The Seafood CRC skills audit and articulation into the National Seafood Industry Training Package

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Front Cover Image – An abstract design of skills and knowledge transfer in the seafood industry.
Photo and artwork: Mark Oliver

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Non-Technical Summary

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OBJECTIVES:

- To analyse and capture relevant new skill sets and techniques developed from all Seafood CRC research programs.

- To map these skill sets and techniques into the existing suite of units available from the Seafood Industry Training Package.

- To identify new skills and techniques that have been developed through Seafood CRC programs and use these as the basis to create new units of competency for the Seafood Industry Training Package.

- To develop a seafood skills register for Seafood CRC participants which clearly defines each institutions skills base.

- To raise the level of understanding of the Seafood Industry Training Package within Seafood CRC participants.

NON TECHNICAL SUMMARY:

OUTCOMES ACHIEVED TO DATE

- All relevant CRC research reviewed for skills and knowledge areas that were suitable for the current project.

- Development of 9 new units of competency covering for the Seafood Industry Training Package in the skills areas of seafood distribution and sales, aquaculture, fishing and seafood processing.

- Updates to 12 existing units of competency from the Seafood Industry Training Package the skills areas of seafood distribution and sales, aquaculture, fishing and seafood processing.

- Uploading relevant files to the Agrifood Skills continuous improvement register which is the pre cursor for addition into the Seafood Industry Training Package.

KEYWORDS: VET, Vocational Education and Training, Skills

Acknowledgements

Background

The Australian seafood industry relies heavily on a skilled workforce that displays competence in their abilities to undertake specific work related activities. As the seafood industry evolves, the suite of skills needed to stay commercially competitive increases both in commercial facilities and indeed research institutions. From management to new industry entrants, the adoption and utilisation of successful modern techniques in all sectors is vital for the industries long term growth. Within Australia there are now benchmark packages available that capture these skills and develop mechanisms that can assist in disseminating this information as well as training and assessing ones competence within these techniques. The Seafood Industry Training Package is by far the most relevant package for all sectors of the seafood industry.

The Seafood Industry Training Package is an integrated set of nationally endorsed competency standards, assessment guidelines and qualifications which encompasses the following industry specific sectors:

- Fishing

- Aquaculture

- Seafood Processing

- Seafood Sales

- Seafood Distribution and

- Compliance

The first Seafood Industry Training Package (SITP) was endorsed in 2000 and is now universally recognised as the standard for vocational education and training in the Australian seafood industry.

It represents the culmination of an extensive consultation and documentation process of sectors concerned with harvesting, farming, culturing, processing, storing, transporting, marketing or selling seafood and/or seafood based products. As a result of this consultation, the Seafood Industry Training Package now contains:

- A suite of reliable components for training, recognising and assessing an individual's skills base

- Mechanisms to award nationally recognised qualifications

- A training environment which encourages the development and delivery of flexible training which suits sector specific requirements and

An embedded continuous improvement process which allows for regular review/ editing, in order to keep the packages' currency with industry standards and practices.

At its core the SITP is viewed by most as a curriculum document which outlines the knowledge and skills a staff member would need to successfully work in specific areas and or sectors of the Australian seafood industry. It also differentiates these skills and knowledge level into an orderly qualification stream. For the purposes of the current project, qualifications which have the highest relevance are:

- Certificate II, III, IV and Diploma in Aquaculture
- Certificate II, III, IV and Diploma in Seafood Processing
- Certificate II, III, IV in Seafood Industry (Sales and Distribution)
- Certificate III, IV and Fishing Operations

These qualifications (and others from the package) are delivered throughout Australia by vocational training institutions such as TAFE and private training providers. Delivery models vary from traditional face to face class room training through to onsite training at commercial enterprises. The common thread between the delivery model is that the qualifications and subsequent curriculum that drives the training are identical.

Need

The Seafood CRC programs have numerous research initiatives that fall within the range of sector areas outlined in the Seafood Industry Training Package. Many of these programs have either modified or developed new ground breaking techniques, practices and procedures that have greatly assisted in the enhancement of the Australian seafood industries productivity. Never before has a suite of skills and knowledge been injected into the industry in such a broad range of areas within such a short timeframe.

All of these these advances are the cornerstone of the existing continuous improvement process of the Seafood Industry Training Package. The package goes through regular review processes where new skills and knowledge are added. Having these new skills and knowledge areas available for training institutions and industry will ensure that the unprecedented range of skills and knowledge areas obtained through the Seafood CRC will be passed on to future members of the seafood industry which will greatly influence both their work practices and sector wide productivity.

The proposed scope of work falls within the ABSea Education and Training Program of the Seafood CRC and more specifically address the below two theme outcomes:

- Creation of a "new breed of seafood managers" who are entrepreneurial, collaborative, technically skilled, embrace technology and are globally focused on the seafood value chain.
- Seafood CRC participants have an improved ability to attract, train and retain staff.

