; the development of career pathways that may assist both employees already working in the industry as well as people outside the industry looking for a career, and improving the links between the industry and trainers to provide more relevant upskilling. The lack of clear career pathways on offer and virtually no communication or advertising of career pathways is highlighted. Generic pathways for the seafood industry may assist with changing the perceptions of the general community about careers and jobs by establishing a common 'language' and encouraging succession planning within the industry. Understanding the extension and transfer of research outcomes may also identify ways to improve the training experience.

The results showed that although workforce challenges vary between the tuna, mussel, salmonid, prawn and pearl faming sectors, all may benefit from work undertaken to attract, retain and upskill workers. Skills from ten different training packages were used to develop a comprehensive set of proposed qualifications for the 33 job roles identified in the tuna industry. The most relevant and directly applicable units of competency were identified to create a whole of sector approach to careers and training. Each sector reported value in adapting the job roles and job descriptions, career pathways, qualification and skill list and proposed qualifications developed for the tuna industry to their own sector with little change required to provide a common language needed across the industry. Three different career pathways were created for the tuna industry; Fishing & Farming, Processing, and Human Resources & Administration and all were relevant to the other four aquaculture sectors studied.

Trainers valued the simplicity and visual presentation of the career pathways but reported less value in the job roles and proposed qualifications. Trainers commented that the proposed qualifications were a good starting point in developing training plans for employees. The materials did not assist with the current RPL process nor initiate ideas for the process in the future. However, trainers highlighted the need for more information from industry to provide more effective training and support specialist training providers.

The extension and adoption of research outcomes was surprisingly less challenging for all five seafood sectors interviewed. Extension of research either works well in the mussel, prawn and pearl farming sectors or there are limited research outcomes that can be directly applied to the companies. Specific job roles are identified in the tuna and salmonid sectors that are responsible for ensuring research outcomes are incorporated into training. All sectors expressed concern about whether the training process can currently accommodate rapid changes in industry training needs which highlighted the need for a closer link with trainers.

Trainers reported that sourcing information for training materials is ad hoc and none of the trainers reported regularly accessing research reports or websites. Trainers commented on the usefulness of the fact sheets that were developed. Trainers require more industry specific information to improve the training experience. The identification of job roles within companies with responsibility to update trainers and incorporate research findings across the company, would be beneficial as a point of contact for trainers. The facilitation of opportunities for greater collaboration between industry organisations and local trainers was highlighted.

This project has shown the benefits of developing materials at a whole of sector level that suits industry and that can provide guidance and be applied across other seafood sectors. The importance of considering career pathways has been profiled both within the industry and with trainers. The proposed tuna qualifications has raised the profile of industry demonstrating leadership by directing their own training needs. The research has highlighted opportunities for RTOs and industry groups to work closer together to improve the delivery and effectiveness of training. People outside the industry will also have a clearer understanding of the pathways available.

KEYWORDS:

Careers, training, research, workforce, education, aquaculture, processing, commercial fishing, southern bluefin tuna.

3. ACKNOWLEDGEMENTS

The Australian Southern Bluefin Tuna Industry Association (ASBTIA) initiated this research project on behalf of member companies in Port Lincoln. David Ellis in his capacity as Research Manager for ASBTIA and a Director of the Seafood Training Centre of Excellence Inc, provided vision and motivation to pioneer this new area of research for the seafood industry. Tony's Tuna International Pty Ltd, as Co-investigator, is sincerely thanked for providing their company as a 'test case' and supporting an examination of their workforce challenges to enable this research to occur.

The TAFE SA Regional trainers; Melinda Wells, Travis Henson and Garth Matulich are genuinely thanked for participating in the project through interviews and providing constructive feedback on value and usefulness of the project materials developed for the tuna industry. The delivery of training to Tony's Tuna International Pty Ltd staff within tight time constraints was much appreciated.

Andy Dyer from Kinkawooka Mussels is thanked for providing feedback on the relevance of the materials for the mussel farming industry sector and providing comments on workforce challenges and extension of research. Adam Main and Kaylene Little are thanked for providing feedback on behalf of the Tasmanian Salmonid Growers Association and Tassal Group Limited on project outcomes and discussing workforce challenges specific to their sector.

Helen Jenkins on behalf of the Australian Prawn Farmers Association and Matthew West on behalf of Australian Prawn Farm are thanked for providing feedback on the draft materials. Richard McLean and Dean Harrison are thanked for providing input and feedback on the draft materials on behalf of Paspaley Pearling Company Pty Ltd.

Dos O'Sullivan provided expert advice on units of competency for each training qualification for the tuna industry and specifically checked compliance for each qualification within respective packaging rules.

Thanks to Leonie Ebert of the Eyre Peninsula Natural Resources Management Board for providing time to assist with developing the Tuna PlaceStory video.

Thanks to Board members of the Seafood Training Centre of Excellence Inc; Catherine Barnett (Chair), Christine Harrison, Mark Cody, Milan Rapp, Dr John Carragher, Glen Ingham and Robyn Buckler who supported the concept, as well as significant in-kind support to get the project underway. The Department of Further Education, Employment, Science and Technology is thanked for facilitating financial assistance to deliver the training that was at the discretion of the State Minister for Employment, Training and Further Education.

Agrifood Skills Australia provided feedback on the project concept and early findings from the research, which was appreciated. Barb McPherson provided initial feedback on the proposed qualifications identified as suitable for different job roles whilst the Seafood Industry Training Package was being reviewed, and provided helpful guidance as to whether the materials could be practically implemented.

Peter Preece of TAFE SA Regional and Bob Miller of the Australian Fisheries Academy provided feedback on the initial concept for the project, which helped shape the project. Stephen Clarke and Jane Ham are thanked for their input provided early in the project on linking industry research outcomes with tuna businesses and training providers.

4. BACKGROUND

The Australian seafood industry is currently facing significant workforce challenges across the aquaculture, commercial fishing and seafood processing, sales and distribution sectors (Curtotti, Hormis and McGill, 2012). Within the current operating environment these challenges are widespread and lead to labour market issues resulting in difficulty in attracting suitable workers and consequently retaining and effectively using their skills within the industry.

The seafood industry's capacity to reach its potential in terms of production and value is linked to availability of suitable labour and ability to attract people to the industry and retain the workforce. It is expected that achieving goals for production and value across Australian States and Territories will continue to be challenging in the future. In 2010-11, the gross value of Australian fisheries production across State wild catch fisheries, Commonwealth fisheries and aquaculture was $2.2 billion (Skirtun, Sahlquist, Curtotti and Hobsbawn, 2012). As one of the highest contributors to seafood production across the country, South Australia's gross value of production in 2010-11 was $424 million (Skirtun et al, 2012) and yet, South Australia's Seafood Food Plan aims to reach a value of $2 billion by 2015 (SA Seafood Food Plan, 2005-2015). Seafood companies Australia wide will need to increase productivity through attracting, retaining and upskilling staff if they are to increase their contribution and meet their goals.

Attracting young people to the commercial fishing industry with necessary sets of skills is difficult in most regions (Curtotti et al, 2012). The average experience level of fishers in fleets is diminishing as older operators leave the industry, taking with them years of experience, expertise and skills. Whilst many young unskilled people apply for positions, they often are not qualified in seamanship compared to older more experienced workers. Over half of the people who participated in a survey about mature workers in the seafood industry in South Australia indicated that they plan to leave the industry within the next ten years (Taylor and Miller, 2009). This is not surprising when you consider that the median age of the Australian population over the past ten years has significantly increased (Australian Bureau of Statistics, 2008). The South Australian primary industries sector has the oldest working population of any South Australian industry (Primary Industries Skills Council Inc, 2007).

More immediate impacts on the industry's workforce are also anticipated. In South Australia it is anticipated 40 jobs will be lost per year for the next five years (SA Agri-Food Industry Workforce Profile, 2009). Compared to other primary industry sectors in South Australia, the seafood industry has the highest number of businesses experiencing difficulty in finding employees (Primary Industries Skills Council Inc, 2009). Seventy-eight percent (78%) of seafood industry businesses surveyed at the end of 2008, reported difficulty in finding employees. Although reductions in catch quota has impacted on some sectors of the seafood industry, growth in the aquaculture industry is expected to continue and access to a supply of quality trained available workers in the future is vitally important. Commonwealth fisheries have faced challenges in sourcing workers from overseas due to immigration restrictions (Curtotti et al, 2012).

This potential shortage of workers is compounded by the current situation where the seafood industry is competing with other industry sectors on the basis of potential earning capacity, such as the mineral resources sector. For the aquaculture sector, skill shortages and difficulty in filling positions are evident in areas where competition occurs with other sectors. Some seafood sectors can afford to compete with other industries, whilst other sectors are unable to be competitive in the labour market. As a result, mature workers especially are leaving the seafood industry for other occupations. In general, the industry recognises it has to be an attractive option for workers as the current skills shortages will be compounded by renewed activity in the Australian shipping industry and new investments in the oil and gas industry (Curtotti et al, 2012).

The ageing workforce and departure of skilled people as well as increased competition for labour from other industries is further impacted by the nature of the employment within the industry. The majority of employees in the seafood industry are either temporary/casual (46%) or full time (39%). The remainder are either part-time, seasonal workers or contractors (15%). The industry tends to employ family and/or friends, or alternatively employees are referred by word of mouth or through industry contacts (Primary Industries Skills Council Inc, 2009). A current labour market issue in the aquaculture industry is the lack of employment tenure with part-time or casual employment due to the seasonal nature of the work (Curtotti et al, 2012). The corresponding large turnover of unskilled staff provides little incentive for workers to access further training, particularly if workers are backpackers or retirees.

The industry's capacity to reach its potential is also linked to the availability of quality, trained people. Skill and labour shortages in South Australia in 2009 were surveyed across seven primary industry sectors of Seafood, Production Horticulture, Amenity Horticulture, Rural Production, Animal Care, Racing and Conservation/Land Management. The seafood industry was found to have the highest labour shortages with 51% of survey respondents reporting a current skills shortage compared to second highest sector Amenity Horticulture with 34.8%, Racing with 33.3% and the lowest with 19.8% for Rural Production (Primary Industries Skills Council Inc, 2009). The greatest demand is for skilled workers compared to general hand/low skill

and trades/professionals (Primary Industries Skills Council Inc, 2009). The seafood sector also reported the greatest difficulty in finding employees when compared to the other six primary industry sectors. Upskilling the existing workforce is thought to increase the efficiency of businesses. Traditionally workers in the seafood industry have not had their skills and knowledge recognised and progression in a company has largely been due to the number of years that a person has been working for the company, and not necessarily how well the person performs the tasks.

A lack of a training and education culture within the wild-catch commercial fishing sector and low levels of training and education typical of workers in the sector has been identified through analysis of skills and training needs (Van der Geest and MacDonald, 2008). In addition, employees in the past have not been encouraged to gain skills and knowledge in more than one area within an enterprise. Curtotti et al (2012) found that the lack of a corporate culture and workplace pride in being part of a successful organisation was an issue identified across the Australian aquaculture sector. One of the issues seen at a State/Territory level, is a lack of succession planning which compounds the difficulty in filling positions across a range of occupations.

There are challenges to the delivery of training to the seafood industry. External training delivered by some Registered Training Organisations (RTOs) in some circumstances is dated and therefore not relevant to industry. Specialist seafood training has not always been available outside seafood companies and it is unknown to what extent industry information is incorporated into training materials used by RTOs for the seafood industry. Labour shortages in the Commonwealth fisheries have been compounded by a lack of industry-specific training for commercial fishing in Australia (Curtotti et al, 2012). Delivering more relevant training for workers is thought to increase productivity for companies and lead to greater retention of staff in the medium to long term. It has been recognised that new knowledge created in research centres does not always reach the VET sector (Ferrier, Trood and Whittingham, 2003). In some cases, there is a lack of a systematic process that supports the flow of information between the researchers and the VET sector, and that the links that do exist are often weak or informal. It is essential that RTOs have the most up-to-date industry information to ensure training is relevant and effective and drives innovation and productivity.

Research has identified that a mismatch occurs between the applicant's expectations of a position and the actual skill needs of the work (Curtotti et al, 2012). Work within the commercial fishing sector varies enormously from small vessels with only one or two crew to large ocean going vessels with many workers onboard. The types of skills needed differ significantly as workers are required to understand and perform to standards relating to food safety, food quality, animal welfare and the environment. Likewise in the aquaculture sector, there is a need for workers to perform diverse tasks and employ a range of skills across skilled and semi-skilled work relating to developing feedstock, farm husbandry duties, post-harvest and marketing (Curtotti et al, 2012). Multi-skilling employees is expected to create a more flexible workforce for companies and reduce staff turnover.

Similar to other aquaculture sectors, the southern bluefin tuna (tuna) industry are experiencing large staff turnover, a tight labour market and high labour demand (Curtotti et al, 2012). It has been identified that greater incentives are needed to attract and retain employees in companies over a longer time period creating a more stable workforce. Given the diverse nature of the challenges facing the industry, strategies needed to respond to these short and long-term trends was identified as critical if business viability is to be realised in the future.

Gaps in knowledge and understanding of Australia's training system and its 'language' by the seafood industry is suggested as contributing to the lack of effective ways to address industry's workforce challenges. Anecdotal evidence suggests that many in the industry are at a loss as to how to respond to these challenges and welcome alternative and innovative solutions to be explored. Members of the tuna industry with unashamedly limited knowledge of the training system and career development strategies were motivated to design and deliver a project from an industry perspective. Research has shown that to achieve capacity building in rural industries it is necessary that industry participants are allowed to define their own problem and opportunities (Coutts, et al., 2005). In essence, the tuna sector as a whole wanted to examine how it could best communicate the career and training opportunities to the wider community and how research outcomes could be better integrated and applied on the vessels and factory floors by improved linkages with the training industry. By encouraging the people best able to understand and act on issues directly concerning them, it was anticipated that more lasting and sustainable solutions would be explored. This project was therefore driven by industry members focussing on developing initiatives that would resonate and make sense to them and that could be of greater benefit to the wider seafood and training industry.

5. NEED

In the face of significant workforce challenges of an ageing workforce, departure of skilled labour, competition with other industries, a lack of recognition of skills and a poor training culture, a suite of approaches is needed to attract and retain new and existing employees to the seafood industry.

In general, primary industries and fisheries are not seen as offering clear career pathways (Curtotti et al, 2012). The lack of career pathways or knowledge about possible pathways is a current labour market issue in the aquaculture sector. Uncertain career paths and little career advertising is a reason why young people typically lack interest in working in the commercial fishing sector. The perceptions of the wildcatch industry's future as being unpredictable is having flow-on effects on the labour issues in the post harvest sector (Curtotti et al, 2012). Career pathways have been articulated in other primary industry sectors such as the wine industry with the aim of attracting workers (FTH Skills Council, 2007). There is a need to investigate whether career pathways can be developed and formalised for the seafood industry. Agrifood Skills Australia has recognised that to attract new workers, attractive pathways need to be created and promoted through national school curriculum and establishment of para-professional cadetships.

There is a need to challenge perceptions in the general community about careers and jobs offered in the industry. Industry does not convey the types of employment opportunities that exist, the skills required for the positions and how to get them. The strategic business plan developed by Seafood Experience Australia (SEA) highlighted that many sectors of the industry struggle to attract young people (SEA, 2009). There is a need to establish a common language about job roles and career progression opportunities in the industry so that conversations can be initiated and mature over time. The failure to positively communicate with young people who may be looking for a career is likely to come at a high cost when there is competition for workers from other industries around the country. Images and marketing strategies to encourage young people to the seafood industry are not prominent or if used at all. There is a need for promotion of an industry image that is contemporary, science and technology focused.

Developing career pathways could provide existing employees in the industry with a sense of career development over the short and long term within their companies and other jobs available in the industry. In addition, career pathways may also encourage more formal succession planning by seafood companies as documented pathways are likely to improve communication within business about the skills required for more experienced job roles. It was thought that encouraging employees to fulfil more than one job role would provide both flexibility in the workforce for the company and thereby increase the skill level and job satisfaction with staff. Agrifood Skills Australia has also recognised that to retain the workforce there needs to be widespread formal recognition of workers' existing skills, and promotion of skill-based pathways. Documenting job roles, career pathways and linked training programs could also raise the profile of recognising competence specific to job roles and building staff career development by seafood employers. It is anticipated that the project will create a greater level of understanding with seafood employers of how to approach workforce challenges and drive outcomes from industry.

The extension of research outcomes and the practical application of research by seafood companies are thought to be limited and slow. One of the ongoing top five priorities of FRDC's people development program has been to provide knowledge transfer and R&D adoption (FRDC, 2008). Improving quicker adoption of research may assist in increasing productivity and efficiency within businesses and opportunities to learn within and across sectors is paramount.

Highly trained people appropriate to the job roles performed in the industry are critical. As training is the key to having skilled workers, there is also a need to analyse the link between training qualifications and career pathways and whether career pathway information linked with training is of value and applicable to seafood trainers. SEA identified in its business plan in 2009 that the coordination of training lacks a framework to enable the current system to operate successfully in seafood (SEA, 2009). Anecdotal evidence suggests the lag time in incorporating research outcomes into training materials is lengthy and that trainers often become aware of advancements well after new information has been discovered. Hence, there is a need to investigate how best trainers can update training material with the most relevant and up-to date information with research results to ultimately assist industry with technology transfer. It is thought that this could enhance staff training outcomes, as training materials would be updated on a continual basis.

As a pilot project, the Australian Southern Bluefin Tuna Industry Association (ASBTIA) initiated this research in response to their labour supply issues to investigate whether career pathways with linked training had the potential to address the competitive labour market, a lack of appropriate training programs, the ageing demographic within their

sector and structural adjustment. Research into extension and education in rural and regional Australia has suggested that capacity building should not be considered in isolation to other extension projects that are occurring in a community, industry or issue context (Coutts et al, 2005). Therefore, the issues and opportunities with careers, research and training in the seafood industry warrants attention at the same time. It was considered that the application of career pathways for ASBTIA could also apply to other seafood industry sectors around the country that are facing similar pressures and difficulties with their own workforce. Hence, the research investigated how current knowledge and tools could work more effectively at a systemic level and in way that suits a whole sector and whether this could be applied across the entire industry.

"High value added product and productivity gains require long-term, committed and skilled staff. Information on pathways for staff is important to achieving these outcomes."

- B. Jeffriess, ASBTIA

6. OBJECTIVES

The objectives of this project were to:

1 Develop career pathways with linked training programs

2 Develop a process whereby seafood enterprises can use the most up-to-date research outcomes in their company training and operations

3 Analyse the linking of career pathways, research and training over a season and identify possible improvements

4 Develop materials that may guide other seafood enterprises through similar workforce issues

Objective 1 was achieved by exploring four key research areas of workforce challenges, job roles, career pathways and training with the tuna industry. A range of materials was developed with Tony's Tuna International Pty Ltd and ASBTIA as Co-investigators on the project. Brainstorming at a company level enabled each research area to be explored in some depth. The intent of the research was to study and create career pathways with linked training programs from an industry perspective rather than the viewpoint of government and training organisations. ASBTIA sought feedback from other tuna companies to explore whether the materials were relevant to the tuna industry as a whole. Advice was sought from a training expert to ensure proposed training units for each of the proposed job categories complied with training packaging rules.

Objective 2 was achieved by investigating challenges surrounding the extension of research in the tuna, mussel, salmonid, prawn and pearl farming sectors. An industry questionnaire investigated whether research outcomes are incorporated by the company in the field and in their training requirements, whether the training process can accommodate rapid changes in training requirements and ideas of how knowledge can be better transferred between researchers, trainers and their respective industry sector. Objective 2 was also addressed by interviewing three representatives from a registered training organisation using a questionnaire exploring the use of research outcomes in training materials. Trainers were interviewed before the delivery of training to the employees and once the training had commenced to assess the benefits of receiving the fact sheets. Current practices and ways in which the uptake of information could be improved for the future were discussed with the trainers. The background information sought for training, factors influencing using new information and methods of sourcing information for training materials were explored. Ideas on additional information needed, how new information could be accessed and how it could be used was also considered. Knowledge transfer and accommodating rapid changes in training needs were also discussed.

Objective 3 was achieved by interviewing three trainers independently on the value and usefulness of the tuna materials developed as part of the project. Training was delivered to three employees and qualitative feedback and ideas from the trainers were sought on job roles, career pathways and training materials once training had commenced. The research provided an opportunity for trainers to analyse what materials were of value and why so that improvements could be considered. Recognition of prior learning and aspects of training delivery were also assessed with the trainers.

Objective 4 was achieved by providing job titles and descriptions, career pathways and linked training to the mussel, salmonid, prawn and pearl farming sectors for their qualitative assessment and comment through a pre-structured questionnaire. Diagrammatical career pathways with linked training in a simple and easy to read format were developed based on the tuna industry for hard copy, electronic or multi-media use. This information was then compared to the mussel, salmonid, prawn and pearl farming sectors. Workforce challenges specific to each industry sector were also explored.

7. METHODS

7.1 SCOPE

At the commencement of the project it was acknowledged there has been limited research and information documented on career pathways for the seafood industry, and as such the project was primarily a scoping activity. In a practical sense, the pathways that exist for the wild-catch commercial fishing and aquaculture sectors have developed in an ad hoc way over time and have not been formally established by the industry as a whole. Pathways referred to in training packages relate to formal paths of learning or experience to attain competency and are less related to actual job roles that have evolved and exist in the industry today. In addition, little work has been done in examining options for linking industry research outcomes with the training that is delivered.

It was identified early in the project that it would be too onerous to investigate all possible career pathways in the tuna industry and therefore it was limited to three pathways to be explored in more detail. Further application of the research was initially restricted to the mussel and salmonid farming sectors, however this was expanded to the prawn and pearl farming industries. It was thought that cross-referencing the materials with these aquaculture sectors would enable similarities to emerge and provide a greater breadth of jobs to investigate compared to wild-catch fishing sectors.

Some job roles that were investigated, such as Financial Controller, employ people with university qualifications. Whilst higher level training at university level could be linked to the pathways it was determined that the research would focus on vocational education and training (VET) qualifications to enable career pathways to be applied to as many workers in the industry as possible, given that the majority of workers follow VET pathways. Consideration was given to government funding programs for seafood industry training that support formal qualifications rather than groups of skills. Therefore, the project considered 'proposed qualifications' assuming that the total number of units would be achieved as per the respective training package requirements.

This document cites specific references and a variety of resources to shape and guide the project and they are reflected in the References section of this report.

7.2 INDUSTRY PARTICIPANTS

Tony's Tuna International Pty Ltd, referred to as 'the company', is the second largest in the tuna industry in terms of quota and number of employees. At the time of the research the company had 28 permanent employees. The project was undertaken in partnership with one tuna company, rather than many, to allow challenges and ideas to be explored in some depth. A confidentiality agreement was signed with the company to protect any confidential information provided as part of the project.

The tuna industry was the primary sector investigated given that ASBTIA initiated the need for this research to address workforce challenges for the industry. Comments were sought on materials developed from other tuna companies who are members of ASBTIA, once they had been developed in conjunction with Tony's Tuna International Pty Ltd.

Kinkawooka Mussels, a mussel farming company based in Port Lincoln, was interviewed as part of the project to compare and contrast findings with another aquaculture sector from the same regional area. Kinkawooka Mussels is a fast growing successful business in close proximity to the tuna industry and utilises similar research and training organisations. This allowed this research to investigate whether the tuna and mussel farming sectors were experiencing similar workforce issues. This small scale and relatively new and emerging aquaculture sector provided a contrast to the tuna industry.

The Tasmanian Salmonid Growers Association (TSGA) and one of its members, Tassal Group Limited, were also interviewed to compare a second aquaculture industry sector with the tuna industry. The Tasmanian salmonid industry was identified as an influential sector given the larger scale of its businesses compared to the tuna and mussel sectors. Based in Tasmania, this industry sector provided an opportunity to explore workforce issues in a different State and seek comment on the job roles, developed career pathways and desired qualification and skill list. The research noted whether career pathways linked with proposed qualifications were relevant for small and large scale aquaculture sectors.

The Australian Prawn Farmers Association (APFA) was interviewed in conjunction with a prawn farming company, Australian Prawn Farm. Prawn farming is a relatively large aquaculture sector in Australia with approximately 300 industry FTE workers, with a diverse size of prawn farms ranging from 5 to 100 staff. The APFA represents about 25 companies located in Queensland and New South Wales and therefore it was of interest to seek feedback on the materials from this diverse seafood sector.

Paspaley Pearling Company Pty Ltd is the largest pearling company in Australia accounting for approximately 85% of the Australian pearl production. With approximately 600 staff of which 350 are working at sea, it was useful to compare this company to the other sectors, particularly to Tassal Group Limited that employs slightly more people. It was of interest as to whether similar workforce issues faced seafood sectors in northern Australia.

7.3 JOB ROLES & CAREER PATHWAYS

Job roles that currently exist in the company according to the job and person specifications were listed alongside job titles commonly used in the tuna industry. The job roles documented in the Seafood Industry Training Package SFI04 were also consulted and used as a guide but it was identified that the job descriptions were in some cases not relevant to the work conducted in the tuna industry. It was highlighted that industry did not use the generic titles and descriptions of jobs referred to in the national training system, but rather job titles and descriptions had developed in an ad hoc fashion over many years within the industry. Generic job roles were evaluated against current job specifications. As part of the project, descriptions of each job role were developed to better explain the main tasks undertaken for each job that were likely to be understood by people not working in the tuna industry, as well as existing employees. The use of jargon in describing job roles was avoided. The updated job roles, titles and descriptions were provided to the company for checking to ensure that they were accurate and meaningful.

Once the job roles had been clarified and described, they were grouped according to the jobs required at sea, on land and in the office which led to the development of three distinct areas or 'career pathways' of work for this sector. In each area of work, jobs were identified based on the needs for education, skills, experience and formal accreditation. Within each area of work, the jobs were organised in a structured sequence to represent pathways that are usually or often followed by people working in the tuna industry. The three career pathways were provided to the company for checking that they accurately represented the progression of jobs in the industry and their relationship to one another.

7.4 MATCHING TRAINING TO JOB ROLES

The project did not attempt to duplicate the development of training plans or the role of trainers who liaise with individual businesses to identify specific training needs for their employees. Rather, this research was about identifying and documenting 'proposed qualifications' at a whole of sector level in a way that is meaningful and suits the requirements for the whole industry.

As discussed previously, it has been suggested that training often delivered to industry is outdated and irrelevant. It is thought that qualifications and units of competency identified in the Seafood Industry Training Package SFI04 are not meeting industry requirements for the job roles across the industry. In addition it is also thought that trainers are considered to be restricted in what they can deliver to industry for a range of reasons. These include the rigid and complex nature of the training system where there are rules governing consistency and transferability across industries and occupations, unfamiliarity with the content and skills of different training packages, or not being on scope which results in RTOs being unable to be a 'one stop shop' for industry. These challenges led the research to ask; if there were less constraints in the way in which training could be delivered, what would work for the industry? The training levels for each job identified in the Seafood Industry Training Package SFI04 were consulted and used as a guide. Nevertheless, SFI04 was not followed deliberately as it was revealed that the training levels did not correspond with what was required by industry for specific job roles.

Within each career pathway, a training level from Certificate 1 through to Diploma was matched to each job role. This meant that job roles were not only linked because they appeared to be common sense 'stepping stones' from one job to the next, they also were linked by the training needs for each and the progression of skills in units of competency.

The second part of the work undertaken was to create 'proposed qualifications' specifically relevant to the tuna industry as a whole. This aim of this work was to provide an example for other seafood sectors of how units of competency from a range of different training packages could be tailored to the diverse jobs undertaken in the tuna industry. In the first instance, units of competency were selected from the options contained in training packages, which corresponded and were directly relevant with the training needs for all job roles from an industry perspective without the constraints of the training package rules. This allowed the project to consider what would best work for industry if there were less constraints in the way in which training could be delivered.

The next step was to check that the number and specific units of competency for each proposed qualification met the rules of each relevant training package to ensure that the units were able to be theoretically delivered. This exercise was one of selecting the most appropriate sets of skills as a 'wish list' and identifying whether it was possible to compile desired qualifications that directly meet the needs of the tuna industry. Simply lifting the qualifications and units of competency from the Seafood Industry Training Package would not have allowed alternative training options to be considered nor would it have demonstrated an innovative approach from the industry. A consultant with expertise in the AQF ensured that the proposed qualifications were compliant with this framework.

The project identified the specific regulatory and mandatory training for staff across the job roles. Short courses designed to deliver practical skills such as Senior First Aid, training in chemicals, training in breathing apparatus and confined spaces were identified to illustrate the breadth of other skills needed for workers to perform each job effectively that fall outside the proposed qualifications.

7.5 TRAINING MATERIALS

To explore the use of research information in training materials and to identify ways to improve the uptake of the most up-to-date research information by trainers, research outcomes specific to the tuna industry were re-formatted and provided to trainers for their feedback. ASBTIA updated ten existing 'tuna briefs' consisting of information relevant to industry to produce tuna fact sheets that were shorter in length, contained less detailed scientific information and were easier to read. No new information was included in the new fact sheets, rather the information was re-written so that it was simpler and easier to understand. Additional industry information was collated into folders and copied onto CDs. The tuna fact sheets were grouped into the following key themes and captured the key outcomes of research conducted over the last ten years:

- environment
- health
- product quality, including residues and flesh quality
- physiology and metabolism
- nutrition

7.6 DIGITAL STORYTELLING

PlaceStories is a digital storytelling and online communications system using free of charge software on the internet. PlaceStories provides individuals with powerful, easy to use tools to create digital content and communication. A PlaceStory was created using images from the tuna industry, including acoustic sounds and music to communicate examples of career pathways in the tuna industry and explain how one job role may lead to another. The idea of developing a PlaceStory was twofold. In the first instance, it was created to be used as a tool to engage with the Agrifood Skills Seafood Standing Committee and other stakeholder groups to explain and encourage support for the research project being undertaken. Secondly, the PlaceStory was a relatively quick, easy and cost effective way to provide an example of the power of multi-media tools that can be used to promote career pathways in the seafood industry and assist in communicating key messages to people outside the industry.

7.7 DELIVERING TRAINING

To assess the value and usefulness of the draft job roles, career pathways, training materials including the fact sheets and new proposed qualifications for the tuna industry, one-on-one training was delivered to three existing employees from the tuna company where the trainers could test the newly developed resources with them. Given that the majority of training in the tuna industry is regulatory in nature and conducted in groups, it was considered that one-on-one training was considered a more effective way to assess the materials against the proposed qualifications that had been developed as part of the project.

Given that the training delivered as part of the project was not hypothetical but was tailored to each employee, an assessment of recognition of prior learning (RPL) was undertaken by all three trainers to assist with developing the training plan for each student. Whilst the research relied on the delivery of course work to test the newly developed resources, it was expected that some of the units of competency would be assessed through RPL and this was not thought to compromise the research.

The training was delivered after the draft career pathways had been developed and according to the new material. The proposed qualifications developed for a Leading Deckhand was deliberately specified as a lower qualification at a Certificate II level to set out a proposed minimum skill level for this job role (see discussion in 8.4.1).

The employees who received the training were identified based on the need to assess three different newly developed proposed qualifications and their corresponding job role. Each employee worked in a different career pathway. Certificate II in Aquaculture training was delivered to an employee working as a Leading Deckhand, Certificate III in Business training was delivered to an employee looking to become qualified as a Payroll Administration Officer and training in a Diploma in Seafood Processing was delivered to an employee seeking formal qualifications as the Factory Operations Manager (see Table 1). Identifying the employees who were to receive the training involved considering the company's need to retain specific skills, the employee's knowledge and expertise, as well as the employee's motivation and willingness to participate in the training.

Table 1: Proposed qualifications delivered and the links to draft job roles and career pathways

PROPOSED QUALIFICATION	JOB ROLE	CAREER PATHWAY
Certificate II in Aquaculture	Leading Deckhand	Fishing & Farming
Certificate III in Business	Payroll Administration Officer	Human Resources & Administration
Diploma in Seafood Processing	Factory Operations Manager	Processing

Three trainers from TAFE SA Regional operating in South Australia were identified based on their availability, the willingness to deliver one-on-one training rather than group training and the skills required to deliver a range of training units of competence for the seafood industry. The trainers broadened the potential

of ideas and comments as each trainer differed in their number of years of training experience, areas of speciality, qualifications taught and training methods employed and were considered adequate for this scoping study as all three deliver training across a range of seafood sectors including the tuna industry. To ensure that newly drafted materials could be assessed by the trainers as part of the research project, trainers were asked their opinions of the information both before and during the period that they were delivering training to the employees. This enabled more informative feedback and ground-truthing to be provided by trainers as they incorporated the newly draft resources.

7.8 INDUSTRY INTERVIEWS

The following five research areas were explored with industry representatives:

1) Workforce Challenges
2) Job Roles
3) Career Pathways
4) Proposed Qualifications & Training Material
5) Extension of Research

The company was interviewed at the start of the project to explore workforce challenges, job roles, career pathways, training uptake and extension of industry research. An interview process was constructed for representatives of the mussel, salmonid, prawn and pearl farming sectors consisting of sixteen (16) questions to cross-reference the information received from the tuna sector on the five key research areas (see Appendix 3). Interviews were conducted with the various sectors to explore each sectors characteristics and workforce challenges focussing on attracting staff, retaining staff and upskilling staff.

The development of generic seafood industry pathways was explored and an assessment conducted on the relevance and applicability of the materials developed for the tuna industry with the other sectors. The interview also explored any options for developing a continual improvement process that would improve the interaction and speed in which research outcomes may be adopted by trainers and the industry generally. ASBTIA facilitated a process for comments to be provided by the wider tuna industry on the materials developed and provided input about options to enable research outcomes to be disseminated more effectively.

7.9 TRAINER INTERVIEWS

The following research areas were explored with trainers:

1) Job Roles
2) Career Pathways
3) Proposed Qualifications & Training Material
4) RPL & Training Delivery
5) Extension of Research

The materials developed for the tuna sector were provided to each of the trainers, which consisted of diagrammatical tables and maps for draft job roles (page 21), career pathways (pages 28-30), desired qualification and skill list, proposed qualifications and tuna fact sheets (Appendices 7 to 9). Additional industry information was provided in hard copy and a CD. The value and usefulness of the materials to the trainers was assessed. The trainers were asked to use this new information when planning and delivering training to the company employees and a review of the materials and delivery was undertaken during this period.

The training assessment process was designed around an interview consisting of 24 questions (Appendix 5). One-on-one interviews were conducted with all trainers, comprising of three or more meetings per trainer. The same set of interview questions was asked of each trainer independently to enable any similarities or differences across different training qualification levels and trainers to be identified.

The first meeting consisted of a preliminary interview to explain the research project, and the associated requirements and expectations of the trainer's involvement in the research. A second meeting was scheduled with each trainer once a RPL process had been completed with the respective student. The second meeting with the trainer enabled the outcomes of the RPL process to be discussed and allowed the training plan for the employee to be confirmed. This also involved an interview with the trainer prior to commencing training consisting of seven questions to gain information on the trainers experience and how the trainers currently source background information for training in the seafood industry.

The third and final meeting consisted of an interview either part way through the delivery of the proposed qualification or after the training had been conducted and consisted of 17 questions to seek feedback on value and usefulness of the new resources developed for the tuna sector. This interview was also used to explore options for developing a process that would improve the communication and speed in which industry research outcomes may be adopted by trainers, assess any improvement to the RPL process and discuss ideas for improved delivery of training.

8. FINDINGS AND DISCUSSION

8.1 WORKFORCE CHALLENGES

Workforce challenges were discussed with industry sectors to identify if challenges being experienced in the tuna industry were similar to challenges faced in other aquaculture sectors. Exploring workforce issues in each sector provided contextual information to assist in understanding whether training materials developed for the tuna industry would be beneficial to other sectors. The following table highlights the current status of the three workforce issues being experienced by each industry sector.

Table 2: Workforce challenges by aquaculture sector

WORKFORCE CHALLENGE	TUNA	MUSSEL	SALMONID	PRAWN	PEARL
Attracting workers	Yes	No	No	Yes	No
Retaining workers	Yes	Yes	No	Yes	Yes
Upskilling workers	Yes	Yes	Yes	Yes	Yes

8.1.1 ATTRACTING WORKERS

The tuna industry is experiencing challenges in attracting workers, which is not being seen in the mussel and salmonid farming sectors. It was identified for the tuna industry that fisheries management arrangements can and have impacted considerably on workforce issues. For example, the significant quota cuts that occurred in the tuna industry in 2010 effectively reduced the staff needed for ranching and maintenance by 20% (pers. comm. D Ellis, 2012). With the potential significant increase in quota in subsequent years companies were again put under pressure to attract workers.

New workers in the mussel farming sector often bring with them experience from other wild-catch fishing sectors or mussel farming operations overseas. It is thought the small scale of the mussel farming sector may ensure that workers are usually available. The study found that attracting workers to the mussel farming sector was less of an issue compared to the tuna industry which may be explained by the following:

- smaller size of the mussel industry
- less number of workers needed
- higher amount of full time employment
- no offshore vessel work required
- less requirement to work on weekends

This study found that attracting workers to the salmonid farming sector was also not an issue compared to the tuna industry. This was thought to be due to the relative geographical isolation of Tasmania, which has created a 'mindset' where people tend to settle in jobs for longer. That said, the salmonid industry recognises this mindset could impact the industry if labour demands increase in the future and additional workers are needed. There is recognition from the salmonid industry that significant benefits could arise from general education and profiling of the industry to the general community as this would broaden the community's view of this sector's economic and sustainable value, and more importantly, ability to create employment and careers.

The research found that attracting workers in the prawn farming industry was a challenge. It is particularly difficult to attract enough casual workers at certain times of year when harvesting and at times of high maintenance for the prawn farms. Workers tend to be attracted to companies with a good reputation in their geographical area. Some farms access a broad range of potential employees through 'word of mouth' but their regional counterparts do not have the same opportunity and compete for staff with the mining and other agriculture industries.

Whilst the number of job applications received in the pearl farming sector is high, the challenge lies in attracting the most suitable people that are prepared to work in conditions that can sometimes be intense and difficult work. A significant amount of resources is needed to scrutinise applications given the expenses of employing new workers and training them. So while this sector enjoys a high amount of interest in the work, attracting suitable workers is an ongoing issue.

As seafood sectors expand and contract in operation over time transferable skills could be deployed between sectors thereby retaining workers across the seafood industry.

"Attracting workers is a challenge. Some enterprises source their workers locally through 'word of mouth' while others who are a long way from townships often find themselves competing for staff."

-H. Jenkins, APFA

8.1.2 RETAINING WORKERS

The mussel and tuna industry sectors reported that retaining workers is a current workforce issue being experienced. The mussel farming sector reported that it is unable to compete with the level of wages offered by the resources sector. Offering training to staff that show potential to progress into more advanced job roles is a strategy being pursued by this sector to retain staff. Educating and training their workforce is recognised as often providing a sense of self-worth to individuals in their company, which may lead to a greater retention of staff. An example given was an aquaculture graduate who was employed and started work as a deckhand and was then provided with training to be a backup skipper.

Both the prawn and pearl farming sectors also reported retaining workers as a challenge. In fact retaining staff is the most serious workforce issue being experienced in the pearl farming industry. Both seafood sectors have lost workers to other industries, particularly the oil and gas industry for the pearl sector. Approximately 40 people are recruited every month for Paspaley Pearling Company Pty Ltd and a range of incentives are provided to stay with the company such as staff being transferred to full time employment, paying staff for time when they are not on shift and increasing remuneration if staff engage in training to improve their skill level.

In the prawn farming sector, farms that employ workers with university qualifications find that they need to be retrained to work in a commercial environment. There is no longevity for most university graduates. As many companies have restructured over time and have become more efficient, flatter hierarchical structures are now commonly used, with less technical staff and more labourers now being employed. Casual labour is initially offered to new workers who are then transferred to full time employment following an induction period. The prawn farming sector finds it difficult to retain workers especially during the harvesting season. Most farms use backpackers for seasonal work.

In contrast to the tuna and mussel industry sectors, the salmonid sector is not currently experiencing challenges with the retention of staff, as the turnover rates are relatively low, approximately 8% each year, with the exception of sales and marketing staff.

> *"Having competent staff is important. Often training is not aligned with the actual skills needed on prawn farms."*
>
> *- H. Jenkins, APFA*

8.1.3 UPSKILLING WORKERS

All five seafood sectors are experiencing workforce challenges with upskilling employees. Whilst all sectors are conducting in-house training for specialist skills specific to their sector, the issues raised with regards to more formal training include identifying the best time of year for delivery of training and the need for improved delivery of flexible and innovative seafood training. Opportunities for training staff in more than one job role (multi-skilling) were also explored (see Table 3).

Best time of year for training

All five seafood sectors commented on the need for training to avoid the busiest time of year. Whilst the tuna, mussel and salmonid sectors operate all year round and do not associate with an 'off season', the project identified that there are specific times of year where there will be more opportunity to provide training to staff.

The tuna industry has identified September to November as the most convenient time for training to take place following the selling of fish and prior to going to sea in December to catch the tuna. In the salmonid industry, Christmas and Easter are the periods where the industry is busiest and therefore training should be avoided. Approximately fifty (50) additional staff are needed by Tassal Group at Christmas and Easter.

An issue often experienced by the mussel farming sector is fitting training sessions into an already busy schedule. The most convenient time for delivering training in the mussel sector is

Table 3: Upskilling challenges by aquaculture sector

CHALLENGES WITH UPSKILLING WORKERS	TUNA	MUSSEL	SALMONID	PRAWN	PEARL
Best time of year for training	September to November	April to October	All year except for Easter and Christmas	June to October	All year except for December
Effective training & materials	Yes	Yes	Yes	Yes	Yes
Multi-skilling opportunities	Yes	Yes	No	Yes	Yes

from April to October outside of the times of year when re-seeding is taking place. The re-seeding process occurs from November through to March each year and casual staff are sourced to respond to the high demand for work undertaken at this time of year. At this time a high number of hours are spent on the water with the vessels often spending twice as much time at the marine farms than other times of year.

Workload pressure increases for workers at harvest time from January to May in the prawn farming season. In December prior to Harvest, there is a need to find additional casual staff and so training is unlikely to occur from November through the May of each year.

December is the busiest for harvesting and most difficult time of year for working on the pearl farms so training is unlikely to be conducted at this time. With the high number of staff that are recruited every month it is challenging to ensure all workers have regulatory training needs satisfied throughout the year.

Effective Training & Materials

The majority of sectors identified areas where there was a need for more effective delivery of training. It was reported that tailoring training material to the mussel farming industry would benefit employers by providing a more relevant training experience for their workers. Generic information relating to mussel farming that could be useful for all farms could include information about the re-seeding process, growing cycle of mussels, information on mussel spat and how to tie ropes and knots which is a large component of the activities undertaken onboard the vessels. It was reported that many hours are spent by the managers teaching a range of specialist activities required for this sector which is significant given the relatively small size of the industry across the country.

A large component of the work undertaken by the Process Workers in the mussel sector is quality control which is an area where training could be tailored to this sector. Areas covered in mussel processing work also include de-bearding, cleaning, packaging and labelling. In the Human Resources & Administration area, training in protocols and procedures for finalising export/importation documents and declarations of compliance would be of value.

The mussel farming sector commented on their need for improvement in how training can be delivered more practically in terms of both when and for how long. There are difficulties experienced in the delivery of training as employees in the mussel sector are working at the same time that RTOs are offering training, i.e. Monday to Friday during business hours.

The salmonid industry commented that training for their sector should focus on competitive manufacturing as it is looking to focus on being a cost competitive manufacturer to ensure continued longevity of this sector. To achieve this, the salmonid industry needs to ensure that their training and practices maintain standing with global best practice in a fast-moving consumer goods sense instead of simply focusing on traditional seafood training. Gaps in leadership training, general management and frontline management were also identified. Like many other sectors, the salmonid industry has been built around technical ability which does not automatically include aspects of leadership with respect to people. Due to the historical financial performance of this sector prior to 2006, training investment was reduced. Significant investment has now been made in management and leadership through the Certificate IV and Diploma in frontline management. The salmonid industry stressed that on-site training was preferable to reduce 'downtime' for the company whilst training is taking place and that the delivery of training could be improved to meet the needs of the employers.

The prawn farming sector commented that often off-site training is not aligned with the actual skills needed on the prawn farm and a large amount of training is conducted on-site. It is important to this sector that they have competent staff but it was also noted that training reaches a saturation point and staff once trained require as much experience on the farm as possible. At the top job roles such as technicians, staff are highly qualified but the industry requires more labourers.

The pearl farming sector commented that the company prioritises regulatory training given the legal requirements and given the demand for this training, spends less time focussing on additional training needs. There is 'downtime' for the company whilst training is being delivered to staff and jobs need to be undertaken by others.

"Training for this sector [salmonid farming] should focus on competitive manufacturing rather than traditional seafood processing which is becoming irrelevant for our industry."

- K. Little, Tassal Group Limited

Multi-skilling Opportunities

Multi-skilling opportunities vary between the five sectors. Some of the sectors are as efficient as possible and multi-skilling occurs because it is needed or there are no opportunities for multi-skilling because of the scale of the operation.

In the tuna industry, the job of Data Coordinator was identified as a position in the company where the employee could be utilised more effectively throughout the fishing season by working in both administration and processing. The company identified that they wanted to encourage more multi-skilling across their workforce to provide greater stability in the amount of work over a season but identified that it depended on the willingness of the employee to do the training and increase their skills. It was identified that limited multi-skilling may occur due to some job roles being regulatory in nature, such as marine engineers, and people are not permitted to work in these areas if they do not hold the necessary authorisations.

Many of the jobs undertaken in the mussel farming sector cover more than one job given the smaller number of staff employed in this sector and its smaller production compared to other aquaculture sectors. It was commented that 'multi-skilling' is essential in this sector and that training is provided to employees across more than one job so that staff can be utilised in a variety of roles when required. In the salmonid industry there is limited ability to share job roles across different areas of the business as each occupation is a fully occupied position. Being larger scale enterprises there are more supervisory positions in the companies.

In the Hatchery area of the prawn farming sector, there is a reliance on workers to be multi-skilled and work in all job roles, as this is a priority area in this industry. There are also specific job roles in the prawn farming sector where the work undertaken by staff overlaps. For example, the Data Collector conducts a similar role in the Farm area and Processing area and the Quality Assurance Manager conducts work relevant to the Processing area and Human Resources & Administration area.

Many staff are trained in more than one job role in the pearl farming sector to provide skills as 'relief' when a person is unable to work for various reasons. Hence a high number of staff are multi-skilled which provides the company flexibility to cover job roles as required.

The project was not intended to provide a detailed workforce assessment for each aquaculture sector. However, the findings show that even though workforce challenges vary between each of the three sectors, any work or materials that may assist in attracting, retaining and upskilling workers may be of great benefit to these industry groups.

8.2 JOB ROLES

8.2.1 TUNA SECTOR

The project identified a total of thirty-three (33) different job roles specific to the tuna industry that related to work undertaken on the vessels, in the factories and in the head office (see Tables 4-6). Each job role was described succinctly in self-explanatory wording. Mapping jobs revealed that the role of Tuna Spotter did not fit appropriately into one of the career pathways either at sea, on land or in the office, given the highly specialised skills needed for this role in spotting tuna in the wild at sea from aircraft. This job role was not included in an effort to maintain the simplicity of the career pathways being developed. Consideration of more specialised roles needs to be undertaken by the tuna sector and how dedicated training will be delivered so that these job roles can be filled in the future.

The Seafood Industry Training Package SFI04 was consulted and used as a guide. However, it was not followed deliberately as it was found that the job descriptions were not appropriate to the work conducted in the tuna industry. It was identified that whilst the job titles were similar to those specified in the training package, the company and wider industry referred to the job roles slightly differently.

Table 7 shows the relevance of the job roles in the mussel, salmonid, prawn and pearl farming sectors with the jobs identified in the tuna sector through this project. The tuna job titles and descriptions were relevant with all four aquaculture sectors and were similar across all five sectors. The greatest difference occurred with the job titles and descriptions in the salmonid sector. This is thought to be due to the high number of FTE staff employed in the businesses and the corresponding diverse job roles required to produce and manufacture such a large range of salmonid products. This meant that the titles of jobs and their descriptions differed the most from the tuna industry due to the numbers of people employed and activities performed in this sector.

With some differences in job titles and descriptions, each sector could adapt the tuna materials to their respective sector with little change required. A more detailed analysis of the similarities and differences of the jobs between the sectors is provided in the following section.

Table 4: Job Roles for Fishing & Farming

The various jobs offered in fishing and farming in the tuna industry.

JOB	JOB DESCRIPTION
Deckhand	A Deckhand undertakes tasks on board vessels
Leading Deckhand	A Leading Deckhand undertakes fishing and farming duties and supervisors the deckhands
Boat Operator	A Boat Operator operates, maintains and is in charge of commercial vessels that are less than 12 metres in length
Assistant Engineer (Boilermaker)	An Assistant Engineer fabricates, maintains equipment and assists marine engineers
Cook	A Cook manages the galley (kitchen) on the vessel and undertakes deckhand duties
Snorkeler	A Snorkeler harvests fish, conducts stock inspections and prepares farm enclosures
Net Maker	A Net Maker builds, repairs and maintains fishing nets and farming equipment
Skipper	A Skipper operates, maintains and is in charge of commercial vessels that are less than 24 metres in length
Marine Engineer	A Marine Engineer fits, assembles and repairs engines on vessels and other equipment and machinery
Advanced Skipper	An Advanced Skipper operates, maintains and manages commercial vessels that are less than 35 metres in length
Advanced Engineer	An Advanced Engineer manages the engine/support systems for large ocean-going vessels
Shore Manager	A Shore Manager orders materials and maintains farm and fishing equipment
Commercial Diver	A Commercial Diver undertakes a wide range of tasks performed in and around sea farms
Dive Medical Technician	A Dive Medical Technician administers advanced first aid and emergency treatment to commercial divers
Fleet Operations Manager	A Fleet Operations Manager manages survey requirements for the vessel fleet and is the managing engineer
Farm Manager	A Farm Manager manages daily farm operations
Dive Supervisor	A Dive Supervisor ensures that dive teams work tasks are undertaken efficiently, effectively and safely

Table 5: Job Roles for Processing

The various jobs offered in processing in the tuna industry.

JOB	JOB DESCRIPTION
Process Worker	A Process Worker conducts a variety of processing operations and shifts product in the factory
Leading Hand	A Leading Hand undertakes fishing and farming duties and supervisors the deckhands
Process Supervisor	A Process Supervisor supervises the processing of seafood
Truck Driver	A Truck Driver transports bait, seafood and equipment for farming and fishing operations using vehicles and forklifts
Plant Supervisor	A Plant Supervisor is responsible for maintaining equipment, plant and vehicles, including refrigeration
Loading Supervisor	A Loading Supervisor oversees the loading and unloading operations and coordinates the truck drivers
Data Coordinator	A Data Coordinator manages the collection and input of data for bait and seafood processing
Factory Operations Manager	A Factory Operations Manager manages the operations within the seafood factory

Table 6: Job Roles for Human Resources & Administration

The various jobs offered in human resources & administration in the tuna industry.

JOB	JOB DESCRIPTION
Administration Officer / Receptionist	An Administration Officer provides a variety of administrative tasks including reception duties
Data Coordinator	A Data Coordinator manages the collection and input of data for bait and seafood processing
Payroll Administration Officer	A Payroll Administration Officer processes employees pay and maintains employee record-keeping
Accounts Officer (Payable & Receivable)	An Accounts Officer manages invoices, makes payments and maintains files
Compliance Officer	A Compliance Officer manages workcover rehabilitation, advises on accident prevention and minimisation of health risks
Administration Manager	An Administration Manager is responsible for managing work teams to meet administration outcomes
Human Resources Manager	A Human Resources Manager provides support and administrative services to assist the recruitment and employment needs of staff
Financial Controller	A Financial Controller manages the finances and oversees the administration of the organisation

Table 7: Relevance of tuna job roles to seafood sectors

TUNA JOB ROLES	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
JOB TITLES	Yes Factory Operations Manager is called Factory Manager. Process Supervisor is called Factory Supervisor. Advanced Skipper is called Leading Skipper.	Yes Net Maker is called Net/Slab Worker. Fleet Operations Manager is called Operations Manager. Farm Manager is called Regional Manager. Process Supervisor is called Team Leader. Plant Supervisor is called Senior Team Leader. Loading Supervisor is called Team Leader in Dispatch/Distribution Data Coordinator is called Data Analyst. Factory Operations Manager is called Factory Manager. Compliance Officer is called Quality Assurance Manager.	Yes Deckhand is called Labourer. Net Maker is called Net Harvester. Shore Manager is called Manager. Leading Hand is called Cook or Sorter. Plant Supervisor is called Processing Manager. Data Coordinator is called Data Collector. Compliance Officer is called Quality Assurance Officer	Yes Boat Operator is called Foreman. Assistant Engineer is called Farm Mechanic. Cook is called Kitchen Hand. Skipper is called Relief Foreman. Shore Manager is called Camp Foreman. Dive Supervisor is called Head Diver. Compliance Officer is called OHS Officer. **On ship:** Leading Hand is called First Mate. Plant Supervisor is called Ships Engineer. Data Coordinator is called Data Pearling Support Officer.
JOB DESCRIPTIONS	Yes Skipper and Advanced skipper are not relevant given the smaller vessels used. Leading Hand does not supervise deckhands as processing is done on land and not at sea. Data Coordinator manages supply chain for customers.	Yes Netslab worker maintains nets but does not build or make them. Operations Manager manages all activities on farms with the exception of feeding. Regional Manager has full responsibility for the cost centre of a farm. Leading Hand supervises process workers who produce product. Truck Driver does not cart bait. Senior Team Leader ensures processing room is running productively. Team Leader in Dispatch/ Distribution ensures product on pallets and truck. Data analyst analyses information and does not simply enter data. Factory Manager manages the safety of product and people in entire factory. Quality Assurance Manager includes injury management.	Yes The job descriptions for each pathway are generally relevant to the prawn farming sector and some descriptions would need to be changed to better reflect the job role.	Yes Skipper operates, maintains and is in charge of commercial vessels that are 8 metres in length. Data Pearling Support Officer is similar to Data Coordinator who manages the stock control system where shell stock summary updates are inputted into the database which records the mortalities, missing shell and lease markings.

8.2.2 MUSSEL FARMING SECTOR

Overall the job roles developed for the tuna sector were generally relevant to the mussel farming sector. The similarities and differences are provided in Table 8 below. The exception were the jobs relating to commercial diving as the mussel industry utilises remote operated vehicles (ROVs) to check the farms underwater. Diving is contracted only in an unusual event, such as an anchor rope breaking. The jobs relating to engineers are not relevant to the mussel farming industry. Skippers generally have basic engineering skills. If skippers do not possess the skills needed, qualified people are contracted by the company to perform specialist engineering work.

The job descriptions for the Skipper and Advanced Skipper in the tuna industry are not directly relevant to the mussel farming sector as the descriptions are based on regulatory requirements for operating vessels of a certain length. For larger vessels, the time away from port increases and so does the requirements for specialist handling skills. The mussel farming sector uses smaller vessels as they do not use vessels requiring Master 4 qualifications at this stage. The Advanced Skipper is responsible for coordinating two or more boats.

Other differences were:

- The Farm Manager and Shore Manager is the same person.
- The Process Supervisor and Plant Supervisor is the same person.
- The Factory Operations Manager conducts Compliance Officer work and has human resource management skills.
- The Payroll Administration Officer shares the Compliance Officer work with the Factory Operations Manager.
- The Financial Controller conducts the Human Resources Manager and Administration Manager roles.

One of the differences identified is that processing is mostly conducted on land for mussel farming as opposed to processing for tuna being conducted both at sea and on land. The description for the Factory Operations Manager was relevant. However work undertaken in the mussel farming sector includes OHS, maintaining the Approved Arrangement, maintaining traceability systems and dispatching daily orders. The Factory Operations Manager also liaises closely with the skippers regarding the product entering the factory.