Objectives

- To analyse and capture relevant new skill sets and techniques developed from all Seafood CRC research programs.

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- To identify new skills and techniques that have been developed through Seafood CRC programs and use these as the basis to create new units of competency for the Seafood Industry Training Package.

- To develop a seafood skills register for Seafood CRC participants which clearly defines each institution's skills base.

- To raise the level of understanding of the Seafood Industry Training Package with Seafood CRC participants.

Methods

All Seafood CRC research projects were reviewed by the PI. The PI and staff reviewed the literature manually and highlighted areas of importance. Relevant research project were placed into a data base which identified the specific knowledge and skills areas and highlighted if these were existing skills and knowledge within the package and if this was the case, what units of competency they fell under. If the skills did not fall under existing units they were gazetted to be the basis for a new unit of competency for the SITP.

Once the base data was established there were two main focus areas for the project.

1. Adding existing skills and knowledge within current units of competency from the SFITP and;

2. Developing completely new units of competency for the SFITP.

Research that was highlighted to be added to existing units of competency were then further reviewed within the context of where to place this additional information into the existing units of competency. Quite commonly, but not always the case, the new information was placed with the *range statement* within the unit of competency. The *range statement* is an area which denotes the different scenarios, techniques, methods, stakeholders, institutions, skills and legislation that may fall within the unit of competency. This knowledge and or skills were physically added to the range statement for the existing unit.

For new units to the SFITP research that was found to be a candidate for this area of the project were further analysed and a blank SFITP unit of competency was developed and then populated with the research outcomes. Ares that were populated included:

- Modification History
- Unit Descriptor
- Application of the Unit
- Elements and Performance Criteria Pre-Content
- Elements and Performance Criteria
- Required Skills and Knowledge
- Literacy and Numeracy
- Evidence Guide
- Critical aspects for assessment evidence required to demonstrate competence

- Context of and specific resources for assessment
- Method of assessment
- Range Statement
- Unit Sector

The draft units were then reviewed by some key industry stakeholders (John Maloney and Helen Jenkins - Prawn Farmers Association, Rodney Missen and Will Conn - Rad Aqua, Anni Conn – Blue Harvest, Roy Palmer, Matt Johnson - Queensland Aquaculture Industry Federation, Rob Bartley - Aquaculture Association of Queensland, Wayne Dibartolo - Pacific Reef Fisheries) and was subsequently uploaded to the Agrifood Skills Australia Continuous improvement register which will then be disseminated for wider industry comment prior to adding the units in the SFITP during its next review.

Discussion

Having to review the sheer amount of research and associated activities that have been undertaken by the Seafood CRC during the duration of its existence was a very large challenge for this project. It was fortuitous that many of the research projects were either follow-ons or other professional development activities from singular large research projects which, within their text clearly articulated the skills and knowledge bases needed for or acquired during the research. Focusing efforts specifically on these areas enabled the information to be harvested at a more successful rate.

New Units

The range of skills and knowledge identified which have subsequently been added to the SFITP is both large and broad. As for the new units of competency the following table below depicts the new units and their corresponding areas and qualification levels.

Proposed Unit Name	Learning Stream	Proposed Qualification Level
Analyse domestic seafood market opportunities	Seafood sales and distribution	Diploma
Analyse International seafood market opportunities	Seafood sales and distribution	Diploma

Proposed Unit Name	Learning Stream	Proposed Qualification Level
Develop and implement a seafood waste utilisation strategy	Seafood processing	Diploma
Provide information about seafood product	Seafood sales and distribution	Certificate III
Develop fishery optimisation strategies	Fishing operations	Diploma
Culture new aquaculture species	Aquaculture	Diploma
Manage a farm based aquaculture research trial	Aquaculture	Certificate IV/Diploma
Implement low water exchange microbial based technologies	Aquaculture	Certificate IV/Diploma
Develop and implement an aquaculture genetic breeding program	Aquaculture	Diploma

Table 1.1 New units of competency for the SFITP.

Some new units of competency will have a very wide training base where as other units will be more focused for specific group. An example of a niche unit would be around the implementation of Biofloc practices in pond based aquaculture. The unit entitled *Implementing Low Water Exchange Microbial Floc Technologies* is a highly technical unit which covers a great deal of new skills that have been acquired as a result of the Seafood CRC research. Specially focusing upon its application in tiger prawn farming the unit has been well received. Other pond based sectors such as barramundi have also showed an interest in implementing areas of biofloc technologies. A stretch goal for this unit would be for it to be adopted overseas in particular Asia where biofloc is widely used throughout the shrimp farming and finfish industries. To the best of the PI's knowledge there are no institutions within the region that have developed curriculum for the implementation of biofloc technologies. This brings opportunities for this unit to be used not only in Australia but internationally.

Some units that have been developed will have a far reaching learner base beyond the SFITP such as *Provide Information about Seafood Product*. This excellent unit is a perfect induction or refresher tool for anyone working in a front of house capacity where seafood product is sold such as large retailers, food outlets and fishmongers. This unit has the potential to jump from the SFITP to other training packages such as the retail training package where the unit could be selected as an elective for individuals undertaking a more generic retail course. The potential that this unit will be taken up by the general retail training sector is enormous.