The difference in the Processing Pathway was that a Leading Hand description for the mussel farming sector is *A Leading Hand is responsible for managing processing areas*. The Leading Hand in the mussel factory manages people and equipment and does not undertake fishing and farming duties or supervise deckhands.

The difference in the Human Resources & Administration Pathway was that a Data Coordinator description for the mussel farming sector is *A Data Coordinator manages the collection and input of supplies and orders, and conducts stocktakes*. The Data Coordinator in the mussel farming sector does not collect and input data for bait and seafood processing but instead manages the supply chain for customers and is assisted by the Sales Team.

Table 8: Relevance of job roles in mussel farming sector

CAREER PATHWAYS	EXISTING JOBS	RELEVANT BUT NOT EXISTING JOBS	JOBS NOT APPLICABLE
FISHING & FARMING	Deckhand Leading Hand Skipper Advanced Skipper Farm Manager	Shore Manager	Boat Operator Assistant Engineer Cook Snorkeler Net Maker Marine Engineer Advanced Engineer Commercial Diver Dive Medical Technician Fleet Operations Manager Dive Supervisor
PROCESSING	Process Worker Leading Hand Process Supervisor Factory Operations Manager	Plant Supervisor Data Coordinator	Truck Driver (not a dedicated role) Loading Supervisor
HUMAN RESOURCES & ADMINISTRATION	Payroll Admin Officer Accounts Officer (Payable & Receivable) Financial Controller	Administration Officer Data Coordinator Compliance Officer Administration Manager Human Resources Manager	

8.2.3 SALMONID FARMING SECTOR

Overall the job roles developed for the tuna sector were relevant to the salmonid farming sector with only a few exceptions. The similarities and differences are provided in Table 9 below.

Workers in the salmonid farming industry do not spend time at sea overnight and therefore jobs that support boat crew such as cooks are not required. The jobs relating to commercial diving are relevant to the salmon farming industry where the Dive Supervisor is part of the diving team. The jobs of Skipper and Advanced Skipper are clustered together within the same job, and this also applies to the job categories of Marine Engineer and Advanced Marine Engineer, which is why Advanced Skippers and Engineers are not applicable to the salmonid sector.

All of the job categories in the Processing Pathway and Human Resources & Administration Pathway were relevant to the salmonid farming sector with the exception of Administration Manager where similar activities are undertaken as part of the Human Resources Manager role.

Table 9: Relevance of job roles in salmonid farming sector

CAREER PATHWAYS	EXISTING JOBS	RELEVANT BUT NOT EXISTING JOBS	JOBS NOT APPLICABLE
FISHING & FARMING	Deckhand Leading Hand Boat Operator Assistant Engineer Net Maker Skipper Marine Engineer Commercial Diver Fleet Operations Manager Farm Manager Dive Supervisor		Cook Snorkeler Advanced Skipper Advanced Engineer Shore Manager Dive Medical Technician
PROCESSING	Process Worker Leading Hand Process Supervisor Truck Driver Plant Supervisor Loading Supervisor Data Coordinator Factory Operations Manager		
HUMAN RESOURCES & ADMINISTRATION	Administration Officer Data Coordinator Payroll Admin Officer Accounts Officer (Payable & Receivable) Compliance Officer Human Resources Manager Financial Controller		Administration Manager

8.2.4 PRAWN FARMING SECTOR

Overall the job roles developed for the tuna sector were relevant to the prawn farming sector particularly in the Processing and Human Resources & Administration Pathways. A few exceptions were found in the Fishing & Farming Pathway. The similarities and differences are provided in Table 10 below.

Job roles do not relate to work at sea so roles such as Skipper, Marine Engineer and Fleet Operations Manager are not applicable. Cooks are utilised in the Processing Pathway rather than the Fishing & Farming Pathway. The Shore Manager is often someone who is second in charge on the farm and who reports to the Farm Manager.

In the Hatchery area, Labourers, Cleaners, Algal Technicians and Animal Technicians are employed. Many workers in the Farm area are Labourers. The jobs relating to commercial diving are not relevant to the prawn farming industry and the job role of Snorkeler is the only job in the Farm area that requires water skills.

In the Processing area, Cleaners, Cooks, Packers and Sorters are employed. There are Cooking Crews and Packing Crews (or Pack-Out Crews) which are groups of workers who work together doing the same job role. The Processing area also has a Processing Manager. In the Maintenance area, Labourers, 'Jack of All Trades' and Aerator Technicians are employed. Aerator Technicians conduct cleaning and maintenance. The Maintenance area employs a general manager referred to as the Maintenance Manager and sometimes a Freezer Maintenance Manager and/or Construction Manager. Larger farms employ electricians whilst smaller farms use local electricians.

The Compliance Officer is responsible for Quality Assurance. This is also a job role applicable to the Processing Pathway so there is overlap of this job role between the two pathways. The Financial Controller is likely to be the owner of the prawn farming business.

Table 10: Relevance of job roles in prawn farming sector

CAREER PATHWAYS	EXISTING JOBS	RELEVANT BUT NOT EXISTING JOBS	JOBS NOT APPLICABLE
FISHING & FARMING	Deckhand Boat Operator Snorkeler Net Maker Shore Manager Farm Manager		Leading Deckhand Cook Assistant Engineer Skipper Marine Engineer Commercial Diver Fleet Operations Manager Advanced Skipper Advanced Engineer Dive Medical Technician Dive Supervisor
PROCESSING	Process Worker Leading Hand Process Supervisor Truck Driver Plant Supervisor Loading Supervisor Data Coordinator Factory Operations Manager		
HUMAN RESOURCES & ADMINISTRATION	Administration Officer Data Coordinator Payroll Admin Officer Accounts Officer (Payable & Receivable) Compliance Officer Administration Manager Human Resources Manager Financial Controller		

8.2.5 PEARL FARMING SECTOR

Overall the job roles developed for the tuna sector were relevant to the pearl farming sector with only a few exceptions. The similarities and differences are provided in Table 11 below.

Snorkelers are not employed in the pearl farming sector. Diver Medical Technicians are not employed as the Skipper on the vessel is trained in Senior First Aid and any divers who require first aid or emergency treatment are sent to hospital immediately. The size of the vessel will depend on whether an Advanced Skipper and Advanced Engineer are job roles.

All of the job roles in the Processing and Human Resources & Administration Pathways are relevant to the pearl farming sector. Processing is conducted at sea and the same reporting chain is used on the ship with different job titles. The Human Resource & Administration areas are managed as separate departments but are closely linked.

Table 11: Relevance of job roles in pearl farming sector

CAREER PATHWAYS	EXISTING JOBS	RELEVANT BUT NOT EXISTING JOBS	JOBS NOT APPLICABLE
FISHING & FARMING	Deckhand Leading Deckhand Boat Operator Assistant Engineer Cook Net Maker Skipper Marine Engineer Advanced Skipper Advanced Engineer Shore Manager Commercial Diver Fleet Operations Manager Farm Manager Dive Supervisor		Snorkeler Dive Medical Technician
PROCESSING	Process Worker Leading Hand Process Supervisor Truck Driver Plant Supervisor Loading Supervisor Data Coordinator Factory Operations Manager		
HUMAN RESOURCES & ADMINISTRATION	Administration Officer Data Coordinator Payroll Admin Officer Accounts Officer (Payable & Receivable) Compliance Officer Administration Manager Human Resources Manager Financial Controller		Administration Manager

8.3 CAREER PATHWAYS

8.3.1 TUNA SECTOR

Three career pathways of Fishing & Farming, Processing and Human Resources & Administration were identified and described for the tuna sector. Figures 1-3 show the diagrammatical career pathways created in this project. Each of the 33 job roles identified were recognised as being related to one of the three career pathways. The project found that materials could be developed to illustrate how the jobs were linked and how someone either working in the industry or someone considering employment in the industry could progress in the tuna industry with a well-defined career pathway.

The processing pathway includes the job role as truck driver as this is an important and legitimate role within the tuna industry. It is recognised that some Leading Hands may not wish to work as truck drivers but that this skill could be acquired to fulfil different job roles within the processing facilities. Career pathways not only illustrate pathways where people can progress from one job to another, but also document the job roles in the industry and their qualification levels.

It was suggested that reference to a 'harvesting pathway' did not capture all of the work undertaken in the tuna industry both onshore and at sea. It was recognised that names given to pathways need to capture the current understanding of people already working in the seafood industry as well as be simple to be understood by people outside the industry.

Underwater diving roles were incorporated into the Fishing & Farming Pathway as commercial diving is an integral part of the tuna farming and fishing operations. Career progression for people specialising in diving skills has been displayed in a step wise manner showing that work at lower levels requiring snorkelling skills can lead to more advanced work as Commercial Divers, Diver Medical Technicians and Dive Supervisors. It was suggested that this would simplify people's comprehension of the pathways for people not familiar with jobs within the seafood industry.

Consideration was given to referring to career opportunities instead of career pathways as it was suggested that references to opportunities may provide more inclusive language to many people in the industry who do not have career aspirations. The reference to pathways was retained as it was considered that this best described the focus of the research and that the term 'opportunities' appeared to be too broad to be clearly understood. However, it is recognised that not all workers in the tuna industry wish to pursue a career.

The career pathways, and more specifically the links between the jobs, were found to be relevant to all five aquaculture sectors. The following information below summarises the comments received from the mussel, salmonid, prawn and pearl farming sectors on the relevance of the tuna career pathways.

> *"The levels and links between jobs form stepping stones to a higher level of responsibility. They are common sense and relevant to mussel farming."*
>
> *- A. Dyer, Kinkawooka Mussels*

Table 12: Relevance of tuna career pathways to seafood sectors

TUNA MATERIALS	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
CAREER PATHWAYS	Yes All 3 pathways relevant. The pathways of 'on the water', 'in the factory' and 'administration' is easy to understand.	Yes All 3 pathways relevant. Simple, useful and informative. Visual tool that can be used in marketing material for industry.	Yes All 3 pathways relevant. Two distinct areas occur in the Fishing & Farming Pathway and the Processing Pathway.	Yes Explicit pathways may give people on short contracts an idea of the path they can take in the company.
LINKS BETWEEN JOBS	Yes The links between the jobs form 'stepping stones' to a higher level of responsibility and appear to be common-sense.	Yes Links between jobs are useful. Fishing & Farming and Processing Pathways are the most relevant to salmonid farming.	Yes Whilst the jobs, titles and descriptions may be different, a step wise progression between them makes sense.	Yes The links between jobs can show how staff can move into other positions.

Figure 1: Fishing & Farming Career Pathway showing job progression from Deckhand to Farm Manager

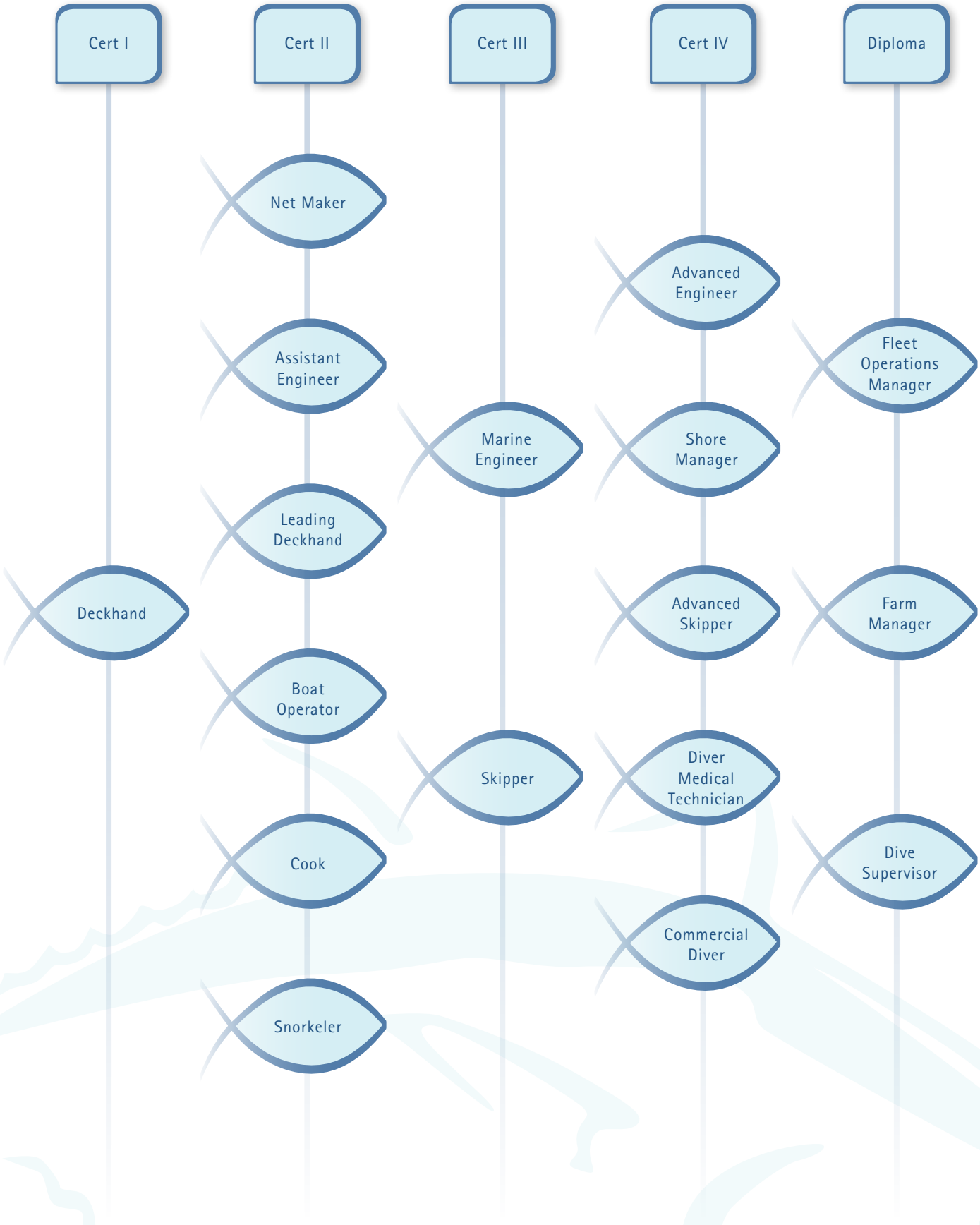


Figure 2: Processing Career Pathway showing job progression from Process Worker to Factory Operations Manager

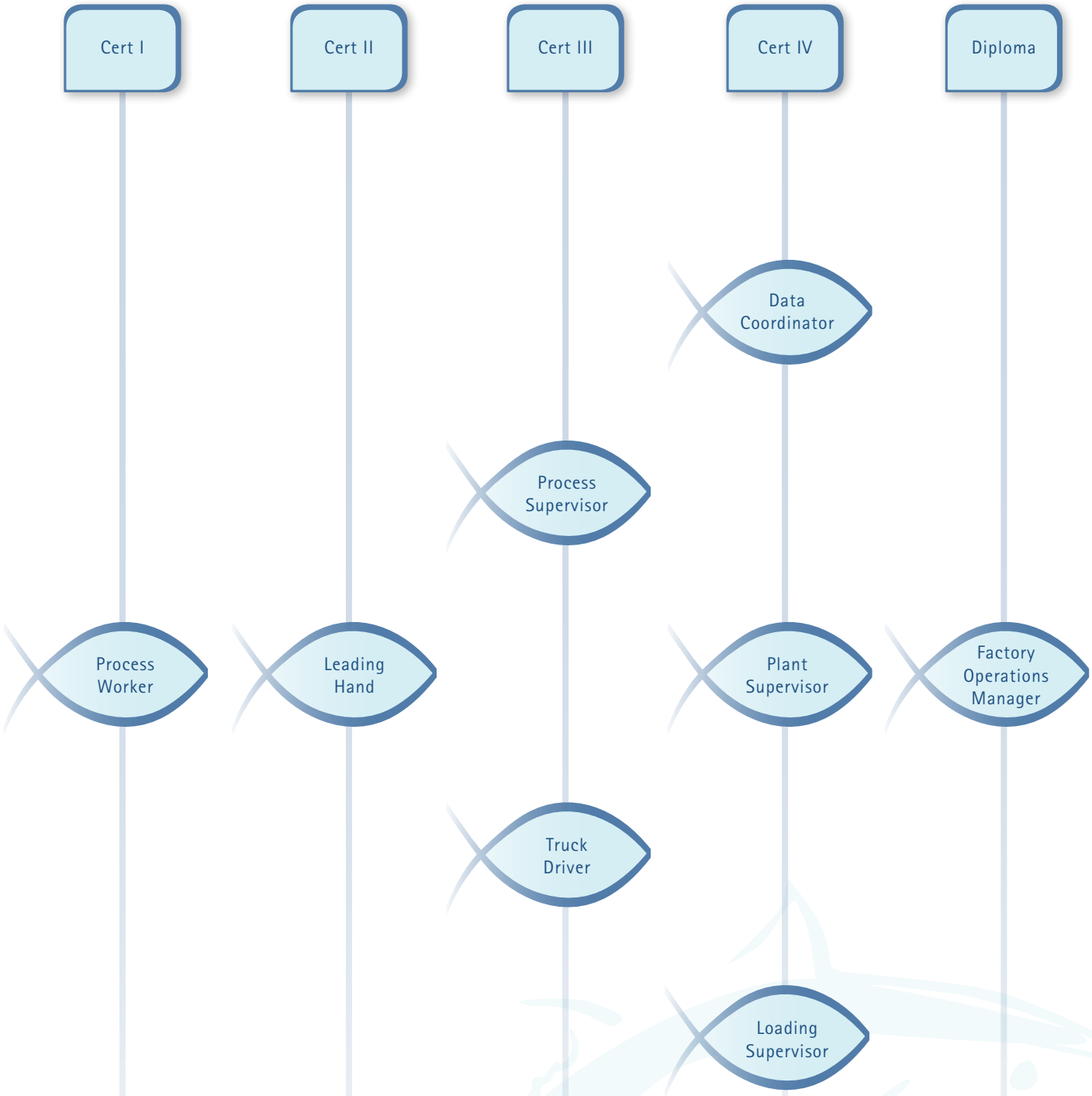
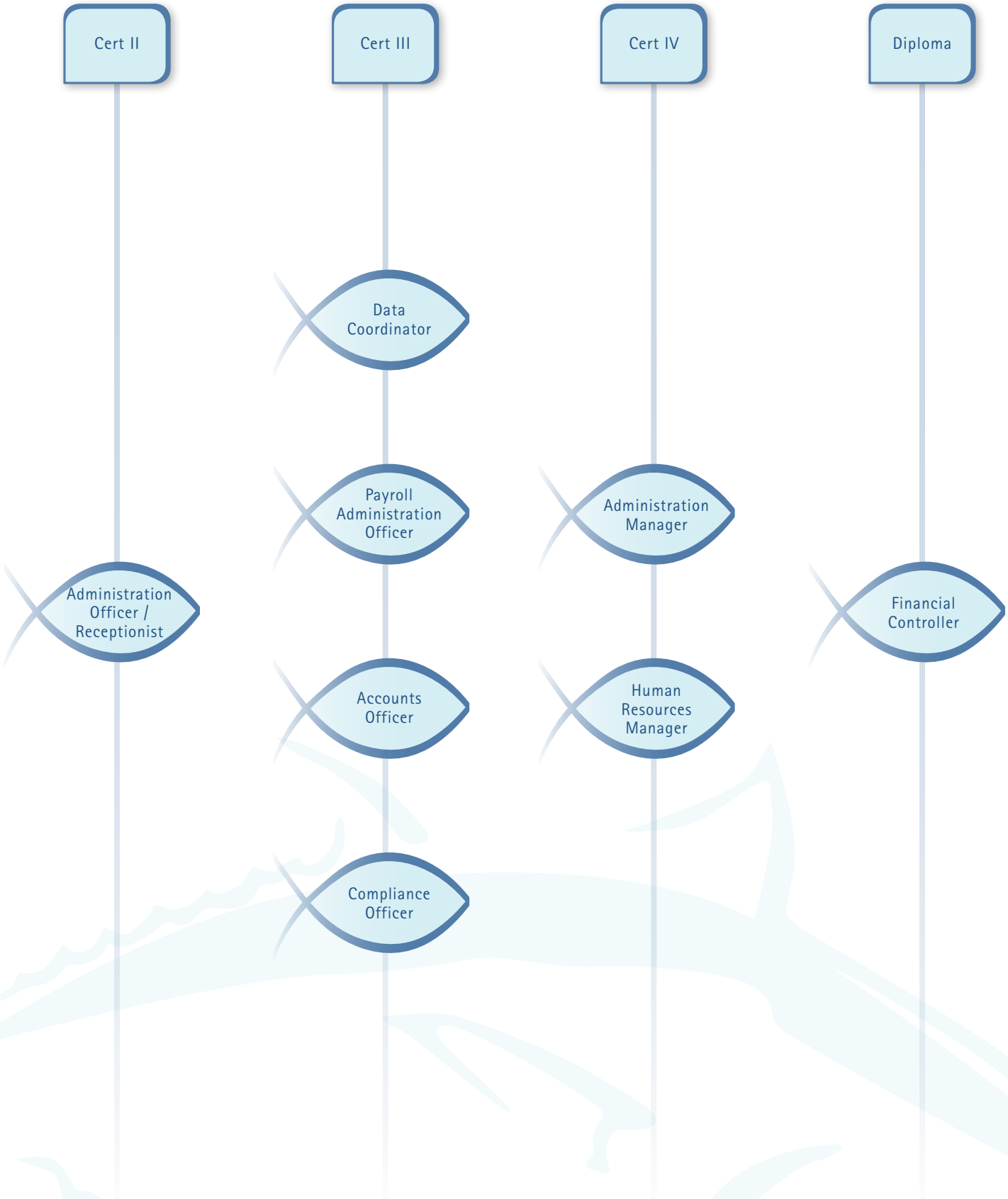


Figure 3: Human Resources & Administration Career Pathway showing job progression from Administration Officer to Financial Controller



8.3.2 MUSSEL FARMING SECTOR

The career pathways and links between jobs were directly relevant to this sector and were considered to be common sense and easy to understand. In the mussel farming sector, employers identify staff they would like to develop into higher positions within the company and provide training wherever possible. A frequent occurrence is training Deckhands as Leading Hands. The development of career pathways would assist in explicitly providing this information to all parties.

8.3.3 SALMONID FARMING SECTOR

The career pathways were relevant to the salmonid farming sector and the links between jobs were found to be useful. The Fishing and Farming Pathway and Processing Pathway were more relevant to the salmonid industry although the project found that the Fishing and Farming Pathway emphasised activities and job roles on vessels, which are not as relevant to the salmonid sector.

The most obvious difference between the tuna and salmonid sectors is the large scale of operation of the salmonid sector with approximately 1100 FTEs compared with nearly 400 FTEs in the tuna sector. The three career pathways developed for the tuna sector correspond with three of the six distinct areas for salmonid farming, which are:

- Harvest (Marine Operations),
- Processing (Wet and Value-Adding) and
- Administration (including Human Resources and Information Technology).

For the salmon industry with far greater job roles, additional career pathways could be developed using the same method and the created pathways could be used as a template. It was suggested that another three pathways could be created for the salmon industry in the areas of

- Freshwater (Hatcheries),
- Sea Farm (Growing Salmon) and
- Sales and Marketing.

It was also identified that there was more scope within the Human Resources & Administration Pathway to document additional jobs and levels and make it more relevant to salmon companies. An additional level could also be included in the Farming and Fishing Pathway identifying Team Leader roles between the second and third tiers (i.e. Leading Deckhand and Skipper levels).

8.3.4 PRAWN FARMING SECTOR

The career pathways were relevant to the prawn farming sector and the links between jobs made sense to the industry representatives that were interviewed. There are four distinct areas of employment within the prawn farming sector which are Hatchery, Farm, Processing and Maintenance. The Hatchery and Farm areas correspond with the Fishing and Farming Pathway for the tuna sector. The Processing and Maintenance areas correspond with the Processing Pathway for the tuna sector.

The Processing Pathway and Human Resources & Administration Pathway were more relevant to the prawn farming industry. The Fishing & Farming Pathway was less relevant as commercial diving and at sea job roles are not relevant to this sector. Whilst the jobs, titles and descriptions may be different to the tuna sector, a step wise progression between the jobs makes sense and will change depending on the company.

8.3.5 PEARL FARMING SECTOR

The career pathways were very relevant to the pearl farming sector and the links between jobs were appropriate. There are two distinct areas of operation in pearl farming which are referred to as Farms and Fleet. The lines of authority or hierarchy of job roles are similar across both. Career pathways are seen as a way of retaining workers for longer in the company as staff may wish to develop skills in another area of the business. The company has moved people into new positions to respond to this need with the example of farm workers being trained for drift diving. It was suggested that an advantage of promoting jobs in the pearl sector is that job roles may be seen as exciting compared to other industries and career pathways are a way of mapping out the range of jobs available.

Even though the scale of the sectors differed, career pathway trends were similar for all five sectors. The industry sectors all commented on the simplicity and presentation of the pathways in illustrating relationships between job roles. Overall, there was a lot of interest in the career pathways in terms of their relevance to industry.

> *"Given the high numbers of casual staff, explicit pathways may give people on short contracts an idea of the path they could take in the company."*
>
> *- R. McLean, Paspaley Pearling Company Pty Ltd*

8.4 PROPOSED QUALIFICATIONS & TRAINING MATERIAL

8.4.1 TUNA SECTOR

The project demonstrated that a level of formal certification in the form of VET qualifications could be linked to one or more job roles that require similar skill and experience levels, i.e. job roles requiring less skills and experience such as Process Workers were linked to the Certificate 1 training qualification, whilst a Factory Operations Manager could be linked to a Diploma training qualification which requires higher skill levels. The research found that a proposed qualification made up of a set number of units of competency specifically relevant to each job role could be developed and linked to each of the 33 job roles. Appendix 7 lists the desired qualifications and skills matched to each job role in each career pathway. Appendix 8 provides proposed qualifications that outline the most relevant units of competency for each qualification identified for all job roles.

A high number of training packages were examined which reflected the breadth of skills needed across the tuna industry. It was noted that the Seafood Industry Training Package was being updated during the project which led to the interpretation of the training package rules being confusing and complex. Units of competency were utilised from a total of ten training packages listed below. The following training packages (and qualifications) were assessed to identify the required training program for each job in the tuna industry:

- AHC10 Agriculture, Horticulture and Conservation and Land Management
- BSB07 Business Services
  - Business
  - Recordkeeping
  - Business Administration
  - Occupational Health and Safety
  - Human Resources
- HLT07 Health
  - Hyperbaric Technology
- MSL09 Laboratory Operations
- MSA07 Manufacturing
- RII09 Resources and Infrastructure Industry
- SFI11 Seafood Industry
- MSS11 Sustainability
- SIT07 Tourism, Hospitality and Events
- TLI10 Transport and Logistics

As discussed previously, the tuna industry recognises that there are challenges to prioritising staff career development. Whilst companies often lament the issues with attracting, retaining and upskilling staff, they is also the need to ensure there is adequate and necessary training programs in place for their employees such as the more generic employability skills such as having good communication skills, skills in food handling and how to work effectively. There is currently a lack of training and education culture within the seafood industry, poor levels of education, and often a mismatch between the new workers skills and the actual skill needs of the work. There has been a tendency for some businesses to employ new workers as a Deckhand with no training at all, as there are no legal requirements for this job role.

The proposed qualifications developed for Deckhands and Leading Deckhands are purposely specified as lower qualifications to set out a proposed minimum skill level for these jobs. This approach is not intended to 'dumb down' the training for these job roles but to encourage companies to support training for new workers to engage in training ensuring Deckhands are qualified before entering the workforce. Specifying a minimum level for Deckhands and Leading Deckhands in a meaningful way for industry is intended to encourage more training in these lower levels as it will be easier for the company and the new employees to achieve. It is believed that this approach will resonate with the industry and be viewed as recommended practice. It is anticipated that once new workers are within the training system and have attained these certificates, it is likely that a greater proportion of them will undertake further upskilling which will keep them in the industry for longer.

It was recognised that not all the units of competency identified for the tuna sector will fit every seafood business, but the company and RTO can tailor the training to the individual student and company. The specific training material in each unit of competency can be customised to different requirements. That said, the project confirmed that units of competency from multiple training packages could be identified for jobs in the tuna industry that are relevant across more than one company.

The qualifications and skills in the list were found to be relevant to all five aquaculture sectors. Table 13 summarises the comments received from the mussel, salmonid, prawn and pearl farming sectors on the relevance of the tuna qualification and skill levels, as well as the units of competency identified in the proposed qualifications developed.

Table 13: Relevance of qualification and skill list, and proposed tuna qualifications to seafood sectors

TUNA MATERIALS	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
QUALIFICATION & SKILL LEVEL LIST	Yes Levels Certificate I to Diploma are relevant. Links between the training and jobs are relevant.	Yes Entry positions are at Certificate III level and entry supervision jobs are at Certificate IV level. Higher supervision jobs are at Diploma level, such as Human Resources Manager and Quality Assurance Manager. Specialist skills needed for training in Processing Pathway rather than full certificates.	Yes Progressing from Cert 1 to Diploma as progression is relevant.	Yes The regulatory qualifications are relevant.
PROPOSED TUNA QUALIFICATIONS	Not reviewed	Not reviewed in detail for Fishing & Farming and Processing Pathways. Administration Pathway training relevant. Good starting point for industry because units help consolidate thinking. Not seen similar materials or guides being used in the industry. This material would be used as a guide.	Not reviewed in detail. Units can be tailored to this sector. Industry need to be more directive in the skills they require for workers. Training providers are not meeting industry needs.	Units could be used as a guide to the skills needed for job roles. Units could be tailored to this sector. Additional training is unlikely to be a priority when regulatory requirements need to be satisfied.

8.4.2 MUSSEL FARMING SECTOR

The qualification and skill levels were relevant to the mussel farming sector for each career pathway. The links between training and each of the jobs were relevant. The relevance of the units of competency were not reviewed by this sector due to the extensive time needed to examine each unit of competency and level of understanding and application of each training unit.

The additional skills needed in the mussel farming sector were management skills and training in conflict resolution for Leading Deckhands and Skippers as well as Farm and Factory Managers. This sector requires that workers are given training in managing and communicating with others as their career progresses and they become more responsible for managing others in the company.

8.4.3 SALMONID FARMING SECTOR

Whilst the qualification levels for job roles tended to be higher than the other sectors, the qualification and skill levels were still relevant to the salmonid farming sector for each career pathway. Similar to the mussel farming sector feedback, the units of competency were not reviewed in detail by this sector given the skills needed in interpreting the units of competence. This sector finds identifying training requirements within the training packages as being confusing and complex. The Human Resources & Administration Pathway certificates were relevant.

The units of competence materials developed for the tuna industry were considered a good starting point and assisted in consolidating thinking around training requirements. People interviewed commented that they had not seen any similar guidelines or materials developed for the industry and that the materials would be useful as a guide for training staff. It was commented that companies are under pressure to focus on regulatory training because of compliance requirements associated with the sector rather than short courses such as frontline management which have been a recent training need. Hence, capacity building training becomes a lower priority and full qualifications do not assist in this regard.

8.4.4 PRAWN FARMING SECTOR

The qualification and skill levels for job roles were relevant to the prawn farming sector and it will depend on the company and which job roles exist in the specific business. Workers in this sector tend to complete training and are taken through a RPL process to issue full qualifications. In the Processing area skills valued include electrical skills, fork lift driving skills and skills in driving quad bikes. Skills in OHS and environmental response are also required.

8.4.5 PEARL FARMING SECTOR

Qualification levels for job roles were relevant to the pearl farming sector. Although the majority of training in this sector is regulatory the units of competence could be tailored to this sector and used as a guide of the skills needed for each job role. The additional skills listed for the tuna sector are also applicable to the pearl farming sector.

8.5 VALUE OF OUTPUTS TO TRAINERS

8.5.1 JOB ROLES

Trainers reported that the job roles were too broad and general to be of use and therefore had limited application in the planning or delivery of the training. Trainers were seeking more detailed information about the job roles to assist with identifying units of competency and assessing RPL. This highlights the challenge in meeting the needs of two different audiences; people looking for work in the tuna industry who may be seeking a short succinct explanation of current job roles, and trainers who require more detail to assist them in identifying suitable training plans for students.

Two of the trainers suggested that a breakdown of tasks for each job role would assist trainers and students in understanding what tasks are involved in each job which would be particularly beneficial to school children. An example provided was: *Deckhand - undertakes tasks on board vessels:*

- *Rope handling, knots and splices*
- *Net repair*
- *Feeding tuna*
- *Vessel maintenance*
- *Harvest tuna*
- *Vessel based processing*
- *Watch keeping*

The benefits identified by the trainers was that job titles and descriptions would provide new trainers with a basic understanding and reference to the specialist jobs that are available in the seafood industry as well as employees in the seafood industry who may move from one company to another. The trainers identified value in having consistent job roles for the industry. Table 14 outlines the value and usefulness of job roles to trainers.

> *"The job titles and descriptions for the tuna industry are good as an overall picture. Some trainers do not understand the differences between the seafood sectors so this helps."*
>
> *- Trainer 1, TAFE SA Regional*

Table 14: Value and usefulness of job roles to trainers

	VALUE OF JOB ROLES	USEFULNESS OF JOB ROLES
TRAINER 1	Good as overall picture. Underlying document could be useful in explaining tasks in more detail.	Contextualised the training to specific job roles. Fairly general and seafood industry trainers should be aware of duties of deckhand in tuna industry.
TRAINER 2	Limited value as company provided significant amount of resources that was useful for training. Too broad and general to be of significant use. Good reference if limited information is provided by the employer.	Not considered in detail.
TRAINER 3	Value is twofold. Consistent job titles and descriptions help build general knowledge about seafood industry. Provides understanding of specialist jobs. Limited value to current student.	Not useful as training delivered at Diploma level.

8.5.2 CAREER PATHWAYS

Overall, there was a lot of interest in the career pathways in terms of their value and usefulness to their trainers and students.

All three trainers commented that the career pathways were of value to assist students in providing guidance on potential job roles and the qualification levels needed in the future to pursue a career in the tuna industry. One trainer reported that the background and experience of students varies greatly from stay at home mothers, to young people who have not completed their final year of schooling as well as people looking for a change of career. Therefore, the pathway information can potentially stimulate a richer discussion about what job opportunities are available. One trainer commented that the information instigated discussions with the student on potential job roles and added context by reflecting on current and prospective future positions in the company. Another suggested that meetings between trainers and employers or employees may be enhanced using the pathways which explicitly map the connection between job roles. Furthermore, the career pathways may be of value in linking young people not working in the industry to employers in the future and could be of further value to industry employers in providing guidance to employees being mentored or during work place reviews.

The career pathway information was of limited value in developing the training program for the Factory Operations Manager, given that this job role has been linked to Diploma level training which is mapped at a high level in the career pathway for processing. The trainer identified that the career pathway materials are likely to be more relevant to students and employees currently working at lower levels in a company who may be interested in following a succession plan given that the pathways display progression opportunities to more experienced and skilled job roles.

The simplicity and visual presentation illustrating the career pathways was commented as being easy to understand and would provide trainers with an overall 'big picture' of the job roles performed in the industry and the relationship between these job roles. Trainers reported the career pathway information was of value to them when planning the training program for the student by providing a clearer focus on training required to be discussed during the counselling session prior to the commencement of training. This was a direct result from the trainer understanding the connection between job roles. Table 15 summarises comments received from trainers on the value and usefulness of career pathways.

> *"The career pathways were valuable. They started discussions with the students on potential job roles."*
>
> *- Trainer 2, TAFE SA Regional*

Table 15: Value and usefulness of career pathways to trainers

	VALUE OF CAREER PATHWAYS	USEFULNESS OF CAREER PATHWAYS
TRAINER 1	Good overall big picture for trainers and students of the industry requirements. Potential value in linking trainees with industry employers.	Helped ensure training units aimed at pathway progression of employee. During delivery, they added context to training by reflecting current and prospective future positions.
TRAINER 2	Highly valuable Provided a way of understanding potential options for future students. Valuable to link training qualifications to each pathway Could link pay awards against training certification levels.	Simplicity is beneficial Visual presentation diagrammatically makes it easier to understand. Some students interested in exploring opportunities of where training may lead
TRAINER 3	Value in explaining to students and employees future jobs and pathways to get there. Provides guidance to employees being mentored in companies.	Not useful for training at Diploma level but more relevant to lower levels in companies

8.5.3 PROPOSED QUALIFICATIONS & TRAINING MATERIAL

All trainers reported limited value in receiving the proposed qualifications for the tuna industry compared to the other material provided. Table 16 summarises the comments received from the trainers on the value and usefulness of the proposed qualifications and supporting material.

Positive feedback on the proposed qualifications included that they were used to assist with the RPL assessment and provided an understanding of what the industry employers required. The trainers reported that there was value in providing consistent quality training and linking it to the proposed qualifications and what the position required. The proposed qualifications provided a starting point to develop a training plan for the student and identified gaps in training. The proposed qualifications assisted trainers to ensure all pre-requisite units for a formal qualification were met during the training program. It was suggested the qualification and skill list may assist trainers to offer a better training service to students and companies.

Negative feedback included that it took the trainers longer than expected to work through the relevant proposed qualifications because some units of competency are not usually delivered by the RTO and/or are not on their scope of registration. This was the case for two out of the three trainers. Overall, trainers suggested that the proposed qualifications were considered too prescriptive and they preferred to identify the units of competency for themselves rather than follow an industry list given the extensive knowledge that trainers have in applying the training packages to individual training plans.

RECOGNITION OF PRIOR LEARNING (RPL)

Trainers reported on how RPL is currently assessed before the delivery of training and provided ideas for improvement for future training. This was to gauge whether providing the materials developed in the project had any impact on ideas relating to a RPL process.

The project found that the current RPL process focuses on assessing previous work experience and skills for the student and gathering evidence to support the assessment. The job roles, career pathways qualifications and skills list and proposed qualifications did not appear to assist with the RPL process and did not initiate any ideas for improvements with RPL. There appeared to be a well established process in place for identifying gaps in training prior to delivering training to the student. Table 17 summarises the comments received from the trainers on the current RPL assessment process and ideas for improvement.

Table 16: Value and usefulness of proposed qualifications to trainers

	VALUE OF PROPOSED QUALIFICATIONS	USEFULNESS OF PROPOSED QUALIFICATIONS
TRAINER 1	Example training plans should not be too prescriptive. Value in having a nationally standard course and providing consistent quality training and tying to qualifications. Preference for the trainer to identify the units of competence rather than follow an industry list given the vast knowledge in applying training packages. Value in understanding what skills the employer requires and to tailor training to suit their requirements.	The units were used to formulate the RPL assessments The units provided guidance on gaps in training for the student.
TRAINER 2	Took longer than expected to work through units of competence and training material as the proposed units are not usually delivered by RTO. RTO had no training resources to deliver these specific units as there is less demand for them	Units provided a starting point only in which to consider what training should be provided. Alternative units were more relevant for the employee and employer and training was tailored to the students needs.
TRAINER 3	Less value compared to other documentation provided. Units need to be relevant and have practical application to the workplace. Trainers need to be flexible and tailor the training to the person and company. Some units were not 'on scope' for the RTO which meant that the RTO was unable to deliver some of the units. Depends on who is paying for the cost of training.	Units used as a starting point for developing the training plan. Table of units provides a good way of explaining how the students skills relate to the RPL assessment.

Table 17: Current RPL assessments and ideas for improvements

	CURRENT ASSESSMENT OF RPL	IMPROVEMENTS FOR RPL
TRAINER 1	Speaking with Manager. Face to face interviews with student. Job specifications and performance reviews considered. Skills audit to identify different types of evidence. Lots of sources of evidence. Assesses gaps in skill level and best way to address gaps. Support from employer is important. Gap training is targeted towards a specific position rather than a qualification.	Job specifications and meetings with managers prior to the training.
TRAINER 2	Assessment of previous work experience. Whether training has been delivered previously. Employer evidence forms. Current resume and job description Other evidence of acquired skills and experience. RPL process assisted if trainer attends workplace. Tendency for training to over-assess RPL when the process of recording and sighting evidence is frustrating.	Use of checklists to enable students to better prepare for RPL. Uploading of evidence for RPL (being implemented by the RTO to improve the process).
TRAINER 3	Specific rules are followed under ATQF. RPL logbook for aquaculture program sets out steps for students to follow which reduces red tape. Interview conducted with student to identify gaps in knowledge. Training plan is developed. Every 6 to 12 months training programs are audited which results in a high level of evidence gathering and reporting for RPL process.	The new streamlined RPL process has taken years to develop and is considered an effective way of assessing RPL for aquaculture and seafood processing training programs. RPL process is complicated if units identified by industry are not on scope for the RTO. Trainers have experience as to what constitutes evidence for RPL.

TRAINING DELIVERY

Aspects of training delivery were explored with trainers to provide contextual information to assist in understanding the value and usefulness of materials developed for the tuna sector. Each trainer trained one person for the purposes of the project. One challenge encountered was the delivery of training around the tuna harvesting season. As highlighted previously, the seasonal nature of the work poses challenges to the seafood industry and this is especially the case with regards to the timing of when training can be delivered to sectors. The other problem encountered was that an electronic copy of the fact sheets was unable to be accessed due to technical problems and so the trainer relied on paper copies of the training material. This emphasises the need for training materials to be accurate and easy to access the first time to encourage trainers to spend time incorporating and using the most up to date information in their materials.

Trainers reported a range of support and assistance that is needed to provide more effective training to the seafood industry which included: regular forums and networking with industry, accessing industry information, mentoring programs within the workplace and funding for equipment to enable more practical training to be delivered.

The project found that the use of specialist training providers from outside the RTO was supported and encouraged by all three trainers in recognition that additional trainers bring a richness of experience and expertise which can add value to the training experience for students. It was commented that guest speakers were also being utilised currently from outside the organisation to bring in additional current knowledge and that larger RTOs have a larger pool of trainers with a broader range of expertise to draw from within the organisation. Table 18 summarises the comments received from the trainers on the assessment of training delivery.

"Consistent job titles and descriptions help build general knowledge about the seafood industry."

- Trainer 3, TAFE SA Regional

Table 18: Assessment of training delivery

	PROBLEMS WITH TRAINING MATERIALS OR DELIVERY	ASSISTANCE NEEDED	SPECIALIST TRAINING PROVIDERS
TRAINER 1	Timing of project against seasonality of tuna catching season. Training needs to be flexible around season and focus majority of training to spring.	Regular forum with industry to hear directions, trends and current training needs would give consistency to training between trainers and institutions and help be more responsive to industry.	Yes. Specialist trainers and instructors are currently contracted by RTO. RTOs becoming more of a one stop shop.
TRAINER 2	Few issues or concerns as student keen to undertake training. Company provided high level of access to student.	Understanding of how industry in general operates. Trainers need to build knowledge of sectors. Better networking. Quarterly meetings with industry. Receiving mailing list of industry. Seafood industry website with information about career pathways, job roles and proposed training.	Trainers are not required to be experts in every field. Expert trainers in different skill areas need to be contracted to respond to different skill areas. Specialist training for one student is too costly.
TRAINER 3	CD of fact sheets did not work and therefore paper copies of information were used given time restraints.	Funding for equipment for hands-on practical training. Mentoring programs within the workplace.	Yes. RTO contracts specialist training now in supporting guest speakers for specialist areas. Larger RTOs can draw upon a large number of trainers across the RTO with experience in different areas.

Overall, trainers commented that the proposed qualifications were a good starting point in developing training plans for employees to identify gaps in training. The materials did not assist with the current RPL process or initiate ideas for the process in the future, nor did they assist or compromise training delivery. Trainers would like more information from industry to provide more effective training. Trainers support and encourage specialist training providers regardless of whether they already work within the RTO in other disciplines or are contracted from outside the RTO.

8.6 EXTENSION OF INDUSTRY RESEARCH

8.6.1 TUNA SECTOR

The research found the extension of research outcomes is facilitated by senior management in tuna companies, ASBTIA and the Fisheries Research and Development Corporation who all act as repositories of research information developed over many years. The project studied whether there was a challenge in the dissemination and communication of the main results to the wider tuna industry and other stakeholders in a form where there would be immediate uptake of the results. The company was not aware of delayed extension of research results and identified that it is the role of the company Board and General Manager to facilitate uptake of research outcomes within the company. The company supported the current role undertaken by ASBTIA and acknowledged the benefits the industry association provided in leading the coordination, management and dissemination of research. The focus of research by industry has been state-based research rather than how international research can be applied.

Table 19: Extension of research challenges by seafood sector

	TUNA	BLUE MUSSELS	SALMONID	PRAWN	PEARL
ACCOMMODATING INDUSTRY'S TRAINING NEEDS	Not answered.	Currently limited R & D that can be applied to training. Industry does not fund any research projects relating to pre-harvest. Incorporating research outcomes is not an issue given the sector is relatively new.	Training process is overly complicated. Industry needs to drive training. Training needs to be delivered as efficiently as possible. Less need for full qualifications and more training required for specific skill sets.	Training system provides low value for money. Upskilling staff is usually conducted in-house.	A significant amount of training occurs in-house and so rapid changes are accommodated easily.
INCORPORATING RESEARCH OUTCOMES	Not aware of delayed extension of research results	Not an issue given the small scale of the industry sector.	Research outcomes need to be interpreted and translated, as information is often too raw and technical. Job role in company is responsible for ensuring research outcomes are incorporated into training and are used across company.	No high end extension of research by trainers. Companies do their own R&D Researchers and trainers need to spend time on farms. Need to find people in these disciplines that can bridge the gap with industry supporting them.	R&D is well organised and often conducted in-house and results are applied immediately. Research outcomes are mostly private to the company and are not disseminated to other pearl producers.
KNOWLEDGE TRANSFER	Pre-season meetings General Manager translates info for staff.	Fact sheets a great idea to bridge knowledge gap with trainers.	Knowledge transfer currently works well.	If research and training is not of value, farmers will spend their time elsewhere.	Not an issue as knowledge transfer works well now.

8.6.2 MUSSEL FARMING SECTOR

There is currently limited research and development conducted in Australia that can be applied to training given the small scale of the industry. This sector does not currently fund any research relating to pre-harvest activities. The small scale of this sector and relatively new sector in the aquaculture industry has meant that incorporating research outcomes is not currently an issue.

The mussel farming sector commented that fact sheets could be of value to the mussel farming sector as they were short and written in easy to read language and had the potential of bridging the knowledge gap with trainers. Whilst the need to transfer research outcomes is currently limited in the mussel farming sector, there is a need to capture the existing knowledge of people involved in pioneering the industry which has not been documented. Best practice in mussel farming husbandry techniques is one area where fact sheets could be developed for use by trainers for this sector.

The mussel farming sector suggested that as more specialised information is discovered about this sector through research and development, it could be incorporated into training materials replacing more generic information. It was considered that this could particularly apply to training in job roles with lower skill levels such as deckhands as it would make the training more meaningful and relevant to their day to day work. This may ultimately assist in addressing the challenge of attracting workers by encouraging young people who are engaged in training and looking for employment, to take up positions in the mussel industry.

8.6.3 SALMONID FARMING SECTOR

Similar to the mussel farming sector, the salmonid sector does not believe there is an issue with extension of research by companies given that the transfer of knowledge works well. Research outcomes often needs to be interpreted and translated for workers, as the information is often too 'raw' or technical. In the Environmental Section of Tassal Group Limited, the Head of Sustainability ensures research outcomes are incorporated into training and is applied across the company.

The salmonid sector commented that the training process is overly complicated and industry sectors need to drive training requirements. Furthermore, training must be flexible and respond rapidly to industry requirements. There is an emphasis to be less reliant on formal certification through qualifications as more training is required for sets of skills relevant to job roles in the company, which will increase the efficiency of delivering training.

8.6.4 PRAWN FARMING SECTOR

As companies are conducting their own R&D, no high end extension of research is currently required by trainers. Research and development on topics such as prawn genetics is not immediately applicable to working farms and is considered 'stand alone' research at this stage. This sector commented that there is the need to find people in the research and training disciplines that can bridge the information and language gap between industry and research. The sector also reported that more effort is needed by industry to support them by enabling researchers and trainers to spend time on the prawn farms to understand operational activities. This sector mostly appreciates the value of research and respects the part research has to play in the industry. The demand on farmers' time is high during the year and therefore if research and training are not of value, it may not be a priority.

8.6.5 PEARL FARMING SECTOR

The extension of research in the prawn farming sector was found to be well organised where the results are applied immediately. The Pearling Planning Committee of Paspaley Pearling Company Pty Ltd considers R&D needs, as well as the incorporation of outcomes and education across the company. Research outcomes are private and not disseminated between pearl farming companies. There are currently no issues with knowledge transfer and no gaps between researchers, trainers and the company. Business is under review as to how efficiency and productivity can be improved.

8.6.6 TRAINING SECTOR

CURRENT PRACTICES

The study found trainers seek a range of background and technical information for training, particularly information from industry including Standard Operating Procedures and any company information relevant to current job roles and career paths being pursued. A variety of factors influence trainers in their decision to use new information in training materials such as information that is valid and accurate, current, easy to understand, relevant to the client group, of value for the specific learning experience, and not confidential or sensitive to the company, and recommended from other lecturers and colleagues.

Table 20: Current practices of sourcing background information

	BACKGROUND INFORMATION SOUGHT	FACTORS INFLUENCING USING NEW INFORMATION	METHOD OF SOURCING INFORMATION
TRAINER 1	The type of information sought depends on training required, current job role, whether student is already in the job and the variety in the student and clients needs. Specific information is obtained from the company such as Standard Operating Procedures. In-house information adds weight to the existing training material.	Relevance of training materials are assessed for each client group. If it adds value to the learning experience.	Directly from industry. Newsletters from formal organisations. Electronic mailing lists.
TRAINER 2	Jobs and career paths being pursued by student as training needs to link to potential careers. Information from employer on work to be done and whether training has been already delivered. Reasons why the training is being sought. Time commitments of student for the training. Eligibility for RPL.	Recommendations from other lecturers and colleagues. Whether information is current or up-to-date. Whether information is easy to understand. Research new information to highlight key points of information.	Colleagues and work groups. Students already working in companies. Conferences and leadership workshops. RTO performance development training days. Moodle on-line learning management system.
TRAINER 3	Depends on expertise and knowledge of trainer. Whether the information used is within the training package guidelines as they can be prescriptive.	Confidentiality issues influence whether information is used in training materials. Validity and robustness of information is checked before being used.	Direct from industry. Magazines. Internet. Formal organisations. Students themselves. Other lecturers and colleagues.

Information is sourced from a variety of sources and is mostly received on an ad hoc basis. The way in which information is currently sourced for training includes directly from industry, formal organisations through newsletters, colleagues and work groups, conferences and leadership workshops, magazines, internet, students themselves and other lecturers and colleagues. All three trainers reported similar methods of sourcing information. None of the trainers were accessing research information, reports or publications and more specifically trainers were not sourcing reports or websites from the FRDC or the Seafood CRC. Table 20 summarises the comments received from the trainers on the current practices with regards to background information and methods of sourcing this information.

FACT SHEETS

The tuna fact sheets contained information on past research outcomes that had been re-written and re-formatted to be simpler and easier to understand by people working outside the industry. The fact sheets were valuable to the trainers, particularly when the content was relevant to the training being delivered. The fact sheets also confirmed the existing training material as being correct and relevant. Whilst Trainer 2 reported the fact sheets were not relevant to the business and administration training being delivered, there was value in using them in the development of hypothetical scenarios for assignments and assessment.

Overall, the trainers welcomed incorporating up-to-date information from the tuna industry in their suite of training materials and tailoring training material to suit needs of both individual employees and the company. The fact sheets were well received and their simplicity and easy to read language was valuable. Table 21 summarises the comments received from trainers on the fact sheets.

FUTURE PRACTICES

In assessing additional information required and how it can be used and accessed better in the future, all trainers would like more information and liaison with industry sectors, and emphasised good working relationships would benefit training. Trainers based in Port Lincoln considered they had a distinct advantage working close to the port where the industry operates. Industry and research seminars as well as distribution of information would assist trainers with delivering updated information. To enable more effective transfer of knowledge between trainers, researchers and industry, information needs to be gathered from as many sources as possible as this will add value to the overall delivery of training. This supports previous research identifying no single model is suitable for all situations. The VET sector should participate where possible and appropriate in the activities of research centres and that industry bodies play a stronger part in improving the flow of knowledge between researchers and VET providers (Ferrier, Trood and Whittingham, 2003).

Table 21: Value and usefulness of fact sheets to trainers

	VALUE OF FACT SHEETS	USEFULNESS OF FACT SHEETS
TRAINER 1	Great value in contextualisation and providing relevance for the training. Relevant to job roles. Harvest and post harvest fact sheets were of most use. Easy to read language is good.	Fact sheets will be of more interest to students who wish to gain a better understanding of the topic. Adequate level of information on one page. Current fact sheets focus on biology and chemistry. Could develop one related to economies of seafood business. Fact sheets could link to company SOPs.
TRAINER 2	Not relevant to business and administration training. Little value to the training for the job role of Payroll Administration Officer.	More relevant information was provided by the company. Fact sheets could be used in the development of scenarios or hypotheticals for assessing students. They may provide important information on which to base training exercises and tasks specific to the industry.
TRAINER 3	Valuable as they confirmed the training material already using as correct and relevant. Provided new information that could be used in training material. Information can be used in hypothetical scenarios in training programs.	Fact sheets on flesh colour, stress and protein levels were directly relevant to lower qualifications than the Diploma. Directly relevant to Certificates III and IV as useful reference information.

Trainers raised the need for flexibility in the delivery of training and short workshops if there are groups of workers in the industry who require similar skills. Consideration needs to be given to the economic viability of delivering training by the training organisation. Courses designed for one or two students is a challenge to deliver a cost efficient service. Tables 22 & 23 summarise comments received from trainers on using and accessing additional information, as well as knowledge transfer and accommodating rapid changes in training needs.

The extension of research and development was not reported as a significant challenge by the five sectors. In the mussel, prawn and pearl farming sectors research extension either works well already or there are currently no research outcomes that can be used by the companies. In the larger scale sectors of tuna and salmonid farming, a job role is identified as being responsible for ensuring research outcomes are incorporated into training and used across the company to enable knowledge transfer. That said, the industry sectors expressed concerned about whether the training process can currently accommodate rapid changes in industry's training needs.

With regards to the training industry, the study found that:

- None of the trainers reported regularly accessing research reports or websites
- Trainers require more industry specific information to improve the training experience
- The creation of easy to read one or two page fact sheets to explain research outcomes was welcomed
- The identification of job roles within companies whose responsibility it is to update trainers and incorporate research findings across the company would be beneficial
- The facilitation of opportunities for greater collaboration between industry organisations and local trainers was required

Table 22: Future practices for additional information

	USING INFORMATION BETTER	ADDITIONAL INFORMATION NEEDED	ACCESSING BETTER INFORMATION
TRAINER 1	Include company SOPs so that fact sheets (the theory) can be tied to company's procedures (the practice).	Include company SOPs so that fact sheets (the theory) can be tied to company's procedures (the practice).	Electronic mail outs from peak industry organisations where appropriate. Electronic receipt of research outcomes.
TRAINER 2	A portal website, known as 'Moodle' allows students to access resources which could be an option for storing information relevant to the industry. Visits to company's workplace is important.	Explanation of workplace structure within the company. People in each of the jobs and their contacts to assist in developing specific learning tasks.	Background information on the company. Introduction as to how the organisation is set up.
TRAINER 3	Unknown. CD would need to be upgraded each year with updated information so may not be the best way of sharing information with the trainers.	No additional information would be needed.	More interaction with seafood industry associations. Trainers could sit in as observers on other training sessions. Field visits to seafood factories.

Table 23: Future practices for knowledge transfer

	KNOWLEDGE TRANSFER	ACCOMMODATING RAPID CHANGES IN TRAINING NEEDS
TRAINER 1	Information needs to be gathered from many sources. Best way is personally face-to-face where relationships with clients can be formed. Electronic peak industry organisation mail outs. Electronic receipt of research outcomes.	Better working relationship between trainers and companies. Face to face meetings. Developing good working relationships.
TRAINER 2	Information days for trainers, employment networks, students and industry. Company contact person to liaise on research outcomes.	Trainers need to deliver flexible training in short workshops for groups of employees who require similar skills.
TRAINER 3	Structured meetings and forums given that industry is continually evolving and upgrading their practices.	Better communication and liaison between companies and trainers. More formal meetings and forums.

9. BENEFITS

The seafood industry has benefited from this research by bridging the gap between a somewhat complex and confusing training system and responding to workforce challenges facing industry of attracting, retaining and upskilling staff. This project is not about providing new information or tools. More importantly it has investigated assumptions made in the area of career pathways, research and training, and has provided a process with recommendations for encouraging these disciplines to work at a systemic level in a way that suits the industry. The project has shown that what can be applied to one seafood sector, can be applied cross-sectorally. Demonstrating what can be achieved in the tuna industry can be adapted, expanded and developed further in the future.

Re-evaluating job roles, mapping career pathways and developing proposed qualifications for the tuna industry has highlighted the most relevant and directly applicable units of competency at a whole of sector level. The skills required in the seafood industry are complex and varied and encompass communication skills, technical skills, cognitive skills and generic skills.

It is envisaged that findings from this project on career pathway information could raise the profile of career development within the tuna industry. ASBTIA is well placed to champion project outcomes to their industry of how to attract workers to their businesses and provide existing employees a sense of where they fit in and how they may progress a career. The completion of this project provides the tuna industry with materials that can be directly adopted and used immediately by this sector. The study highlighted existing roles such as tuna spotting where training and succession planning strategies are warranted. Tony's Tuna International Pty Ltd has directly benefited from the research in investigating workforce challenges and developing materials directly applicable to their workforce strategies that can be used to address the issues with attracting, retaining and upskilling staff.

Benefits have also been provided to the mussel, salmonid, prawn and pearl aquaculture industries by participating in the study. Despite workforce challenges varying between sectors, the project generated interest in the materials developed and each sector is looking to adapt the materials to suite their business.

The training industry will benefit from the greater amount of information provided about the tuna industry workforce, career pathways and training required. Proposed qualifications provide RTOs and businesses a basis for discussing training plans. TAFE SA Regional has benefited from participating and utilising the materials in this research. More importantly, the project has raised the profile of the industry by determining specific training and skills needed for each job role. The findings highlight the need for industry to identify a process either at the association or company level to provide training materials and information to training organisations on a regular basis to increase the knowledge base. It is expected opportunities will be created between RTOs and industry organisations to work together to improve the delivery and effectiveness of training.

The wider seafood industry will benefit directly from this research. The concept and approach taken in developing career pathways with linked training for five different aquaculture sectors is applicable to many seafood industry sectors around Australia. This report will provide guidance to fisheries and aquaculture sectors that may be grappling with similar workforce and training issues and they can tailor the materials to suit their business or sector.

The generic career pathways developed will also benefit the seafood industry in general. It is anticipated people outside the industry looking for work will benefit from a clearer understanding of seafood career pathways. The information could be enhanced further and provided to local employment agencies to assist in attracting workers to the industry. It is suggested the findings will address the 'disconnect' in messages between the general community and the seafood industry. It is expected that increasing the understanding of the jobs available and career pathways may assist in addressing the current workforce issues, such as attracting and retaining staff, that is being experienced around the country.

"The benefits from this project are a clearer path, for both managers and staff. It is a practical approach to a challenge that is often seen as too difficult to address."

- B. Jeffriess, ASBTIA

10. FURTHER DEVELOPMENT

There has been little attention and formal research on developing career pathways linked with training in the seafood industry and the scope for further development is wide and can be advanced in many directions.

1. The career pathways provide a model that is relevant to five seafood sectors in Australia. The scope of this study focussed on developing a template of three career pathways that would be applicable to the wider seafood industry, so that job roles, careers and training available could be better communicated to people outside the industry. It is recommended other Australian seafood industry sectors assess the relevance of information and materials presented in this report. The more seafood sectors that find the materials relevant, the closer we become in developing career **pathways that represent the entire seafood industry.**

2. Further work is needed to develop **additional career pathways** applicable to the industry that can be used by all sectors. For example, other aspects of seafood industry business such as sales and marketing could be considered.

3. Separate to generic materials being developed, the project lends itself to the tuna materials being tailored to the mussel, salmonid, prawn and pearl farming sectors for immediate use by the respective companies. It is recommended that the developed job roles, diagrammatical career pathways, qualification and skill list and proposed tuna qualifications are modified for each industry sector to assist workers in understanding where they fit into the company and industry. As identified in the report another three career pathways could be created for the salmonid industry in the areas of Freshwater (Hatcheries), Sea Farm (Growing Salmon) and Sales and Marketing. It is recommended that **seafood enterprises adapt the materials** to document other pathways in their business and tailor the materials to their business which can be provided to external groups such as employment agencies.

4. The project explored the value and usefulness of the tuna materials before and during training with three trainers from the same RTO. There would be benefits in expanding this form of consultation to **explore the materials with more trainers** within the same RTO, other RTOs within the same jurisdiction such as South Australia, and different jurisdictions. Ground-truthing the career pathways information with trainers in other jurisdictions would provide evidence of how applicable the materials are for the training industry in general.

5. The proposed tuna qualifications identifying specific units of competency for each tuna job role provide a useful starting point for managers, employees and trainers to consider training needs of employees across the tuna industry. It is recommended that tuna companies and trainers use these **guides as a way of developing individual training plans** for staff to suit their specific training needs.

6. The proposed tuna qualifications linked to the career pathways provide a helpful handbook for skills needed at vocational training levels. It is recommended that further work is undertaken in **linking university training** across the materials to appeal and attract interest from people outside the industry with higher level educational training.

7. Knowledge transfer was found to be occurring effectively in most of the sectors interviewed. However, the creation of **fact sheets for other seafood sectors** could also enable more effective dissemination of information to the training industry which may improve training outcomes.

8. Further work could occur with RTOs to explicitly **match the information contained in the fact sheets to specific units of competency in the proposed qualifications** and for this information to be publicly searchable and available for other RTOs.

9. The tuna fact sheets have demonstrated their value and usefulness with the trainers in articulating in simple language the outcomes of past research. The industry fact sheets could be hosted on web-based applications specific to each fishing sector or existing seafood industry R&D or government websites (FRDC, Seafood CRC) to **increase the access by trainers**. It is recommended that additional tuna fact sheets are prepared by ASBTIA to articulate the outcomes of current and future research and that they are made more widely available to the training industry.

10. There is a need to **raise awareness of the Fisheries Research and Development Corporation and Seafood Cooperative Research Centre research publications and websites** with the training industry and how information is able to be accessed from these organisations as the trainers were not accessing a range of publicly available research information.

11. Fact sheets developed for the tuna industry and other seafood sectors are an important way to convey information to trainers, industry workers and other external groups outside the industry. It is recommended that fact sheets are **created as required extension material** of every R&D project funded by FRDC that could be accessed by trainers, industry employees and other external groups in the future.

12. Marketing information for the seafood industry could be created using the generic career pathway material to target specific audiences outside the seafood industry to improve the communication about the range of job roles, career opportunities, and training available to assist in addressing workforce challenges of attracting people to the industry. It is recommended that **multi-media interactive applications** using the materials are created for employment agencies or career development centres in the first instance.

13. Research is needed to identify whether the tuna materials developed have a significant **impact in attracting or retaining workers** and whether workers are more aware of the job roles and the career opportunities available to them. It is recommended that the materials are utilised by the tuna industry in Port Lincoln and that an assessment is made to identify any changes in the awareness raised and interest shown in seeking employment in the tuna sector.

14. An understanding of an **estimated number of jobs offered in each seafood sector** in each jurisdiction would be useful information for RTOs who deliver training in a relatively small training market. This would also assist with workforce planning strategies undertaken by industry.

15. Further research is also needed to determine **changes in the upskilling of workers** and whether the materials assist seafood businesses in communicating and engaging with their training providers in delivering effective training solutions.

16. Further consideration is required for **dedicated training and succession planning for more specialised job roles** such as Tuna Spotter that do not fit into one of the career pathways.

"The tuna career pathways are simple, useful and informative. A visual tool that can be used in marketing industry."

- K. Little, Tassal Group Limited

11. PLANNED OUTCOMES

1) **A guide will be developed for other seafood sectors on how to promote and support career pathways in the seafood industry.**

Raised awareness and understanding of the differences and similarities of workforce issues being experienced by five seafood sectors across Australia, with a focus on attracting, retaining and upskilling workers has occurred. A PlaceStory video demonstrating how the career pathway information could be communicated and extended to external groups has also been developed.

The project created a greater awareness and understanding of the similarities and differences in job roles, career pathways and training levels between the five different aquaculture sectors which can be extended to other seafood sectors. Training levels from Certificate 1 to Diploma have been linked to each job role in the tuna industry. Stand-alone materials have been created that can be adapted by other seafood sectors to provide an opportunity for other seafood sectors to adopt and amend the information for their own industry.

2) **The seafood industry will have a diagrammatical plan and easy to understand 'language' to use in attracting new people to the industry to support the labour requirements.**

Thirty three (33) job roles for the tuna industry have been documented with titles that are commonly referred to in the tuna industry. Short descriptions for each job role have been confirmed in language likely to be understood by people outside of the seafood industry. Three documented career pathways for the seafood industry have been developed for Fishing and Farming, Processing and Human Resources & Administration that are relevant to the tuna, mussel, salmonid, prawn and pearl farming sectors in Australia. All three have been generated diagrammatically to effectively illustrate the relationship of each job role to one another.

3) **Training materials and the delivery of training specific to the tuna industry will be improved and updated which can be modelled for training in other seafood sectors.**

A Qualification and Skill List has been documented specifying the formal certification and additional skills needed for each job role in the tuna industry to perform the work effectively. The most relevant skills required for the tuna industry from the Seafood Industry, Transport and Logistics, Health, Manufacturing, Laboratory Operations, Business Services and another four training packages have been identified. Proposed qualifications for all 33 job roles in the tuna industry specifying the specific units of competency relevant to the job role have been developed. Training at Certificate II in Aquaculture, Certificate II in Business and Diploma in Seafood Processing to assess the value and usefulness of the materials developed in the project have been delivered.

4) **A continual improvement process will be developed for the quick uptake of research outcomes within the industry that can be adopted by other seafood sectors.**

Ten tuna industry fact sheets to improve the extension of information that could be used by trainers have been created and feedback has been sought from the training industry. Raised awareness and understanding of the challenges being faced by trainers delivering a range of training to the seafood industry has occurred. Raised awareness and understanding about the transfer of knowledge and research outcomes within five different aquaculture sectors has also occurred.

5) **Unplanned outcomes**

The possibilities of multi-skilling workers in the five different seafood sectors has been documented, as well as the identification of the lack of upskilling for tuna spotting have been identified. Raised awareness and discussion of the importance of career development with tuna companies including the link and recognition of training within the tuna industry has occurred. The project revealed that the training regime is similar across different sectors which allows transferability of skills between sectors of the seafood industry.

12. CONCLUSION

Career pathways with linked training programs have been created for the first time for the seafood industry. Three career pathways for the tuna industry are relevant to the mussel, salmonid, prawn and pearl farming sectors, despite the differences in the scale and location of the sectors investigated. The career pathways are simple and easy to understand and explicitly illustrate the various job roles and the training level required. This makes them a useful visual tool for companies in the future. There is potential to create other career pathways for other areas of seafood businesses.

More specifically, the tuna job titles, job descriptions and training levels were generally relevant to the other seafood sectors and were considered a good starting point where individual sectors could tailor information to their own industry or company. Similarly, the proposed qualifications and units of competency were also relevant and could be modified to suit the specific seafood sector.

The way in which the materials are likely to be used, will depend on the workforce challenges being experienced by that sector. The attraction of workers is a significant challenge for the tuna and prawn farming industries and for these groups, the career pathways may be used in future initiatives to attract staff, by providing them to employment agencies. Alternatively, groups that grapple with retaining employees may find the career pathways and proposed qualifications are of interest and value to their staff once they have been tailored to their specific sector. As sectors expand in the future, the materials may increase in use and importance. Upskilling staff with effective training was an issue for all sectors involved in the research. The most suitable time for training differs markedly between seafood sectors depending on their seasons and the detailed proposed qualifications may provide companies with assistance in their communication with trainers in the future. The research showed that opportunities for further multi-skilling are limited across the sectors investigated.

For most of the sectors in the study, the incorporation and knowledge transfer of research outcomes is occurring effectively. The larger seafood sectors of salmonid and pearl farming have processes in place for effective knowledge transfer of research and development outcomes which are often conducted in-house where the transfer of knowledge occurs immediately. For the smaller sectors such as mussel and prawn farming, either the research is not directly applied to operations on the farm or there is no high end extension of research. Job roles with responsibility for updating trainers and incorporating research findings across the company occurs in some sectors and a similar approach may be beneficial to others.

Trainers source information from a variety of areas on an ad hoc basis and welcome incorporating up-to-date information into training materials to provide a richer training experience to individual employees. The tuna fact sheets were of value to the trainers in providing important content for formal training and for hypothetical scenarios created for assignments and assessment. The need for greater collaboration and dissemination of information to RTOs from industry has been highlighted, particularly the low level of sourcing of research information.

The trainers found the career pathway information of high value based on its simplicity and visual presentation. Given that the background and experience of students varies greatly, career pathway information is useful to students in providing guidance on the potential job roles and the qualifications needed in the future to pursue a career in the tuna industry. Of less importance to the training industry are job titles and job descriptions other than for new trainers who are not familiar with the seafood sector, where an overall picture of the jobs found in a sector would be beneficial. For new trainers, additional information on the tasks undertaken in each job role would be an advantage.

Units of competency were identified from ten different training packages to assemble proposed qualifications to reflect the skills needed for each job role. Both the benefits to the employee and the company were considered in this process. The range of skills that employees require in industry appears to be increasing to the point where sets of skills require a similar amount of training as a full qualification. In essence, the proposed qualifications identify the specific set of skills needed for each occupation. These proposed qualifications are likely to provide a useful starting point for trainers to develop tailored training plans to address skill gaps for individual workers in the industry.

The mediocre response from the trainers to the proposed qualifications highlighted the relatively rigid and complex nature of the Australian training system and the challenge for RTOs to provide a rich and diverse training experience to industry. The time taken by trainers to work through the units of competency increased as a result of the identified units of competeny not usually delivered by the respective RTO or the units not being included on the scope of registration for the RTO. Whilst the trainers were open to contracting specialist training providers from outside their organisation, this lack of flexibility may result in trainers taking a position of delivering units of competency different to the units identified in the proposed qualifications and therefore deliver training that is not as relevant for industry. This situation is likely to affect all RTOs who are bound by registration and administrative requirements. RTOs

12. CONCLUSION *(CONT.)*

are also driven by the need to provide the most cost effective training as they are also constrained by budgets as with any business, particularly in a relatively small training market. In addition, as the RPL process used by the trainers in this project appeared to be well established, the proposed qualifications and supporting materials, may be of little interest and value in the RPL assessment given the constraints and lack of flexibility that many trainers have in delivering effective training.

Training is the key to providing vital skills and the potential of job progression. The interaction and relationship between RTOs, researchers and the industry is crucial. Trainers appreciate the need for up-to-date information to provide a better experience and education for students. Whilst the transfer of new knowledge is not an easy process, many factors influence its success and the ad-hoc nature of connections between individuals in the training, research and industry sectors make the adoption of knowledge that much more difficult. There is an opportunity to strengthen the relationship between industry and trainers to enhance education outcomes which may lead to improvements in productivity.

Generic career pathways are just one of many strategies to address workforce issues for the Australian seafood industry. The creation of job roles, career pathways and linked training have the potential to create a common language unique to the seafood industry that will encourage and enrich conversations with people outside the industry looking for work, as well as employees already working in the industry. The outcomes of this research also ensures that the distinctive characteristics of each seafood sector are retained as the materials developed can be tailored to each circumstance and company operation.

Whilst not the only answer, developing materials that can help guide other seafood sectors in promoting and supporting career pathways with linked training will assist industry to respond to the current labour market challenges. This project highlights an opportunity for a more coordinated approach between industry sectors, researchers and trainers. By working together communication tools targeting people outside the industry looking for employment can be strengthened to make it easier for them to understand the job roles that exist, what the jobs actually entail and the training required to commence a career in the industry at any level. Further work on these initiatives is likely to make a positive difference to the seafood industry in Australia.

"Whilst not the only answer, promoting and supporting career pathways with linked training will assist industry to respond to current labour market challenges".

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APPENDIX 1 : Intellectual Property

No intellectual property was created as a result of this project.

APPENDIX 2 : STAFF

Principal Investigator	Samara Miller	
Co-Investigator	David Ellis	Australian Southern Bluefin Tuna Industry Association Inc
Co-Investigator	Kylie Petherick	Tony's Tuna International Pty Ltd

APPENDIX 3 : INDUSTRY QUESTIONS

1. What is the size of your sector in terms of number of companies across Australia and average number of employees in each company?

2. What are the top three workforce issues currently being experienced by your sector?

3. Are these workforce issues occurring on an ongoing basis or at a certain times of year?

4. Are any of the following workforce issues affecting your sector and if so, how?

   4a. attracting new workers

   4b. upskilling existing workers

   4c. retaining workers

   4d. delivering seafood training that is flexible and innovative

   4e. encouraging increased engagement in training

5. Are the SBT jobs in each pathway relevant to your sector, and if not, what is not relevant? What are the similarities and differences to your sector?

6. Are the SBT job titles relevant to your sector, and if not, what is not relevant? What are the similarities and differences to your sector?

7. Are the SBT job descriptions relevant to your sector, and if not, what is not relevant? What are the similarities and differences to your sector?

8. Are there jobs in your sector where workers could work in more than one career pathway or job throughout the year?

9. Are the three SBT career pathways relevant to your sector (SBT Fishing & Farming, SBT processing and SBT Human Resources & Administration) and if not what is not relevant? What are the similarities and differences to your sector?

10. Are the SBT links between the jobs in each career pathway relevant to your sector, and if not, what is not relevant? What are the similarities and differences to your sector?

11. Are the SBT training qualifications and skills relevant to your sector, and if not, what is not relevant?

12. Are the SBT units of competence relevant to your sector, and if not, what is not relevant? What are the similarities and differences to your sector?

13. What additional skills and short courses are needed by your workers, other than full qualifications?

14. Do you think that the training process for your sector can accommodate rapid changes in training requirements by companies and if not, why?

15. Are research outcomes for your sector incorporated into the delivery of training for people in your industry and if so, how?

16. Do you have any ideas of how knowledge can be better transferred between the researchers, trainers and your sector?

APPENDIX 4 : INDUSTRY SUMMARY

INDUSTRY ASSESSMENT SUMMARY

WORKFORCE CHALLENGES				
SOUTHERN BLUEFIN TUNA	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
What is your sector size in terms of number of companies across Australia and average number of employees?				
• 10 companies • Tony's Tuna International Pty Ltd - 32 FTEs and pool of 12 casuals for harvesting and processing. • July – Sep of each year casuals can increase to approx 38 headcount for processing. • All companies based in Port Lincoln.	• 13 different operations across Australia. • 5 operations producing more than 400 tonnes. • 3 to 20 number of employees. • 6 FTEs for operations and 10 FTE for processing • 8 smaller companies with 3 to 4 FTEs.	• 4 members of TSGA, 3 key players across Australia. • Across industry 1500 people or 1100 FTEs. • Tassal Group Ltd (largest) – 800 headcount or 730 FTEs. • Smallest company has 30 headcount. • All companies based in regional Tasmania.	• 25 companies in Queensland and NSW. • Approx 300 industry FTEs. • Typical small farm - 10 hectares and family business with up to 7-9 FTE. • Large farms typically employ 50 to 100 people.	• Approx 1000 workers across Paspaley Group and 600 in pearling. • Across fleet and farms 50% full time employees and 50% casual staff. • Approx 350 workers at sea working on 150 farms and 70% working on casual seasonal basis.
What are the top three workforce issues currently being experienced by your sector?				
• Upskilling workers. • Attracting workers. • Retaining Workers.	• Upskilling workers. • Specialisation of industry. • Retaining Workers.	• Upskilling workers in regulatory training • Upskilling workers for specialist jobs • Regional location of industry.	• Ageing workers and limited succession planning. • Retaining workers. • Administrative burden of Government.	• Staff turnover. • Reducing OHSW risks. • Retaining workers.
Are these workforce issues occurring on an ongoing basis or at certain times of year?				
• Best opportunity for training is September to November each year.	• No 'downtime' but there is a seasonality to the workforce. • Largest workforce needed between November and March when reseeding.	• Salmon grown all year round so no strong seasonality fluctuations like other sectors • Increased demand for workers at Christmas and Easter. • Approx 50 additional workers needed at Christmas and Easter.	• Workforce issues occur all year round. • Farm area requires workers from Nov to April. • Increased workloads at harvest time Jan to May. • In Dec prior to harvest additional casual workers needed.	• December the most difficult time working on farms and the busiest due to harvesting. • Many people travel further south due to wet season. • Filling positions in December is the most challenging.
Workforce issues affecting your sector – attracting new workers?				
• The company liaises with local employment agencies to find suitable workers. • Over time relationships formed with agencies to enable more successful matches between people looking for work and the skills required by the company.	• Not a significant issue. • Smaller aquaculture industry sector. • Workers join company from other seafood sectors, i.e. experienced. • People attracted to mussel farming due to: - No offshore work - Employment security - Better wages compared to other countries - No weekend work - Ability to move up ladder	• Not a significant issue. • Workers on mainland Australia are more mobile in looking for employment than in Tasmania. • Geographical isolation of Tasmania could impact the sector if labour demands increase. • Need to educate people about the industry and profile this sector more.	• This is a challenge. • Some source workers locally. Workers attracted to companies with a good reputation. Some farms access a broad range of potential workers through 'word of mouth'. However, regional farms compete for staff with other industries, i.e. mining and agriculture. • Need to do more to market the attractions of working in this sector.	• Not a significant challenge as many applications for jobs are received but the challenge is finding suitable staff out of the applications. • Significant amount of resources is needed to scrutinise applications given expenses of employing new workers and training them.
Workforce issues affecting your sector – upskilling existing workers?				
	• Fitting training into an already busy schedule. • There is no 'downtime' in mussel industry.	• Need for training to be flexible in recognising workers existing competencies where regulatory requirements do not apply. • Gaps in leadership training, general management and frontline management.	• Having competent staff is important. • Industry partners with Queensland Rural Industry Training Council for grant funding and works closely with the RTO. • At top level, workers are highly qualified but industry needs less of them. • Training reaches a saturation point.	• Company focuses and prioritises regulatory training given the legal requirements. • Induction process and Industry Safety Training Course delivered. • Down time for company in productivity when workers trained and jobs need to be undertaken by others.

WORKFORCE CHALLENGES				
SOUTHERN BLUEFIN TUNA	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
Workforce issues affecting your sector – retaining workers?				
	• Retaining workers is an issue. • Industry can not compete with the level of wages being offered in the resources sector. • Staff are retained by offering training in short courses – used as a workforce strategy.	• Not currently a significant issue. • Turn-over rates are low with the exception of the sales and marketing group.	• Retaining workers is a challenge. Workers are lured to other industries. • Farms that employ workers with university quals need to be retrained to work in a commercial environment. • Most farms use backpackers for seasonal work.	• Retaining workers is an issue. • Approx 40 people recruited every month on average. • Workers put on as permanent staff as incentive to stay. • Guide given to new employees as to the requirements of the job.
Workforce issues affecting your sector – delivering seafood training that is flexible and innovative?				
	• More flexible and innovative training arrangements are needed. • Most convenient time for training is April to October. • Training materials could be tailored to the mussel industry so that they are of greater relevance which could include: - Re-seeding process - Growing cycle - Mussel spat info - Tying ropes and knots - Quality control - De-bearding - Cleaning - Packaging - Labeling - Finalising export documents/declaration of compliance	• Delivery of training could be improved. • On-site training is preferable to reduce "downtime" for company whilst training is taking place. • Training for this sector should focus on competitive manufacturing rather than traditional seafood processing which is becoming irrelevant. • There is a need for literacy and numeracy skills which should be embedded in the training package rather than sit as stand alone training.	• Often training is not aligned with the actual skills needed on prawn farm. • A large amount of training is conducted on-site. • APFA works closely with the RTO. • The RTO conducts training at farms delivered by well known and respected industry people.	• With the high number of people recruited each month it's demanding to ensure all workers have their regulatory training needs satisfied.
Workforce issues affecting your sector – encouraging increased engagement in training?				
	• Need to improve how training can be delivered more practically in terms of when and for how long.	• Strong commitment to training • Training improves self confidence in employees • Need to improve access and delivery of training that meets the needs of employers.	• Not a significant challenge as many companies have restructured over time due to budget constraints and have less staff and therefore require less training. • Flatter hierarchical structures now used with less managers and technicians. • Greater efficiencies in running operation.	• Company is busy meeting regulatory requirements and has little time to focus on additional training needs. • Remuneration increases if workers engage in training and are upskilled as an incentive to stay.

APPENDIX 4 : INDUSTRY SUMMARY *(CONT.)*

JOB ROLES				
SOUTHERN BLUEFIN TUNA	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
Are the tuna jobs in each pathway relevant to your sector?				
• Not applicable.	• A small number of jobs in Fishing & Farming Pathway are relevant which are: - Deckhand - Leading Hand - Skipper - Advanced Skipper - Farm Manager • Job relevant but not currently used is Shore Manager. • Jobs not relevant: - Boat Operator - Assistant engineer - Cook - Snorkeler - Net Maker - Marine Engineer - Advanced Engineer - Commercial Diver - Diver Medical Technician - Fleet Operations Manager - Dive Supervisor • Half of the jobs in the Processing Pathway are relevant. • Jobs relevant in the Processing Pathway but not currently used is Plant Supervisor and Data Coordinator. • Jobs not relevant in the Processing Pathway are Truck Driver and Loading Supervisor. • All of the jobs in the Human Resources & Administration Pathway are relevant. • Jobs relevant in the Human Resources & Administration Pathway but not currently used are: - Administration Officer - Data Coordinator - Compliance Officer - Administration Manager - Human Resources Manager	• Most of the jobs in Fishing & Farming Pathway are relevant, except for: - Cook - Snorkeler - Advanced skipper - Advanced engineer - Shore Manager - Diver Medical Technician • Workers do not spend time at sea in the salmon industry. • All jobs relevant in Processing Pathway. • All jobs relevant in Human Resources & Administration Pathway, except for Administration Manager. These skills are conducted by the Human Resources Manager.	• Four distinct areas of employment: - Hatchery - Farm - Processing - Maintenance • Workers do not spend time at sea in the prawn farming industry. Some staff go on boats to catch broodstock to ensure best selection and handling. • Jobs relating to commercial diving are not relevant. • Jobs not relevant: - Leading Deckhand - Cook - Assistant Engineer - Skipper - Marine Engineer - Commercial Diver - Fleet Operations Manager - Advanced Skipper - Advanced Engineer - Dive Medical Technician - Diver Supervisor • In Hatchery, employ Labourers, Cleaners, Algal Technicians and Animal Technicians. • In Farm, employ mostly Labourers. • Jobs relevant in Processing Pathway. • In Processing, Cleaners, Cooks, Packers, Sorters and Processing Manager employed. • In Maintenance, Labourers, Jack of All Trades, Aerator Technicians and Maintenance Manager employed. • Jobs relevant in Human Resources & Administration Pathway.	• Two distinct areas of operation referred to as Farms and Fleet. • Lines of authority are similar across both. • Most of the jobs in Fishing & Farming Pathway are relevant, except for: - Snorkeler - Diver Medical Technician • Snorkelers not employed. • DMTs not employed as all divers who need first aid and emergency treatment are sent to hospital immediately. • Advanced Skipper and Advanced Engineer depends on size of vessel. • Jobs relevant in the Processing Pathway. • Processing conducted at sea with same reporting chain and different job titles. • Jobs relevant in the Human Resources & Administration Pathway. • OHS Officer is an additional job role at same level as Compliance Officer. • Human Resources & Administration are managed as separate Departments but closely linked.
Are the tuna job titles relevant to your sector?				
• Not applicable.	• Job titles are relevant, except for: - Factory Manager - Factory Supervisor - Leading Skipper	• Job titles are relevant, except for: - Netslab worker - Operations Manager - Regional Manager - Team Leader - Senior Team Leader - Team Leader – Dispatch - Data Analyst - Factory Manager - Quality Assurance Manager	• Job titles are relevant, except for: - Deckhand - Net Maker - Shore Manager - Leading Hand - Plant Supervisor - Data Coordinator - Compliance Officer	• Job titles are relevant, except for: - Boat Operator - Assistant Engineer - Cook - Skipper - Shore Manager - Dive Supervisor - Leading Hand - Plant Supervisor - Data Coordinator - Compliance Officer • For processing at sea, job titles are different.

JOB ROLES				
SOUTHERN BLUEFIN TUNA	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
Are the tuna job descriptions relevant to your sector?				
• Not applicable.	• Job descriptions were relevant, except for: - Skipper - Advanced Skipper - Leading Hand - Data Coordinator • Leading Hand does not undertake fishing and farming duties nor supervises deckhands. • Processing is conducted on land and not at sea. • Data Coordinator manages the collection and input of supplies and orders, and conducts stocktakes.	• Job descriptions were relevant, except for: - Netslab worker - Operations Manager - Regional Manager - Leading Hand - Truck Driver - Senior Team Leader - Team Leader - Dispatch - Data Analyst - Factory Manager - Quality Assurance Manager	• Job descriptions were generally relevant for all pathways and some would need to be changed to better reflect the job role.	• Job descriptions were relevant except for the Data Pearling Support Officer.
Are there jobs in your sector where workers could work in more than one career pathway or job throughout the year? (multi-skilling opportunities)				
• Data Coordinator could be utilised in Administration and Processing Pathways.	• Yes. • Many of the jobs in mussel farming cover more than one of the jobs specified for SBT. • The small scale of mussel farming compared to other sectors necessitates multi-skilling jobs. • Multi-skilling is essential. • Companies are efficient as they can be. • Training is provided as backup for other jobs, e.g. training leading hands as skippers provides 'reserve skippers'.	• No – fully occupied positions only. • Limited ability to share job roles across different areas of the business.	• Yes. • In Hatchery, there is a reliance on workers to be able to multi-skill and work in all job roles as this is a priority area of the operation. • Data Collector works in Farm area and Processing area. • Quality Assurance Manager works in Processing area and Human Resources & Administration area.	• Yes. • Many staff are trained in other job roles to provide 'relief' when a person is unable to work. • A high number of workers are multi-skilled which provides flexibility to cover job roles when required.

APPENDIX 4 : INDUSTRY SUMMARY *(CONT.)*

CAREER PATHWAYS				
SOUTHERN BLUEFIN TUNA	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
Are the 3 tuna career pathways relevant to your sector?				
• Not applicable.	• Yes. All 3 pathways are relevant. • The career pathways are distinct clearly identifying as 'on the water' for fishing and farming, 'in the factory' as processing and 'administration as HR and Administration.	• Yes. All 3 pathways are relevant. • Simple, useful and informative. • Visual tool that can be used in marketing industry. • Another 3 pathways could be created for the salmon industry in the following areas: o Freshwater (Hatcheries) o Sea Farm (Growing Salmon) o Harvest	• Yes. All 3 pathways are relevant and useful. • The difference is that the Fishing and Farming Pathway can be considered in 2 distinct areas; Farm and Hatchery. • The difference is that the Processing Pathway can be considered in 2 distinct areas; Processing and Maintenance.	• Yes. All 3 pathways are relevant and useful. • Seen as a way of retaining workers for longer in the company. • Given high numbers of casual staff explicit pathways may give people on short contracts an idea of the path they could take in the company.
Are the tuna links between the jobs in each career pathway relevant to your sector?				
• Not applicable.	• Yes. • The levels and links between jobs form stepping stones to a higher level of responsibility. • Common sense and relevant to mussel farming.	• Yes. • Links between jobs are useful. • Fishing & Farming and Processing Pathways are more relevant to salmon industry. More scope within the Administration Pathway for the salmon industry. • SBT Fishing & Farming Pathway is very 'boat-centric' given the time spent at sea. • An additional level could be included between the second and third tiers of jobs. • Most obvious difference is the larger scale of the salmon industry. That said, the pathways pick up career pathways available in the salmon industry.	• Yes. • Whilst jobs, titles and descriptions may be different, a step wise progression between them makes sense. This will change depending on the company.	• Yes. • An advantage of jobs in pearling sector is they may be seen as more exciting than other industries which may help attract workers. The links between jobs show how workers can move into other positions.

TRAINING				
SOUTHERN BLUEFIN TUNA	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
Are the tuna training qualifications and skills relevant to your sector?				
• Not applicable.	• Yes. • Levels of training from Certificate I to Diploma are relevant. • Links between the training and jobs are relevant. • Financial controller does not have to be trained at a graduate level and could be performed effectively with Diploma level training. If graduate skills are required, companies would purchase accounting services outside the company.	• Entry positions are at Certificate III level. • Entry supervision jobs are at Certificate IV level. • Higher level supervision is at Diploma level. • Full certificates are not preferred for jobs in Processing Pathway but specialist skills instead. • Administration Pathway requires strong 'people' skills. Human Resources Manager and Quality Assurance Manager require Diploma level training.	• Progressing from Cert 1 to Diploma as progression is relevant. • Depends on the company and which job roles exist in the prawn farming operation.	• Yes. • The regulatory qualifications are relevant to pearl farming.
Are the tuna units of competency relevant to your sector?				
• Not applicable.	• Units were not reviewed.	• Units not reviewed in detail for Fishing & Farming and Processing Pathways. • Human Resources & Administration Pathway relevant. • Good starting point in assessing training needs for employees. Mapped out units help consolidate thinking. • Not seen any similar materials or guides being used in the industry. • Tassal would use this material as a guide.	• The units can be tailored to the prawn farming sector. • The proposal for the industry to be more directive in the skills they require for their workers is very much supported. • Traditional training providers are not meeting industry needs but the recently established RTO is.	• The units could be used as a guide to the skills needed for job roles in the pearl farming sector. • The units could be tailored to the pearl farming sector. • Additional training is unlikely to be a priority when regulatory requirements need to be satisfied.
What additional skills and short courses are needed by your workers?				
	• People skills and training in conflict resolution are needed for many jobs that require responsibility for other staff.	• Companies are forced to focus on regulatory training because of the compliance requirements associated with them. Capacity building training becomes a lower priority. Full qualifications do not assist in this regard. • Short courses such as frontline management have been required.	• Workers complete TAFE courses and training go through a RPL process to issue full qualifications. • In the Processing area, skills needed include electrical skills, fork lift driving skills and skills in driving quad bikes. • Skills in OHSW and environmental response are also required.	• The additional skills needed are similar to tuna sector. • Wharf and tarmac passes are required.

APPENDIX 4 : INDUSTRY SUMMARY *(CONT.)*

EXTENSION OF INDUSTRY RESEARCH				
SOUTHERN BLUEFIN TUNA	MUSSEL FARMING	SALMONID FARMING	PRAWN FARMING	PEARL FARMING
Do you think that the training process can accommodate rapid changes in training requirements by companies?				
	• There is currently limited research and development that can be applied to training given the small scale of the industry and that it is a relatively new aquaculture sector. • The industry does not fund any research projects relating to pre-harvest. Any funding is directed to marketing initiatives and the post harvest area.	• Training process is overly complicated for industry. • Industry needs to drive training • Training needs to be delivered as efficiently as possible. • Less need for full qualifications and more training required for specific skill sets.	• Training system provides low value for money. • Upskilling of staff is usually conducted in-house.	• A significant amount of training occurs in-house and so rapid changes are accommodated easily now.
Are research outcomes for your sector incorporated into the delivery of training for people in your industry?				
• Tony's Tuna International Pty Ltd is not aware of any delayed uptake of research results.	• Incorporating research outcomes is not an issue given the small scale of the industry and it is still in its infancy.	• Environmental section – Head of Sustainability ensures that research outcomes are incorporated into training and utilisation across company. • Outcomes often need to be interpreted and translated as information is too raw/ technical.	• R&D on genetics not immediately applicable to working farms and is considered 'stand alone' research at this stage. • No high end extension of research by trainers as companies doing their own R&D. • Researchers and trainers need to spend time on farms to understand the operations. • Need to find people in these disciplines that can bridge the gap with industry supporting them.	• R&D is well organized, often conducted in-house and results applied immediately. • Pearling Planning Committee considers R&D needs, as well as the incorporation of outcomes and education across the company. • Research outcomes are mostly private to the company and are not disseminated to other pearl producers.
Do you have any ideas of how knowledge can be better transferred between the researchers, trainers and your sector?				
• Tony's Tuna International Pty Ltd holds pre season meetings throughout the year to brief skippers, deckhands and Farm Managers. • General Manager receives information on research outcomes from Management Advisory Committee. • General Manager's role is to translate information so it can be understood for staff.	• Fact sheets which are short and written in easy to read language appear to be a great idea to bridge the knowledge gap with trainers. • There is a need to capture existing knowledge from the people pioneering the industry which is not documented. • Fact sheets could be developed on best practices on mussel farming husbandry techniques, although the industry does not have the resources to develop these. • Suggested that 20% of the training content delivered at lower level qualifications for deckhands could incorporate specialised information for the respective seafood sector whilst the remainder could provide generic training relevant to all sectors. This may provide specific information on specific sectors and where jobs are available.	• Not an issue at this stage as knowledge transfer works well.	• Industry mostly appreciates the value of research and respects the part research has to play. • The demands on a farmers' time during the year is high. Therefore if research and training is not of value to the bottom line it may not be a priority. • Quite often farms volunteer ponds or parts of their farm for research activities. • The annual prawn and barramundi farmers conference is the platform used to disseminate research results to industry but this is often where it stops. There is no true extension of research at this stage.	• Not an issue as knowledge transfer works well and no gaps between researchers, trainers and the company. • Business is under review as to how efficiency and productivity can be improved.

APPENDIX 5 : Trainer Questions

Pre-training Interview Questions:

1. How long have you been working in the training industry?
2. What training packages do you teach?
3. What qualifications do you usually teach?
4. How do you currently source up-to-date information for training?
5. What will influence your decision to use new training materials?
6. What background information do you currently seek prior to delivering training?
7. What process is followed by you in assessing recognition of prior learning (RPL)?

Training Interview Questions:

8. What was the value of receiving career pathway information for the SBT industry?
9. In what way were the career pathways used in the planning and/or delivery of the training?
10. What was the value of receiving job titles and descriptions for the SBT industry?
11. In what way were the job titles and descriptions used in the planning and/or delivery of the training?
12. What was the value of receiving the fact sheets/research outcomes for the SBT industry?
13. In what way were the fact sheets used in the planning and/or delivery of the training?
14. What was the value of receiving the units of competency developed for the job you trained in the SBT industry?
15. In what way were the units of competency used in the planning and/or delivery of the training?
16. Were there any problems encountered with the format, content, materials or delivery of training and if so, what were they?
17. How would you utilise the information and materials better in future training delivery?
18. If this training was delivered again to the same or different seafood company what additional information would you like to receive and why?
19. What would help you to access better information that could be used in training?
20. What support or assistance would help you to provide more effective training to the seafood industry?
21. What is the best way to ensure that knowledge is transferred between the researchers, seafood industry and trainers?
22. How could an assessment of RPL be improved in the future?
23. How could the training process better accommodate rapidly changing training requirements from industry sectors or companies?
24. Would you consider bringing in trainers outside your organisation to deliver

APPENDIX 6 : TRAINER SUMMARY

TRAINER ASSESSMENT SUMMARY

JOB ROLES		
TRAINER 1 – CERT II	TRAINER 2 – CERT III	TRAINER 3 - DIPLOMA
What was the value of receiving job titles and descriptions for the tuna industry?		
• Good as an overall picture • Underlying document explaining tasks in more detail would useful to tie units to skills and RPL especially, as this would be beneficial to school children • Some trainers do not have an understanding of the differences between seafood sectors so this helps.	• Limited value. • Whilst job titles and descriptions were succinct, they did not provide enough detailed information about the actual tasks involved with the positions. • The company provided a significant amount of resources used for the training – training was designed to specific requirements of student's workplace and job role. • Too broad and general to be of significant use. • Could be a good reference if less information is provided by the employer.	• Value is twofold. • Consistent job titles and descriptions help build general knowledge about the seafood industry. • Provides an understanding of what specialist jobs exist in the industry that trainers need to be aware of. • Limited value to current student as providing training to an employee at a high level.
In what way were the job titles and descriptions used in the planning and/or delivery of the training?		
• Contextualised the training to specific job roles of employees. • However, fairly general and a seafood industry trainer in Port Lincoln should be well aware of duties of a deckhand in tuna industry.	• Not considered in detail.	• Not used given that training is being delivered at Diploma level and therefore employee knows this information already.

CAREER PATHWAYS		
TRAINER 1 – CERT II	TRAINER 2 – CERT III	TRAINER 3 - DIPLOMA
What was the value of receiving career pathway information for the tuna industry?		
• Shows how industry sees the qualification structure against job level progression. • Good overall big picture for trainers and students of the industry requirements. • Significant value may occur by linking trainees for employers in the industry.	• Highly valuable. • Provided a way of understanding the potential options for the future. • Pathways instigated discussions with the students on potential job roles at the time of counseling prior to commencing training. • Can potentially stimulate richer discussions with students as background and experience of many students varies greatly from stay at home mothers, young people who are completing final year at school to people looking for a change in career. • Valuable to link training qualifications to each of the pathways. • Consideration should be given to linking pay awards against training certification levels.	• Value in provided students and employees with information about future jobs and pathways to certain jobs. • Value to industry employers in providing guidance to the employee being mentored in the company.
In what way were the career pathways used in the planning and/or delivery of the training?		
• Helped ensure training units were aimed at pathway progression of employee. • During delivery, pathway material added context to training by reflecting current and prospective future positions in training and RPL items.	• Simplicity of pathways is beneficial. • Visual presentation diagrammatically makes it easier to understand. • Some students are interested to explore opportunities of where training may lead in the future.	• Not used for training the Factory Operations Manager given that this person is being trained at a high vocational level. • The principle of what has been developed is recognized as being more relevant to students and employees in lower levels of companies.

TRAINING		
TRAINER 1 – CERT II	TRAINER 2 – CERT III	TRAINER 3 - DIPLOMA
What was the value of receiving the units of competency developed for the job you trained?		
• There is value in having a nationally standard course and providing consistent quality of training and tying it to qualifications. • Preference for the trainer to identify units of competence rather than follow an industry list given the vast knowledge of trainers in understanding and applying the training packages. • Example training plans should not be too prescriptive and lock employees into specific units, otherwise the effectiveness and standard of training delivered could reduce. • There are differences between seafood companies in the skills that are held by their staff as well as differences in personnel background, experience and expertise. • Enormous value for the trainer to understand what skills the employer requires and to tailor the training to suit their requirements.	• It took longer than expected to work through the units of competency and training material because the proposed units are not usually delivered by the RTO. • The RTO had no training resources to deliver these specific units as there is less demand for this type of training, i.e. less relevance to the inquiries received from the RTO for training in business. It could therefore be assumed that there is little demand for these units by industry.	• Less value compared to other documentation provided. • Units need to be relevant and have practical application to the workplace. • Trainers need to be flexible and tailor the training to the person and company. • It depends on who is paying for the cost of training. • Some units were not 'on scope' for the RTO which meant that the RTO was unable to deliver some of the units.
In what way were the units of competency used in the planning and/or delivery of the training?		
• The units were used to formulate the RPL assessments and provide guidance on the gaps in training for the student.	• The units provided a starting point only in which to consider what training should be provided. • It was agreed with the employee and the employer that alternative units were more relevant to the company and the work undertaken in the workplace by the student.	• The units were used as a starting point for developing the training plan. • The table of units provides a good way of explaining how the students skills relate to the RPL assessment.
Were there any problems encountered with the format, content, materials or delivery of training?		
• Timing of project against seasonality of tuna catching season. • Training needs to be flexible around season and weight majority of training towards spring when harvest is finished.	• Few issues or concerns. • The student was keen to undertake the training. • The company provided a high level of access to the student. • The student was required to complete much of the 'gap' training in their own time and this extended the length of time for completion.	• CD did not work and therefore was of little value.
What process is followed by you in assessing recognition of prior learning (RPL)?		
• Speaking with Manager • Face-to-face interviews with student. • Job specifications and performance review. • Skills audit which identifies the different types of evidence that may apply to specific units of competence. • Need lots of sources of evidence. • Assesses gaps in skill level and best way to address these gaps. • Support from employer is important. • Gap training is targeted towards a specific position rather than qualification.	• Assessment of previous work experience. • Whether training has been delivered previously. • Employer evidence forms. • Current resume and job description are sought. • Other evidence of acquired skills and experience, e.g. samples of work. • RPL process assisted if trainer attends workplace.	• Specific rules are followed under the ATQF. • RPL logbook for aquaculture program sets out steps for students to follow which has reduced red tape associated with assessing prior learning. • Interview is conducted with student to identify gaps in knowledge. • Training plan is developed. • Every 6 to 12 months training programs are audited which results in a high level of evidence gathering and reporting for RPL process.
How could an assessment of RPL be improved in the future?		
• Job specifications and meetings with managers prior to the training.	• Use of checklists to enable students to better prepare for RPL. • Uploading of evidence for RPL is being implemented by the RTO to improve the process. • There is a tendency for trainers to over-assess RPL when the process of recording and sighting evidence is frustrating.	• The new streamlined RPL process has taken years to develop and is considered an effective way of assessing RPL for aquaculture and seafood processing programs. • RPL process is complicated if units identified by industry are not on scope for the RTO. • Trainers have experience as to what constitutes evidence for RPL.

APPENDIX 6 : TRAINER SUMMARY *(CONT.)*

TRAINING		
TRAINER 1 – CERT II	**TRAINER 2 – CERT III**	**TRAINER 3 - DIPLOMA**
Would you consider brining in trainers outside your organisation to deliver training in specialist areas that is not currently under your scope of registration?		
• Yes. • Currently undertaken, e.g. first aid and seafood diving. • Instructors from outside RTO are contracted to deliver specialist training at an hourly rate. • RTOs becoming more of a 'one stop shop'.	• Trainers are not required to be experts in every field. • To respond to demand for different skill areas expert trainers from outside the RTO need to be brought in to train. • This would be too costly to do this for 1 student. • It would also depend on the level of qualification and training package requirements.	• Yes. • RTO does this now in supporting guest speakers for specialist areas. • Being a large RTO, there are large numbers of trainers with experience across the State which can be drawn upon.
What support or assistance would help you to provide more effective training to the seafood industry?		
• Regular forum with industry to hear of directions, trends and current training needs may give consistency to training between trainers and institutions, and help training be more responsive to industry.	• Understanding of how industry in general operates, i.e. variety of sectors and companies. • Trainers need to build up knowledge of respective business sectors. • Better networking with industry. • Quarterly meetings with industry each year. • Receiving mailing list for the industry with 'go to' contacts. • Seafood industry website with info about career pathways, job roles and proposed training. • Training providers will be required to maintain currency by working in their respective industries as part of their qualification.	• Funding for equipment as hands-on practical training is the most effective way of delivering high quality training to the industry. • Mentoring programs within the workplace.

EXTENSION OF RESEARCH		
TRAINER 1 – CERT II	TRAINER 2 – CERT III	TRAINER 3 - DIPLOMA
How do you currently source up-to-date information for training?		
• Seafood industry directly. • Monthly newsletters and updates to training packages – Transport and Distribution Skills Council. • Australian Maritime Safety Association summaries on incidents at sea. • Electronic mailing lists • There is less scope and flexibility in regulatory training that tends to be more rigid and set by government agencies.	• A virtual enterprise is used to conduct a large amount of the training. • Colleagues and work groups. • Students already working in companies are aware of systems and procedures already in practice. • Conferences and leadership workshops. • RTO performance development training days provides an opportunity to share ideas with other staff. • Moodle – on-line learning management system.	• Regular interaction with industry people. • Internet – processing • Magazines – new technologies for processing • Workplace at Lincoln Marine Science Centre encourages direct interaction with people working with industry sectors. • Other trainers in the RTO • Quality Assurance Group within the RTO provides information on new training techniques etc • Regional Development Boards • Students themselves who are working in the industry contribute new information to trainers.
What will influence your decision to use new training materials?		
• Relevance of training materials is assessed for each new client group. • If it adds value to the learning experience it will be applied and incorporated into training materials.	• Recommendations from other lecturers and colleagues. • Whether information is current or up-to-date. • Whether information is easy to understand. • Research new information to highlight key points of information.	• Confidentiality issues influence whether information is used in training materials. • Validity and robustness of information is checked before being used.
What background information do you currently seek prior to delivering training?		
• Depends on training required, job that is being done and whether the student is already in the job. • Variety in students and clients needs. • Often specific information is obtained from the company such as standard operating procedures. • In-house information adds weight to the existing training material.	• Jobs and career paths being pursued by the student as training needs to link to potential careers. • Information from the employer as to the work that will be done and the training delivered already, especially for students under a traineeship scheme. • Reasons why the training is sought. • Whether the student has the time to commit to training. • Eligibility for RPL.	• Depends on expertise and knowledge of the trainer. • Whether the information used is within the training package guidelines as they can be prescriptive.
What was the value of receiving the fact sheets for the tuna industry?		
• Great value in contextualisation and relevance of the training. • Whilst most of the information in the fact sheets were over the Certificate II skill level, they were relevant to the job roles. • Harvest and post harvest fact sheets were of most use. • Nutrition and science fact sheets were of less use. • Easy to read language is good. • Fact sheets will be of more interest to students that wish to gain a better understanding of the topic. • Adequate level of information on one page. • Any longer and they may have been overwhelming and would have reduced their value to the training. • Fact sheet could relate to economies of the seafood business, i.e. feeding tuna, differences in productivity. • Current fact sheets focus on biology and chemistry. • Fact sheets could link to company SOPs.	• Not relevant to the content in business and administration training. • Little value to the training for the job role of Payroll Administration Officer.	• Valuable- confirmed training material already using was correct and relevant. • Provided new information that could be used in training material. • Information could be used in hypothetical scenarios used in training.

APPENDIX 6 : TRAINER SUMMARY *(CONT.)*

EXTENSION OF RESEARCH		
TRAINER 1 – CERT II	**TRAINER 2 – CERT III**	**TRAINER 3 - DIPLOMA**
In what way were the fact sheets used in the planning and/or delivery of the training?		
• Very relevant industry specific facts that added value to training. • Training made more interesting as it applied directly to the job involved. • Great for employees understanding of why they need to do a procedure in a certain way. • As employees progress through a pathway, fact sheets will help explain procedures and quality control for others they are overseeing.	• More relevant information was provided by the tuna company which allowed assessment tasks to be highly relevant for the student to the requirements of job. • Fact sheets can be used in the development of scenarios or hypotheticals for assessing students. • Fact sheets may provide important information on which to base training exercises and tasks specific to the tuna industry.	• Fact sheets on flesh colour, stress and protein levels were directly relevant to lower qualifications than the Diploma. • Directly relevant to Cert III and IV as useful reference information.
How would you utilise the information and materials better in future training delivery?		
• Include company SOPs so that industry fact sheets (the theory) can be tied into the company's procedures (the practice). • Often employees think that they are doing things the hard way and don't understand why.	• The introduction of a Moodle portal website allows students to access resources which could be an option for storing information relevant to the seafood / tuna industry, i.e. fact sheets. This would be of value to students who do not already work in industry. There would be a need to update this information to maintain currency. • Visits to company workplace are important.	• Unknown. • CD would need to be upgraded each year with updated information so may not be the best way of sharing information with the trainers.
If this training was delivered again to the same or different seafood company what additional information would you like to receive?		
• Include company SOPs so that industry fact sheets (the theory) can be tied into the company's procedures (the practice). • Often employees think that they are doing things the hard way and don't understand why.	• Explanation of the workplace structure within the company. • People in each job and their contacts to develop specific learning tasks for the student by better tailoring assessment to the workplace.	• No additional information would be needed.
What would help you to access better information that could be used in training?		
• Electronic mail outs from peak industry organizations where appropriate. • Electronic receipt of research outcomes would assist trainers to stay abreast of industry direction and requirements.	• Background information on the company. • Introduction as to how the organization is set up.	• More interaction with seafood industry associations. • Trainers could sit in as observers on other training sessions to pick up practical information to assist with training. • Field visits to seafood factories as each company uses different equipment / techniques.
What is the best way to ensure that knowledge is transferred between researchers, seafood industry and trainers?		
• Information needs to be gathered from many sources. • Best way is personally face-to-face where relationships with clients are formed and training is customized to their needs. This is not always possible at times of peak training demand or when away for training for up to a month at a time. • Use of technology such as trainers being included in electronic peak industry body mail outs where appropriate. • Electronic receipt of research outcomes would assist trainers.	• Information day for trainers, employment networks, students and industry. • Trainers in business administration may not normally be aware of the research being conducted for industry. • Communication of research outcomes from a person within the company who has this responsibility.	• Structured meetings and forums.
How could be training process better accommodate rapidly changing training requirements from industry sectors or companies?		
• Trainers and companies need to work together to decipher the training package and units of competence to accommodate the best training for companies. • Degree of interpretation is required to links units to the requirements of an individual. • Flexible training needed for the company but must be viable for the RTO. • Meetings in person vital. • Developing relationships with industry is essential.	• Trainers need to be able to deliver flexible training in short workshops if there are a group of industry employees who require similar skills.	• Better liaison between companies and trainers – better communication. • More formal meetings and forums could occur.

APPENDIX 7 : Qualification and Skill List

Qualification and Skill List for Tuna Fishing & Farming

	QUALIFICATION DESIRED IF NO PRIOR SEAFOOD TRAINING OR EXPERIENCE	ADDITIONAL SKILLS REQUIRED FOR THE JOB
Deckhand	Certificate I in Seafood Industry (Aquaculture) or Certificate I in Seafood Industry (Fishing Operations)	Chemical Training CPR Refresher Senior First Aid
Leading Deckhand	Certificate II in Seafood Industry (Aquaculture) or Certificate II in Seafood Industry (Fishing Operations)	
Boat Operator	Certificate II in Transport & Distribution (Coastal Maritime Operations – Coxswain)	
Assistant Engineer (Boilermaker)	Certificate II in Transport & Distribution (Marine Engine Driving – Grade 3)	
Cook	Certificate II in Seafood Industry (Fishing Operations)	
Snorkeler	Certificate II in Seafood Industry (Fishing Operations)	
Net Maker	Certificate II in Seafood Industry (Fishing Operations)	
Skipper	Certificate III in Transport & Distribution (Coastal Maritime Operations – Master Class 5)	Chemical Training CPR Refresher Port Security Pass Senior First Aid
Marine Engineer	Certificate III in Transport & Distribution (Marine Engine Driving - Grade 2)	Breathing Apparatus & Confined Spaces CPR Refresher Emergency Fire Warden Port Security Pass Senior First Aid
Advanced Skipper	Certificate IV in Transport & Distribution (Coastal Maritime Operations – Master Class 4)	
Advanced Engineer	Certificate IV in Transport & Distribution (Marine Engine Driving – Grade 1)	
Shore Manager	Certificate IV in Seafood Industry (Aquaculture)	
Commercial Diver	Certificate IV in Hyperbaric Operations (Aquaculture SSBA to 30m)	
Dive Medical Technician	Certificate IV in Hyperbaric Operations (Diver Medical Technician)	
Fleet Operations Manager	Diploma in Seafood Industry (Fishing Operations)	
Farm Manager	Diploma in Seafood Industry (Aquaculture)	Breathing Apparatus & Confined Spaces CPR Refresher & Senior First Aid Emergency Fire Warden
Dive Supervisor	Diploma of Hyperbaric Operations (Diving Supervision – SSBA to 30m)	

APPENDIX 7 : Qualification and Skill List *(cont.)*

Qualification and Skill List for Tuna Processing

	QUALIFICATION DESIRED IF NO PRIOR SEAFOOD TRAINING OR EXPERIENCE	ADDITIONAL SKILLS REQUIRED FOR THE JOB
Process Worker	Certificate I in Seafood Industry (Seafood Processing)	
Leading Hand	Certificate II in Seafood Industry (Seafood Processing)	Port Security Pass
Process Supervisor	Certificate III in Seafood Industry (Seafood Processing)	
Truck Driver	Certificate III in Transport and Logistics (Road Transport)	
Plant Supervisor	Certificate IV in Seafood Industry (Seafood Processing)	
Loading Supervisor	Certificate IV in Transport and Logistics (Road Transport)	Breathing Apparatus & Confined Spaces Chemical Training CPR Refresher Emergency Fire Warden Port Security Pass Quarantine Approved Premises Senior First Aid Working at Heights
Data Coordinator	Certificate IV in Recordkeeping	
Factory Operations Manager	Diploma in Seafood Industry (Seafood Processing)	Breathing Apparatus & Confined Spaces Chemical Training CPR Refresher Emergency Fire Warden Port Security Pass Quarantine Approved Premises Senior First Aid Working at Heights

Qualification and Skill List for Tuna Human Resources & Administration

	QUALIFICATION DESIRED IF NO PRIOR SEAFOOD TRAINING OR EXPERIENCE	ADDITIONAL SKILLS REQUIRED FOR THE JOB
Administration Officer / Receptionist	Certificate II in Business	
Data Coordinator	Certificate III in Recordkeeping	
Payroll Administration Officer	Certificate III in Business	Senior First Aid CPR Refresher
Accounts Officer (Payable & Receivable)	Certificate III in Business Administrationw	Senior First Aid CPR Refresher
Compliance Officer	Certificate III in Occupational Health and Safety	Senior First Aid CPR Refresher
Administration Manager	Certificate IV in Business Administration	CPR Refresher Emergency Fire Warden Port Security Pass Quarantine Approved Premises Rehab and RTW Coordinator Senior First Aid
Human Resources Manager	Certificate IV in Human Resources	CPR Refresher Emergency Fire Warden Port Security Pass Quarantine Approved Premises Rehab and RTW Coordinator Senior First Aid
Financial Controller	Diploma in Business Administration	CPR Refresher Quarantine Approved Premises Senior First Aid

CERTIFICATE 1

Deckhand

Certificate 1 in Aquaculture

CORE UNITS (4)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements

SPECIALIST UNITS (4)

SFIPROC101C	Clean fish
SFIPROC106B	Work with knives
SFIAQUA102B	Carry out basic aquaculture activities *
SFIFISH215B	Apply deckhand skills aboard a fishing vessel

8 units required.

**If a career pathway as a deckhand in the fishing industry is followed, this unit may be substituted with Specialist Unit:*

TDMME507B Transmit and receive information by marine radio or telephone

CERTIFICATE II

Leading Deckhand

Certificate II in Aquaculture

CORE UNITS (4)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements

AQUACULTURE SPECIALIST UNITS (4)

SFIAQUA205C	Feed stock #
SFIAQUA215B	Carry out on–farm post-harvest operations #
SFIAQUA216B	Harvest cultured or held stock #
SFIAQUA221A	Control predators and pests #

ELECTIVES (7)

MTMP2002A	Prepare animals for slaughter
SFIFISH208C	Maintain, prepare, deploy and retrieve purse seines to land catch *
SFIFISH311A	Operate vessel deck machinery and lifting appliance
SFIFISH214B	Contribute to at-sea processing of seafood
TDMMF5507A	Fight and extinguish fires on board a coastal vessel
AHCMOM204A	Undertake operational maintenance of machinery
TDMMF1007B	Provide elementary first aid

15 units required.

*# If a career pathway as a Leading Deckhand in the fishing industry is followed (i.e. to gain **Certificate II in Fishing Operations**), these four aquaculture units may be substituted with these Fishing Specialist Units:*

SFISHIP202C	*Contribute to safe navigation*
TDMME507B	*Transmit and receive information by marine radio or telephone*
TDMMF1107B	*Survive at sea in the event of vessel abandonment*
TDMMF5407A	*Observe safety and emergency procedures on a coastal vessel*

Likewise, if a career pathway as a Leading Deckhand in the fishing industry is followed (i.e. to gain **Certificate II in Fishing Operations), this unit may be substituted with one of these Fishing Specialist Units:*

SFIFISH203C	*Maintain, prepare, deploy and retrieve trawls to land catch*
SFIFISH204C	*Maintain, prepare, deploy and retrieve pots and traps to land catch*
SFIFISH205C	*Maintain, prepare, deploy and retrieve drop lines and long lines to land catch*
SFIFISH206C	*Maintain, prepare, deploy and retrieve hand operated lines to land catch*
SFIFISH207C	*Maintain, prepare, deploy and retrieve beach seines, mesh nets or gill nets to land catch*

CERTIFICATE II

Boat Operator

Certificate II
in Transport & Distribution
(Coastal Maritime Operations – Coxswain)

UNITS – coxswain mandatory requirements

TDMMB4507A	Monitor condition and seaworthiness of a small vessel up to 24 metres
TDMMC707C	Apply seamanship skills and techniques when operating a small vessel within the limits of responsibility of a Coxswain
TDMMC907C	Manoeuvre a domestic vessel within the limits of responsibility of a Coxswain
TDMME507B	Transmit and receive information by marine radio or telephone
TDMME1107A	Contribute to effective communications and teamwork on a coastal vessel
TDMMF1007B	Provide elementary first aid
TDMMF1107B	Survive at sea in the event of vessel abandonment
TDMMF3207C	Apply domestic regulations and industry practices when operating a small coastal vessel
TDMMF5407A	Observe safety and emergency procedures on a coastal vessel
TDMMF5507A	Fight and extinguish fires on board a coastal vessel
TDMMH1207B	Plan and navigate a short voyage within inshore limits
TDMMR3007B	Operate and carry out basic service checks on small vessel marine propulsion systems
TDMMR3107B	Operate and carry out basic servicing on auxiliary systems
TDMMR3207B	Operate and carry out basic routine serving of marine extra low and low voltage electrical systems
TDMMR5407B	Carry out refuelling and fuel transfer operations
TDMMU507B	Ensure compliance with environmental considerations in a small domestic vessel

16 units required.

CERTIFICATE II

Assistant Engineer (Boilermaker)

Certificate II in Transport & Distribution
(Marine Engine Driving – Grade 3)

UNITS – MED3 mandatory requirements

TDMMB1907B	Carry out basic hull servicing
TDMMB3607B	Prepare a small vessel's machinery for sea within the limits of responsibility of a Marine Engine Driver Grade 3
TDMME1107A	Contribute to effective communications and teamwork on a coastal vessel
TDMMF1007B	Provide elementary first aid
TDMMF1107B	Survive at sea in the event of vessel abandonment
TDMMF3907B	Maintain running log within the limits of responsibility of a Marine Engine Driver 3
TDMMF5407A	Observe safety and emergency procedures on a coastal vessel
TDMMF5507A	Fight and extinguish fires on board a coastal vessel
TDMMR1807B	Operate deck machinery installed on a small vessel of less than 750 kW propulsion power
TDMMR1907B	Safely handle and stow explosive and flammable materials
TDMMR3007B	Operate and carry out basic service checks on small vessel marine propulsion systems
TDMMR3107B	Operate and carry out basic servicing on auxiliary systems
TDMMR3207B	Operate and carry out basic routine servicing of marine extra low and low voltage electrical systems
TDMMR5407B	Carry out refuelling and fuel transfer operations
TDMMR6107A	Use and care for hand and power tools on a small vessel
TDMMU507B	Ensure compliance with environmental considerations in a small domestic vessel

16 units required.

CERTIFICATE II

Cook

Certificate II in Fishing Operations

CORE UNITS (4)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements

SPECIALIST UNITS (4)

SFISHIP202C	Contribute to safe navigation
TDMME507B	Transmit and receive information by marine radio or telephone
TDMMF1107B	Survive at sea in the event of vessel abandonment
TDMMF5407A	Observe safety and emergency procedures on a coastal vessel

ELECTIVES (7)

FDFCORFSY2A	Implement the food safety program and procedures
SFIFISH214B	Contribute to at-sea processing of seafood
TDMMF5507A	Fight and extinguish fires on board a coastal vessel
SFIFISH202C	Cook on board a vessel
TDMMF1007B	Provide elementary first aid
SITHCCC003A	Receive and store kitchen supplies*
SITHCCC001B	Organise and prepare food*

15 units required.

**Imported from Tourism, Hospitality and Events Training Package*

CERTIFICATE II

Snorkeler

Certificate II in Fishing Operations

CORE UNITS (4)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements

SPECIALIST UNITS (4)

SFISHIP202C	Contribute to safe navigation
TDMME507B	Transmit and receive information by marine radio or telephone
TDMMF1107B	Survive at sea in the event of vessel abandonment
TDMMF5407A	Observe safety and emergency procedures on a coastal vessel

ELECTIVES (7)

SFIFISH307C	Perform breath hold diving operations
SROSCB001A	Scuba dive in open water to a maximum depth of 18 metres
SFIFISH214B	Contribute to at-sea processing of seafood
SFIAQUA221A	Control of pests and predators
TDMMF5507A	Fight and extinguish fires on board a coastal vessel
TDMMF1007B	Provide elementary first aid
AHCVPT203A	Use firearms to humanely destroy animals

15 units required.

CERTIFICATE II

Net Maker

SFI11 Net Construction and Repair Skill Set

CORE UNITS (4)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry *
SFICORE105B	Work effectively in the seafood industry *
SFICORE106B	Meet workplace OHS requirements *

SPECIALIST UNITS (4)

SFISHIP202C	Contribute to safe navigation
TDMME507B	Transmit and receive information by marine radio or telephone
TDMMF1107B	Survive at sea in the event of vessel abandonment
TDMMF5407A	Observe safety and emergency procedures on a coastal vessel

ELECTIVES (7)

SFIFISH210C	Assemble and repair damaged netting *
SFIFISH208C	Maintain, prepare, deploy and retrieve purse seines to land catch
SFIFISH311A	Operate vessel deck machinery and lifting appliance
SFIFISH214B	Contribute to at-sea processing of seafood
TDMMF5507A	Fight and extinguish fires on board a coastal vessel
SFIFISH309C	Construct nets and customise design
TDMMF1007B	Provide elementary first aid

15 units required.

A full qualification is not required for net making given that a recognised Skill Set has been included in the Seafood Industry Training Package as SFI11 Net Construction and Repair Skill Set.

** Units relevant to the recognised Skill Set.*

CERTIFICATE III

Skipper

Certificate III in Transport & Distribution
(Coastal Maritime Operations – Master Class 5)

SKIPPER 3 UNITS

TDMMA1107B	Maintain the stability of a vessel using basic stability information
TDMMB707B	Slip vessel and maintain hull
TDMMB4507A	Monitor condition and seaworthiness of a small vessel up to 24 metres
TDMMB4707A	Perform routine remedial, preventative and survey deck maintenance on a vessel less than 80 metres
TDMMC807B	Manoeuvre a vessel within the limits of responsibility of a Master 5
TDMME507B	Transmit and receive information by marine radio or telephone
TDMME1107A	Contribute to effective communications and teamwork on a coastal vessel
TDMMF1007B	Provide elementary first aid
TDMMF1107B	Survive at sea in the event of vessel abandonment
TDMMF3207C	Apply domestic regulations and industry practices when operating a small coastal vessel
TDMMF4707B	Contribute to maintaining a safe watch on a domestic vessel
TDMMF5407A	Observe safety and emergency procedures on a coastal vessel
TDMMH5507A	Fight and extinguish fires on board a coastal vessel
TDMMH807B	Plan and navigate an offshore passage within the limits of responsibility of a Master 5
TDMMH1107B	Use radar and other electronic navigational aids to maintain safe navigation within the limits of responsibility of a Master 5
TDMMH1307B	Apply weather information when navigating a small vessel within the limits of responsibility of a Master 5
TDMMR107B	Operate and maintain steering gear arrangements
TDMMR307B	Operate fuel, fresh and sea water, bilge and fire pumping systems installed in a vessel
TDMMR1807B	Operate deck machinery installed on a small vessel of less than 750 kW propulsion power
TDMMR5407B	Carry out refuelling and fuel transfer operations
TDMMR5507B	Perform seamanship, rigging and lifting operations on board a small domestic vessel
TDMMU507B	Ensure compliance with environmental considerations in a small domestic vessel

22 units required.

To develop wider skills sets, additional seafood competency units not replacing the 22 mandatory units above could include:

TLIB3011A	*Set up and rig crane for lift*
TLID3033A	*Operate a vehicle-mounted loading crane*
TLID3036A	*Lift and move load using mobile crane*
TLID3044A	*Shift loads using cranes*
SFIAQUA206C	*Handle stock*
BSBINM301A	*Organise workplace information*
BSBRES401A	*Analyse and present research information*
BSBRKG402B	*Provide information from and about records*
SFIOBSV302B	*Collect reliable scientific data and samples (Group B elective)*
SFIOBSV303B	*Collect routine fishery management data (Group B elective)*

CERTIFICATE III

Marine Engineer

Certificate III in Transport & Distribution
(Marine Engine Driving – Grade 2)

MED 2 UNITS	
TDMMB1907B	Carry out basic hull servicing
TDMMB2907B	Recognise and correct deteriorated fittings and machinery
TDMME1107A	Contribute to effective communications and teamwork on a coastal vessel
TDMMF1007B	Provide elementary first aid
TDMMF1107B	Survive at sea in the event of vessel abandonment
TDMMF2707B	Prevent, control and fight fires on board a small vessel
TDMMF4007B	Carry out basic operational engineering calculations
TDMMF5407A	Observe safety and emergency procedures on a coastal vessel
TDMMF5507A	Fight and extinguish fires on board a coastal vessel
TDMMR1807B	Operate deck machinery installed on a small vessel of less than 750 kW propulsion power
TDMMR1907B	Safety handle and stow explosive and flammable materials
TDMMR2707B	Operate and maintain marine internal combustion engines within the limits of responsibility of a Marine Engine Driver Grade 2
TDMMR2807B	Operate and maintain auxiliary systems on vessels within the limits of responsibility of a Marine Engine Driver Grade 2
TDMMR2907B	Operate and maintain marine low and medium voltage electrical systems
TDMMR5407B	Carry out refuelling and fuel transfer operations
TDMMR6107A	Use and care for hand and power tools on a small vessel
TDMMU507B	Ensure compliance with environmental considerations in a small domestic vessel

17 units required.

CERTIFICATE IV

Advanced Skipper

Certificate IV in Transport & Distribution
(Coastal Maritime Operations – Master Class 4)

SKIPPER 2 UNITS	
TDMMA907B	Prepare a cargo plan for cargo loading and unloading operations within the limits of responsibility of a Master 4
TDMMA1207B	Manage stress and dynamic factors affecting vessels stability
TDMMB607B	Monitor condition and seaworthiness of a coastal vessel up to 80 metres
TDMMB707A	Perform routine remedial, preventative and survey deck maintenance on a vessel less than 80 metres
TDMMC507B	Manoeuvre a vessel within the limits of responsibility of a Master 4
TDMMC607B	Manage a propulsion unit using the appropriate engine systems and support services
TDMME507B	Transmit and receive information by marine radio or telephone
TDMME1107A	Contribute to effective communications and teamwork on a coastal vessel
TDMMF1007B	Provide elementary first aid
TDMMF1107B	Survive at sea in the event of vessel abandonment
TDMMF3207C	Apply domestic regulations and industry practices when operating a small coastal vessel
TDMMF3307B	Execute watchkeeping arrangements and procedures on a small vessel
TDMMF5407A	Observe safety and emergency procedures on a coastal vessel
TDMMF5507A	Fight and extinguish fires on board a coastal vessel
TDMMH607B	Plan and conduct a coastal passage and determine position within the limits of responsibility of a Master 4
TDMMH707B	Apply weather information when navigating a small vessel within the limits of responsibility of a Master 4
TDMMH2007A	Use radar and other wheelhouse equipment to maintain safe navigation within the limits of responsibility of a Master 4
TDMML307B	Establish and maintain a harmonious workplace environment
TDMMR5507A	Perform seamanship, rigging and lifting operations on board a small domestic vessel
TDMMU407B	Ensure compliance with pollution prevention measures

20 units required.

CERTIFICATE IV

Advanced Engineer

Certificate IV in Transport & Distribution
(Marine Engine Driving – Grade 1)

MED 1 UNITS	
TDMMB3107B	Organise maintenance and repairs on a small vessel
TDMMB3507B	Employ damage control techniques for hull damage
TDMME1107A	Contribute to effective communications and teamwork on a coastal vessel
TDMMF407B	Maintain the operational condition of lifesaving, firefighting and other safety systems
TDMMF1007B	Provide elementary first aid
TDMMF1107B	Survive at sea in the event of vessel abandonment
TDMMF2707B	Prevent, control and fight fires on board a coastal vessel
TDMMF4107B	Carry out engineering calculations related to maintenance and operations
TDMMF5407A	Observe safety and emergency procedures on a coastal vessel
TDMMF5507A	Fight and extinguish fires on board a coastal vessel
TDMMR207B	Use and maintain deck equipment and machinery
TDMMR1907B	Safety handle and stow explosive and flammable materials
TDMMR2407B	Operate and maintain marine internal combustion engines and propulsion transmission systems
TDMMR2507B	Operate and maintain auxiliary machinery systems, including steering gear and refrigeration systems
TDMMR2607B	Operate, test and maintain marine electrical and control equipment
TDMMR5407B	Carry out refuelling and fuel transfer operations
TDMMR6107A	Use and care for hand and power tools on a small vessel
TDMMR6207A	Carry out basic welding, brazing, cutting and machining operations on a coastal vessel
TDMMU507B	Ensure compliance with environmental considerations in a small domestic vessel

19 units required.

CERTIFICATE IV

Shore Manager

Certificate IV in Aquaculture

CORE UNITS (4)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements

SPECIALIST UNITS (5)

AHCWRK403A	Supervise work routines and staff performance
SFIOHS301C	Implement OHS policies and guidelines
BSBRSK401A	Identify risk and apply risk management processes
AHCMOM402A	Supervise maintenance of property, machinery and equipment
SFIFISH402C	Manage and control fishing operations

ELECTIVES (11)

TLID3033A	Operate a vehicle-mounted loading crane
TLILIC3008A	Licence to operate a slewing mobile crane (up to 20 tonnes)
TLILIC3006A	Licence to operate a non-slewing mobile crane (greater than 3 tonnes capacity)
TLIR4002A	Source goods/services and evaluate contractors
SFIOHS501C	Establish and maintain the enterprise OHS program#
BSBHRM402A	Recruit, select and induct staff
BSBITU203A	Communicate electronically
BSBPUR401B	Plan purchasing
BSBWOR301A	Organise personal work priorities and development
BSBINN301A	Promote innovation in a team environment
BSBMGT401A	Show leadership in the workplace

20 units required.

CERTIFICATE IV

Commercial Diver

Certificate IV in Hyperbaric Operations (Aquaculture)

UNITS	
HLTFA301B	Apply first aid
PUAEME003C	Administer oxygen in an emergency situation
SFIDIVE301A	Work effectively as a diver in the seafood industry
ADASDIV012A	Apply knowledge of anatomy, physiology and diving physics to diving
ADASDIV013A	Ensure health and safety in diving operations
ADASDIV014A	Assess diving casualty and assist with treatment of diving conditions
ADASDIV015A	Maintain effective working relationships with dive team
ADASSSBA024A	Utilise and maintain SSBA equipment
ADASSSBA025A	Implement emergency procedures for SSBA
ADASSSBA026A	Undertake pre-dive preparations for SSBA diving operation
ADASSSBA027A	Undertake underwater deployment in a surface supplied diving operation
ADASSSBA028A	Undertake post-dive procedures for a surface supplied diving operation
ADASSSBA029A	Undertake a compression chamber dive
ADASSSBA030A	Undertake basic diving work tasks for a surface supplied diving operation
ELECTIVES	
SFIDIVE307A	Perform underwater work in the aquaculture sector
SFIDIVE308A	Perform underwater work in the wildcatch sector

14 units required.

The two electives are available to meet specific workplace or employer needs but are not a requirement.

CERTIFICATE IV

Diver Medical Technician

Certificate IV in Hyperbaric Operations
(Diver Medical Technician)

UNITS	
HLTFA301B	Apply first aid
ADASHYP007A	Assist with prevention and treatment of hyperbaric related illnesses
ADASHYP008A	Assist as an attendant inside a hyperbaric chamber
HLTHIR301A	Communicate and work effectively in health
HLTFA302A	Provide first aid in remote situation
HLTFA404A	Apply advanced resuscitation techniques
ADASDMT059A	As a diver medic manage diving illnesses and medical emergencies
ADASDMT060A	Undertake assessment and emergency care during rescue and recovery of diving casualty
ADASDMT061A	As a diver medic, assist with general medical emergencies within the dive team
ADASDMT062A	Undertake extended out-of-hospital care of a diving casualty

10 units required.

DIPLOMA

Fleet Operations Manager

Diploma in Fishing Operations

CORE UNITS (4)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements

SPECIALIST UNITS (6)

AHCMOM502A	Implement a machinery management system
SFIEMS501B	Develop workplace policy for sustainability
SFIFISH402C	Manage and control fishing operations
SFIOHS501C	Establish and maintain the enterprise OHS program
SFIFISH301A	Adjust and position fishing gear
SFIFISH401C	Locate fishing grounds and stocks of fish

ELECTIVES (11)

BSBMGT515A	Manage operational plan
AHCWRK502A	Collect and manage data
AHCWRK503A	Prepare reports
BSBMGT516C	Facilitate continuous improvement
BSBLED501A	Develop a workplace learning environment
BSBMGT502B	Manage people performance
BSBPUR401B	Plan purchasing
BSBWOR501A	Manage personal work priorities and development
BSBHRM506A	Manage recruitment and induction processes
RIISAM501A	Implement and maintain the site plant, equipment and infrastructure maintenance plan #
TLIX4033A	Apply technical regulatory framework compliance management systems *

21 units required.

 # Imported from Resources and Infrastructure Training Package

** Imported from Transport and Logistics Training Package*

Additional units relevant to job role of Fleet Operations Manager are:

BSBADM502B	*Manage meetings*
BSBITU203A	*Communicate electronically*

DIPLOMA

Farm Manager

Diploma in Aquaculture

CORE UNITS (4)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements

SPECIALIST UNITS (6)

BSBRSK501A	Manage risk
SFIAQUA504C	Plan ecologically sustainable aquacultural practices
SFIAQUA508C	Plan and design stock culture or holding systems and structures
SFIAQUA509B	Develop stock production plan
SFIEMS501B	Develop workplace policy for sustainability
SFIOHS501C	Establish and maintain the enterprise OHS program

ELECTIVES (11)

AHCWRK502A	Collect and manage data
AHCBUS501A	Manage staff
BSBPMG510A	Manage projects
BSBHRM506A	Manage recruitment selection and induction processes
AHCAGB505A	Develop a whole farm plan
MTMPS5603B	Develop, manage and maintain quality systems
SFILEAD501C	Develop and promote industry knowledge.
SFIAQUA408C	Supervise harvest and post-harvest activities *
SFIAQUA318A	Coordinate feed activities *
SFIAQUA316A	Oversee the control of predators and pests *
AHCMOM402A	Supervise maintenance of machinery and equipment *

21 units required.

Additional specialist unit relevant to job role of Farm Manager is:

AHCAGB603A Manage the production system

If 7 specialist units are undertaken instead of 6, only 10 electives need to be chosen.

** Only a maximum 4 of these units can be taken from Certificate IV in Aquaculture*

Additional elective units relevant to job role of Farm Manager are:

*SFIAQUA308C Maintain water quality and environmental monitoring **

*SFIOHS301C Implement OHS policies and guidelines **

*AHCWRK403A Supervise work routines and staff performance **

DIPLOMA

Dive Supervisor

Diploma of Occupational Diving (Dive Supervisor)

UNITS	
HLTFA301B	Apply first aid
PUAEME003C	Administer oxygen in an emergency situation
ADASSUP063A	Undertake role of the dive supervisor
ADASSUP064A	Implement and monitor occupational health and safety programs
ADASSUP065A	Apply diving physics and physiology and perform associated calculations
ADASSUP066A	Manage diving illnesses and medical emergencies
ADASSUP067A	Manage risk associated with dive operations
ADASSUP068A	Plan dive operations
ADASSUP069A	Conduct dive operations
ADASSUP070A	Implement plant, equipment and maintenance procedures
ADASSUP071A	Manage people
ADASSUP089A	Supervise aquaculture diving operations
ADASSUPCD075A	Supervise use of tools and explosives in a dive operation

13 units required.

CERTIFICATE I

Process Worker

Certificate I in Seafood Industry (Seafood Processing)

CORE UNITS (4)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements

SPECIALIST UNITS (2)

SFIPROC101C	Clean fish
SFIPROC102C	Clean work area

ELECTIVE UNITS (2)

SFIAQUA102B	Carry out basic aquaculture activities
SFIFISH215B	Apply deckhand skills aboard a fishing vessel

8 units required.

CERTIFICATE II

Leading Hand

Certificate II in Seafood Processing

CORE UNITS (4)	
SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements
SPECIALIST UNITS (7)	
AHCLSK319A	Slaughter livestock
SFIPROC106B	Work with knives
SFIPROC105B	Fillet fish and prepare portions
SFIAQUA216B	Harvest cultured or held stock
SFIFISH209C	Maintain the temperature of seafood
SFIPROC101C	Clean fish
SFIPROC102C	Clean work area
ELECTIVES (4)	
TLID3033A	Operate a vehicle-mounted loading crane
TLID2004A	Load and unload goods/cargo
TLID2010A	Operate a forklift
SITHACS006B	Clean premises and equipment

15 units required.

The following licence unit is needed to operate a forklift truck:

TLILIC2001A Licence to operate a forklift truck.

CERTIFICATE III

Process Supervisor

Certificate III in Seafood Processing

CORE UNITS (4)

SFICORE101B	Apply basic food handling and safety practices
SFICORE103B	Communicate in the seafood industry
SFICORE105A	Work effectively in the seafood industry
SFICORE106A	Meet workplace OHS requirements

SPECIALIST UNITS (7)

FDFFS2001A	Implement the food safety program and procedures
FDFFS3001A	Monitor the implementation of quality and food safety programs
FDFTEC3001A	Participate in a HACCP team
FDFPPL3003A	Support and mentor individuals and groups
FDFOP3004A	Operate inter related processes in a packaging system
MTMMP70C	Participate in OH&S risk control process
AHCWRK305A	Coordinate work site activities

ELECTIVES (7)

FDFOP2013A	Apply sampling procedures
FDFOP2056A	Operate a freezing process
MSACMC210A	Manage the impact of change on own work*
BSBRKG402B	Provide information from and about records
BSBRES401A	Analyse and present research information
TLIC3004A	Drive heavy rigid vehicle
TAEDEL301A	Provide work skill instruction

18 units required.

**If a career pathway as a Process Supervisor of wild caught fish such as abalone or rock lobster is followed, this unit may be substituted with Elective:*

SFIDIST201C Prepare, cook and retail seafood products.

CERTIFICATE III

Truck Driver

Certificate III in Driving Operations

CORE UNITS (6)

TLID1001A	Shift materials safely using manual handling methods
TLIE1005A	Carry out basic workplace calculations
TLIF1001A	Follow occupational health and safety procedures
TLIF2010A	Apply fatigue management strategies
TLIH2001A	Interpret road maps and navigate pre-determined routes
TLIL1001A	Complete workplace orientation/induction procedures

LICENCE UNITS (1)

Select at least one unit from the following units applicable to job role and relevant vehicle type:

TLIC1051A	Operate commercial vehicle
TLILIC2014A	Licence to drive light rigid vehicle
TLILIC2015A	Licence to drive medium rigid vehicle
TLILIC2016A	Licence to drive heavy rigid vehicle
TLILIC3017A	Licence to drive heavy combination vehicle
TLILIC3018A	Licence to drive multi-combination vehicle

Heavy General Freight (7) (other job roles are available)

TLIA1001A	Secure cargo
TLIB2004A	Carry out vehicle inspection
TLIB2008A	Carry out inspection of trailers
TLID2004A	Load and unload goods/cargo
TLIE3004A	Prepare workplace documents
TLIE2008A	Process workplace documentation
TLIE3012A	Consolidate manifest documentation

ELECTIVES (6)

TLIA3015A	Complete receival/despatch documentation
TLIB3011A	Set up and rig crane for lift #
TLID3031A	Rig load
TLID3033A	Operate a vehicle-mounted loading crane
TLID3036A	Lift and move load using mobile crane
TLID3044A	Shift loads using cranes #

20 units required.

The following licence unit is needed to operate a forklift truck:

TLILIC2001A Licence to operate a forklift truck.

CERTIFICATE IV

Plant Supervisor

Certificate IV in Seafood Processing

CORE UNITS (5)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements
SFIPROC401C	Evaluate a batch of seafood (Mandatory unit)

SPECIALIST UNITS (4)

FDFFS3001A	Monitor the implementation of the quality and food safety programs
AHCWRK403A	Supervise work routines and staff performance
SFIPROC402C	Maintain hygiene standards while servicing a food-handling area
SFIEMS301B	Implement and monitor environmentally sustainable work practices

ELECTIVES (11)

SFISTOR301C	Operate refrigerated storerooms
SFIPROC404C	Apply and monitor food safety requirements
MSACMT421A	Facilitate a Just In Time (JIT) system
MTMMP72C	Facilitate hygiene and sanitation performance
BSBINN301A	Promote innovation in a team environment
BSBLED401A	Develop teams and individuals
BSBMGT401A	Show leadership in the workplace
SFIAQUA412A	Develop emergency procedures for on land operations
MSL922001A	Record and present data *
MCMC411A	Lead a competitive manufacturing team #
BSBINM201A	Process and maintain workplace information

20 units required.

 # Imported from Certificate IV in Competitive Manufacturing

** Imported from Laboratory Operations Training Package*

CERTIFICATE IV

Loading Supervisor

Certificate IV in Warehousing Operations

CORE UNITS (2)	
TLIF1001A	Follow occupational health and safety procedures
TLIL1001A	Complete workplace orientation/induction procedures
ELECTIVES (18)	
TLIA4025A	Regulate temperature controlled stock
TLIA4031A	Consolidate freight
TLIA4032A	Organise transport of freight or goods
TLIE4006A	Collect, analyse and present workplace data and information
TLIF4007A	Implement and coordinate accident-emergency procedures
TLIF4014A	Develop and maintain a safe workplace
TLIG4005A	Organise transport workload
TLIG4006A	Facilitate work teams
TLIL4005A	Apply conflict/grievance resolution strategies
TLIL4009A	Manage personal work priorities and professional development
TLIL4036A	Develop rosters
TLIL4037A	Apply and amend rosters
TLIP4001A	Develop plans to meet customer and organisation needs
TLIP4005A	Manage workplace information
TLIU4001A	Implement and monitor environmental protection policies and procedures
SFIPROC404C	Apply and monitor food safety requirements #
SFISTOR301C	Operate refrigerated storerooms #
AHCWRK403A	Supervise work routines and staff performance #

20 units required.

 # Imported from Seafood Industry Training Package

If units imported from the Seafood Industry Training Package are not undertaken, the following electives can be imported:

TLIC4006A	*Drive multi-combination vehicle*
TLID4030A	*Supervise mobile crane operations*
TLID4032A	*Plan and conduct specialised lift*

CERTIFICATE IV

Data Coordinator

Certificate IV in Recordkeeping

CORE UNITS (4)

BSBRKG401B	Review the status of a record
BSBRKG402B	Provide information from and about records
BSBRKG403B	Set up a business or records system for a small office
BSBRKG404A	Monitor and maintain records in an online environment

ELECTIVES (6)

BSBRES401A	Analyse and present research information
BSBRSK401A	Identify risk and apply risk management processes
BSBWRT401A	Write complex documents
MSS404052A	Apply statistics to operational processes *
MSS403002A	Ensure process improvements are sustained *
SFIPROC401C	Evaluate a batch of seafood #

10 units required.

** Imported from Sustainability Training Package*

 # Imported from Seafood Industry Training Package

DIPLOMA

Factory Operations Manager

Diploma in Seafood Processing

CORE UNITS (5)

SFICORE101C	Apply basic food handling and safety practices
SFICORE103C	Communicate in the seafood industry
SFICORE105B	Work effectively in the seafood industry
SFICORE106B	Meet workplace OHS requirements
SFIPROC401C	Evaluate a batch of seafood (Mandatory unit)

SPECIALIST UNITS (3)

SFIOHS501C	Establish and maintain the enterprise OHS program
SFIEMS501B	Develop workplace policy for sustainability
SFIPROC406C	Develop food safety programs

ELECTIVES (13)

MSACMC611A	Manage people relationships
SFIDIST501C	Export product
SFIDIST502C	Import product
MTMPS5603B	Develop, manage and maintain quality systems
TLIA4025A	Regulate temperature controlled stock
SFILEAD506C	Demonstrate personal drive and integrity
SFILEAD507C	Provide corporate leadership
SFILEAD505C	Communicate with influence
SFIPROC407C	Conduct internal food safety audits
SFIPROC502C	Produce technical reports on seafood processing systems
SFIPROC606C	Develop and implement energy control systems in seafood processing environments
MSACMT620A	Develop quick changeover procedures
MSACMT670A	Develop and manage sustainable energy practices

21 units required.

If a Factory Operations Manager is involved in new product research and development the following electives could be considered:

SFIPROC603C	*Develop and manage seafood and related product production trials*
SFIPROC602C	*Plan and manage seafood related product concept development*
SFIPROC604C	*Plan and develop formulations and/or specifications for new seafood product*

CERTIFICATE II

Administration Officer / Receptionist

Certificate II in Business

CORE UNITS (1)

BSBOHS201A	Participate in OHS processes

ELECTIVES (11)

BSBCUS201B	Deliver a service to customers
BSBIND201A	Work effectively in a business environment
BSBINM201A	Process and maintain workplace information
BSBINM202A	Handle mail
BSBCMM201A	Communicate in the workplace
BSBITU203A	Communicate electronically
BSBWOR202A	Organise and complete daily work activities
BSBWOR203B	Work effectively with others
FNSACC301A	Process financial transactions and extract interim reports.
BSBPUR301B	Purchase goods and services *
BSBCMM301B	Process customer complaints *

12 units required.

** Imported from Business Services Training Package*

CERTIFICATE III

Data Coordinator

Certificate III in Recordkeeping

CORE UNITS (5)	
BSBRKG301B	Control records
BSBRKG302B	Undertake disposal
BSBRKG303B	Retrieve information from records
BSBRKG304B	Maintain business records
BSBRKG305A	Review recordkeeping functions
ELECTIVES (7)	
BSBINM301A	Organise workplace information
BSBINN201A	Contribute to workplace innovation
BSBITU304A	Produce spreadsheets
FDFOP3004A	Operate processes in a production system
MSL924001A	Process and interpret data #
MSL904001A	Perform standard calibrations #
AHCWRK305A	Coordinate work site activities *

12 units required.

** Imported from Agriculture, Horticulture and Conservation and Land Management Training Package*

 # Imported from Laboratory Operations Training Package

CERTIFICATE III

Payroll Administration Officer

Certificate III in Business

CORE UNITS (1)	
BSBOHS301B	Apply knowledge of OHS legislation in the work place.
ELECTIVES (11)	
BSBFIA302A	Process payroll *
BSBFIA304A	Maintain a general ledger *
BSBDIV301A	Work effectively with diversity
BSBFIA301A	Maintain financial records
BSBINM301A	Organise workplace information
BSBINM302A	Utilise a knowledge management system
BSBIPR301A	Comply with organisational requirements for protection and use of intellectual property
BSBITU301A	Create and use databases
BSBITU305A	Conduct online transactions
BSBWRT301A	Write simple documents
BSBADM311A	Maintain business resources

12 units required.

** Imported from Business Services Training Package*

CERTIFICATE III

Accounts Officer (Payable and Receivable)

Certificate III in Business Administration

CORE UNITS (2)	
BSBITU307A	Develop keyboarding speed and accuracy
BSBOHS201A	Participate in OHS processes
ELECTIVES (11)	
BSBFIA303A	Process accounts payable and receivable
BSBFIA304A	Maintain a general ledger
BSBADM307B	Organise schedules
BSBFIA301A	Maintain financial records
BSBINM301A	Organise workplace information
BSBINM302A	Utilise a knowledge management system
BSBINM303A	Handle receipt and despatch of information
BSBCUS301A	Deliver and monitor a service to customers
BSBCMM301A	Process customer complaints
BSBITU301A	Create and use databases
BSBITU305A	Conduct online transactions

13 units required.

CERTIFICATE III

Compliance Officer

Certificate III in Occupational Health and Safety

CORE UNITS (7)	
BSBOHS301B	Apply knowledge of OHS legislation in the workplace
BSBOHS302B	Participate effectively in OHS communication and consultative processes
BSBOHS303B	Contribute to OHS hazard identified and risk assessment
BSBOHS304B	Contribute to OHS hazard control
BSBOHS305B	Contribute to OHS issue resolution
BSBOHS306B	Contribute to implementing emergency prevention activities and response procedures
BSBOHS307B	Participate in OHS investigations
ELECTIVES (5)	
BSBINM302A	Utilise a knowledge management system
BSBINN201A	Contribute to workplace innovation
BSBPRO301A	Recommend products and services
BSBSUS301A	Implement and monitor environmentally sustainable work practices
BSBWOR401A	Establish effective workplace relationships

12 units required.

CERTIFICATE IV

Administration Manager

Certificate IV in Business Administration

ELECTIVES (10)	
BSBADM406B	Organise business travel
BSBINM401A	Implement workplace information
BSBITU401A	Design and develop complex text documents
BSBCUS401B	Coordinate implementation of customer service strategies
BSBADM407B	Administer projects
BSBADM409A	Coordinate business resources
BSBREL401A	Establish networks
BSBRSK401A	Identify risk and apply risk management processes
BSBADM405B	Organise meetings
BSBITS401B	Maintain business technology

10 units required.

CERTIFICATE IV

Human Resources Manager

Certificate IV in Human Resources

CORE UNITS (4)

BSBHRM401A	Review human resources functions
BSBHRM402A	Recruit, select and induct staff
BSBHRM403A	Support performance management processes
BSBWRK410A	Implement industrial relations procedures

ELECTIVES (6)

BSBRKG404A	Monitor and maintain records in a online environment
BSBEMS401B	Develop and implement business development strategies to expand client base
BSBEMS402B	Develop and implement strategies to source and assess candidates
BSBRES401A	Analyse and present research information
BSBWOR401A	Establish effective workplace relationships
BSBWRT401A	Write complex documents

10 units required.

DIPLOMA

Financial Controller

Diploma in Business Administration

GROUP A ELECTIVES (5)

BSBFIM502A	Manage payroll
BSBADM504B	Plan or review administration systems
BSBADM506B	Manage business document design and development
BSBITB501A	Establish and maintain workgroup computer network
BSBPMG510A	Manage projects

GROUP B ELECTIVES (3)

BSBCUS501C	Manage quality customer service
BSBMGT502B	Manage people performance
BSBRKG502B	Manage and monitor business or records systems

8 units required.

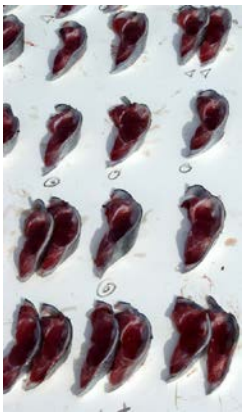
October 2011

Southern Bluefin Tuna

Importance of FLESH COLOUR

Flesh Colour and its Relationship to Auction Price

During the processing of chilled farmed southern bluefin tuna in Port Lincoln, a Japanese technician assesses the quality of individual tuna via a visual I nspection of a thin section cut from the tail.



ABOVE: Flesh samples from SBT tail cuts made by a Japanese product quality technician.

When the fish arrives on the auction floor in Japan a second assessment of quality is made by a grader working for the auctioneering company to decide where the fish should be placed in the auction line-up in order to get the best price for the fish.

A third assessment of quality is made when the various wholesalers inspect the fish before bidding. Each of these technicians, trained to look at colour, fat content, carcass conformation, and freshness. They use varied and subjective ranking systems in order to express and communicate quality within their respective companies.

On a day-to-day basis this grading system appears to serve the industry adequately, however it does not provide a repeatable measure of flesh quality attributes over time.

The ability of the Port Lincoln industry to accurately evaluate tuna flesh quality allows the effects of any pre-harvest or post-harvest manipulation on flesh quality between pontoons, between treatments, or indeed from one ranching season to the next.

In the past, industry have used digital image analysis of flesh colour as a tool in the analysis of sashimi tuna flesh quality.

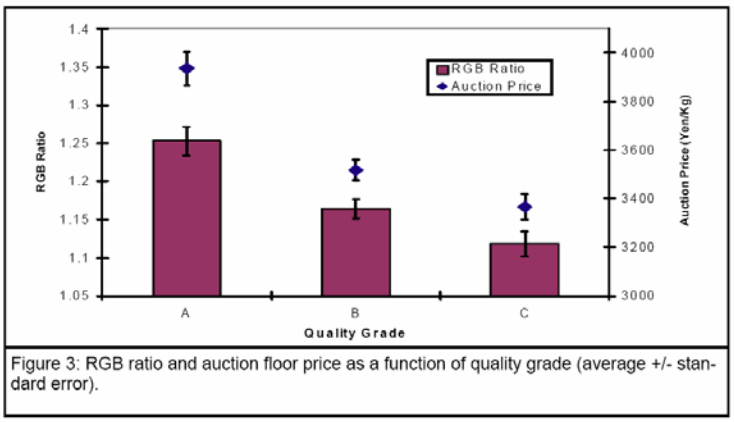


Figure 3: RGB ratio and auction floor price as a function of quality grade (average +/- standard error).

Figure 3. demonstrates a strong relationship between RGB ratio and action price. Showing that flesh colour and the price of a SBT are related.

Information Supplied by

ASBTIA Ltd
P.O. Box 1146,
Port Lincoln
SA 5606

Phone: (08) 8682 3257
SBT_Research@bigpond.com

- Quality and colour of SBT muscle flesh is assessed 3 times prior to the sale of a fish
- A relationship between flesh colour and action price exists

ABOVE: Technician assessing flesh colour of SBT

Measuring and comparing the red, green and blue colours in flesh generates a RGB value, used in Fig. 3 to compare flesh colour with auction price.

Information within this leaflet was derived fully or in part from projects funded and executed through the following organisations and research institutions: Aquafin CRC, Fisheries Research and Development Corporation, Australian Southern Bluefin Tuna Industry Association Ltd, South Australian Research & Development Institute, Flinders University of South Australia, Institute of Medical and Veterinary Science, Queensland Department of Primary Industries (Centre of Food Technology)

RIGOR MORTIS

Information Supplied by

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WHAT is rigor mortis?

In order to swim, fish muscle uses energy to continually contract and relax. The degree of physical activity of a fish immediately prior to harvest directly effects the rate at which rigor mortis occurs. When a fish is slaughtered, its muscle is relaxes and will remain in that state as long as there is energy available in the muscle. When the energy runs out the muscle contracts, becomes hard and is said to be in rigor mortis (rigor). As rigor recedes, the muscle becomes soft and relaxed again.

Below: SBT being cleaned on a factory processing line

- Rigor mortis is the stiffening of muscles which occurs after death due to the presence of residual energy.
- Harvesting techniques can influence the rate at which rigor occurs in fish.
- Net-diver methods are preferable when harvesting SBT, as rigor is completed in a shorter period of time and flavor enhancement is higher.

Rigor (or relative muscle stiffness) is a recognised indicator of freshness in fish. To satisfy the consumer, fish may be required either pre, post or in rigor. However, from a processors viewpoint fish in rigor are difficult to handle and their muscle can easily be damaged during processing. By understanding rigor and what influences its rate of development (onset), it may be possible to manipulate the rate of post-mortem change and rigor onset by altering harvest and post-harvest practices.

FISH response to harvest stress

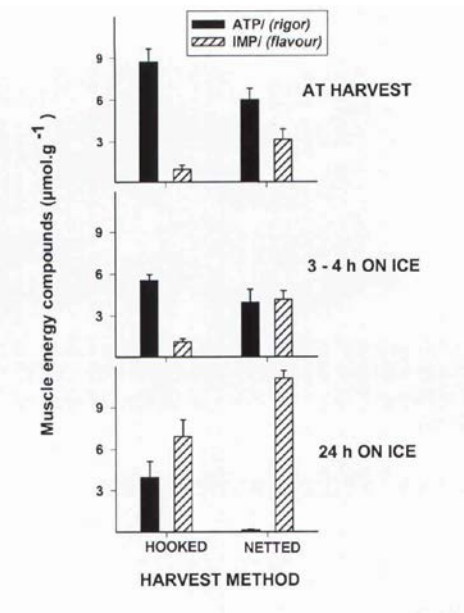
Harvest generally leads to frantic activity in fish. Immediately prior to death, this alarm reaction will cause a depletion of muscle energy and a build up of lactate acid in the blood tissue which will have an effect on post mortem events, including the rate of rigor onset.

There are two important muscle energy compounds that are relevant when measuring the rate of rigor onset and flavor enhancement of the flesh. These are respectively, adenosine triphosphate (ATP) and inosine monophosphate (IMP). When ATP is depleted from the muscle rigor mortis is complete and the fish will be stiff and firm to touch

Can we influence the rate of post-mortem change?

- harvest method does influence muscle energy levels in farmed tuna; and
- there appears to be scope for manipulating post-mortem biochemical change and the rate of rigor onset in tuna through alterations to harvest husbandry practices.

Left: Frozen SBT ready for shipment to Japan



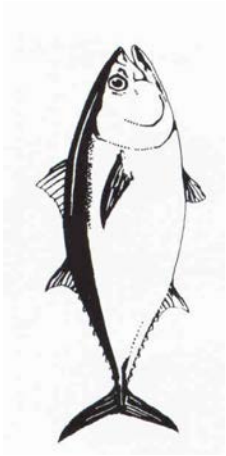
RIGOR MORTIS

p 2

Above: Caged and frozen SBT trunks being transported.

Figure 1. Energy levels (represented by adenosine triphosphate (black bars) and inosine monophosphate (lined bars)) in tuna muscle of fish, subject to different harvest methods.

ATP & IMP concentration in muscle over time



Flavour of the fish will peak when IMP concentration in the muscle is high and the concentration of compounds that result from its degradation are low.
Early in 1999 we measured the change in these compounds, in two groups of fish, at death and during 24hr storage on ice (Fig. 1). One of the groups had been hook harvested, and the other netted and then harvested by divers.
The results show that in hook harvested fish muscle energy (ATP) is higher at slaughter and up to 24hr in ice storage compared to net-diver harvested fish that were killed and stored the same way (Fig. 1). As muscle ATP depletion results in rigor onset, it can be seen that rigor mortis was complete within 24h in the net-diver harvested fish but not in the hook harvested group. The results also show, that following 24h storage, the flavour enhancing potential of IMP is higher in the net-diver harvested fish than the hook harvested fish. Overall these results indicate that energy depletion in tuna muscle is less at death and delayed during storage in hook harvested fish compared to those harvested by the net and diver method.

SOUTHERN BLUEFIN TUNA

Information within this leaflet was derived fully or in part from projects funded and executed through the following organisations and research institutions: Aquafin CRC, Fisheries Research and Development Corporation, Australian Southern Bluefin Tuna Industry Association Ltd, South Australian Research & Development Institute, Flinders University of South Australia, Institute of Medical and Veterinary Science.

Seasonality: its effect on SBT growth & condition

As the tuna ranching season progresses, the growth rate of the fish slows down. In 1999, an experiment conducted in a specifically constructed research pontoon examined changes in the growth and condition of SBT throughout the season (March to August).

The experiment:

Two 32m diameter pontoons were set up for the experiment. One was fed pilchards and the other pellets.

The fish were harvested every two weeks from early March onwards.

While this regular harvesting may have influenced the stress levels and subsequently growth, it was important to harvest regularly to assist with the development of future experiments.

The results:

Growth results from the experiments varied between individual tuna, but the overall trends reveal an important point. It was confirmed that most of the growth does occur early in the season (Figure 1), whilst the water is still warm and the fish are feeding well.

Condition index (CI) was tracked throughout the harvests (Figure 2). This is a measure of the 'fatness' of a tuna. It is calculated as the live weight (W in kgs) of a fish, divided by its length (L in cm) divided by 100 cubed.

$$CI = W / (L/100)^3$$

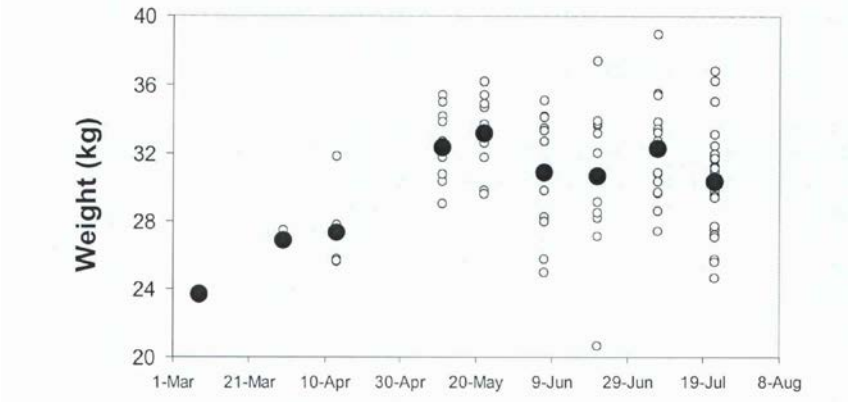


Figure 1. Growth patterns of tuna from one of the large R&D pontoons this year, (filled circles represent averages and non-filled circles represent values for individual tuna).

It was interesting to note that during the early part of the season, condition index and growth were not synchronised. This supports what many farmers noted anecdotally on their own farms, that is that the fish grew length-wise earlier in the season, before filling out later in the year.

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- SBT growth occurs rapidly early in the ranching season.
- Fish grow lengthwise before they put on the bulk of their condition.
- Condition index is a calculation of the 'fatness' of a fish.

Below: Feeding pellets to a research pontoon.

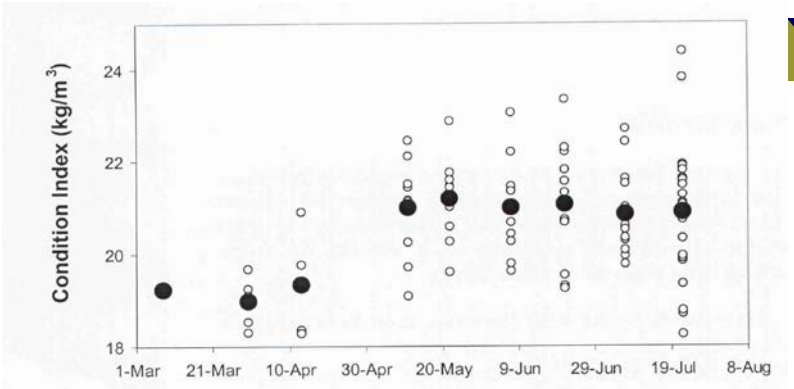
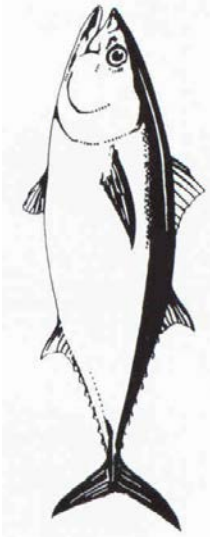


Figure 2. Condition patterns of tuna from one of the large R&D pontoons this year (filled circles represent averages and non-filled circles represent values for individual tuna).

SEASONALITY
growth and condition

p 2



It was also noted that the condition of the fish seemed to plateau quite early in the season, with no real gains beyond those achieved at the same time that growth also peaked (around mid-to-late May). However, it should be noted that the peak condition of these fish was somewhat below what had been achieved on the research farm in previous years. We believe that this is probably due to a combination of having to delay the experiment to accommodate other projects on the farm earlier in the summer, and also the frequent harvesting of these pontoons which probably increased the stress of the remaining tuna.

Above: SBT feeding in a research pontoon off Port Lincoln, South Australia.
Inset: Close up of SBT feeding on baitfish at the surface.

SOUTHERN BLUEFIN TUNA

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August, 2011

Southern Bluefin Tuna

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STRESS and it's effect on SBT

STRESS: Its role in fish health

Stress, is a condition in which an animal is unable to maintain normal bodily functions because there are adverse factors in its living space, which threaten its survival.
Stressors can be broken up into three broad categories:
Chemical: low dissolved oxygen; water pollution; poisons occurring in old or badly stored feed and; accumulation of fish faecal products.
Biological: stocking density; social interaction (pecking order); predators; micro-organisms (eg. bacteria and algae) parasites and disease.
Physical: temperature; light; sounds; farm husbandry (eg. capture and transport of stock; harvesting and disease treatment).

FISH response to stress

The stress response of fish will depend on the nature of the stressors.
Stressors resulting in acute stress, such as those associated with husbandry and handling practices or predator attack, will lead to an **alarm reaction**. This **alarm reaction** is more commonly identified as "fight or flight" response, and will cause, through the secretion of hormones and in preparation for emergency action:

- An **increase in the blood sugar** (glucose) (fig.1).
- A **body salt imbalance**: in saltwater this can result in dehydration.
- **Red blood cell release** from the spleen, **blood pressure increase**, and through higher oxygen requirements, **increased breathing rate**.
- As oxygen becomes short due to increased swimming activity, a **build up of lactate and** hence **acidity** in the blood and tissue (fig.1).

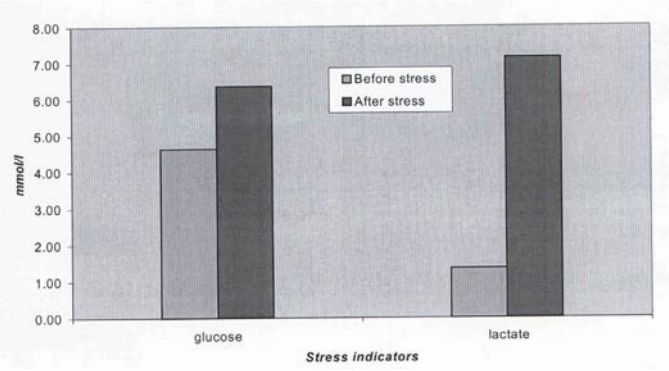

Figure 1: Blood levels of Glucose and lactate in tuna following physical stress

KEY PIONTS:

- Adopt practices that minimise stress from capture to slaughter.
- Responses to stress in SBT are undesirable, effecting growth rates and product quality.
- Always monitor fish stocks for stress and react to the signals in a timely manner.

Below: Diver swimming SBT to harvest vessel

PREVENTING fish stress and fish death

You cant eliminate fish stress. On the farm, you minimize stress through **good management practices.**
The most powerful tools available to the fish-farmer are regular stock observation combined with water quality monitoring (i.e. Temperature and dissolved oxygen).

What to look for?

- ↗ Fish behaviour and appearance that is indicative of stress (in SBT: Milling not schooling and individuals that are light blue).
- ↗ Micro-organism populations in and around farms (i.e. algae blooms).
- ↗ Dissolved oxygen and water temperature fluctuations.

In situations of high stress, such as low dissolved oxygen, FISH SHOULD NOT BE FED