Updated Existing Units

A total of 12 units of competency were updated. The units came from the aquaculture, seafood distribution and sales and the seafood pressing streams. It is noted that a larger number of lower level qualification units (certificate II and III) have been modified whereas the new units were dominated by the Diploma stream. The PI believes that in the previous reviews of the package emphasis have been on developing a wide range of lower level units whereas the Diploma level while high in quality remained fairly static in terms of the addition of new units. It was common practice to import some Diploma level units from other training packages such as Agriculture or Business. Although sometimes adequate there were always issues with having a quality match between aquaculture and these imported units. This project has alleviated this issue.

Although there was a wide range of units available for the lower levels, delivering a quality update was essential. The update allows for a more contemporary unit that will assist training students in current and future trends as technologies are adopted and productivity is enhanced.

The amended units of competency are displayed in the following table which depicts the unit name, their corresponding areas and qualification levels:

Existing Unit Name	Learning Stream	Qualification Level
Feed Stock	Aquaculture	Certificate II and III
Control Diseases	Aquaculture	Certificate II and III
Maintain water quality and environmental monitoring	Aquaculture	Certificate III and IV
Support hatchery operations	Aquaculture	Certificate III and IV
Oversee the control of diseases	Aquaculture	Certificate III and IV
Coordinate feed activities	Aquaculture	Certificate III and IV
Retail fresh, frozen and live seafood	Seafood sales and distribution	Certificate II and III
Plan and manage seafood and related product concept development	Seafood Processing	Diploma
Develop and manage seafood and related product production trials	Seafood Processing	Diploma
SFIPROC604C Plan and develop formulations and/or specifications for new seafood product	Seafood Processing	Diploma
Monitor the seafood business environment to determine threats and opportunities	Seafood Processing	Diploma
Prepare, pack and dispatch non-live product	Seafood Processing	Certificate II/III

Table 1.2 Amended units of competency from the SFITP

Benefits and Adoption

The PI recognises that there are a number of benefits to a program of this nature. The benefits are broken into short, medium and long term in duration.

Short term benefits:

Students enrolled in vocational training institutions that are undertaking various courses form the SFITP will have the opportunity to study these new units of competency which have been developed as a direct result of Seafood CRC research findings. Students will also have access to the most up to date and contemporary information arising from amending the existing units of competence and part of this project.

Vocational training institutions can also use the material as a basis to develop learner guides, assessment plans, learning objects, practical demonstrations and associated materials.

Commercial facilities that undertake onsite training through a vocational training partners will also have access to these documents.

Commercial facilities will have access to these documents where they have the ability to essentially reverse engineer these documents and develop them into induction manuals, checklists, standard operating procedures or work instructions.

Medium term benefits:

Both entry level and management level skills and knowledge will be enhanced in areas of the seafood industry and productivity gains should follow

Long term benefits:

The Seafood CRC will have left a legacy where, all too often, quality research does not have the ability for longevity due to funding restrictions or institutional changes etc. Having these units enshrined in the SFITP ensures that for many years to come, a great range of skills and knowledge that have come straight from Seafood CRC research will be benefiting the Australian seafood industry and individuals that want to join it.

Planned Outcomes

Public Benefit Outcomes

- Aquaculture courses will have a higher quality, broader based curriculum.

Private Benefit Outcomes

- Enrolled students will have direct access to a higher quality, broader based curriculum.
- Graduates will have a more contemporary range of skills and knowledge upon course completion.
- Commercial facilities will have access to a range of quality documents either directly written from this project or developed by a third party as part of this project.
- Commercial facilities will have better trained entry level staff, while management will also have access to quality curriculum which will assist in their facility reaching their productivity goals.

Conclusion

The Seafood CRC skills audit and articulation into the National Seafood Industry Training Package project has successfully reached its milestones. The greatest achievement has been the development of the nine new units of competency for the SFITP. These units truly reflect the diversity of research areas that have been undertaken during the course of the Seafood CRC. In years to come these units will be used many times by learners and industry alike and will leave a real legacy which in turn acknowledges all of the tireless work many individuals and organisations have collectively put in to ensure that the Seafood CRC has met and surpassed the high level of expectations it had before commencement.

Appendix

Appendix 1

New Units of Competency

Special Note

As this part of the Appendix would be over 300 pages in length files have been added as *Objects*. Simply click on the object with your mouse and the file will open in the relevant program.

Australian Government

Department of Education, Employment and Workplace Relations

Implementing low water exchange microbial floc technologies

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

Analyse domestic seafood market opportunities

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

Analyse international seafood market opportunities

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

Culture new aquaculture species

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

Develop and implement a seafood waste utilisation strategy

Release: 1

ISC INDUSTRY SKILLS COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIAQUA502C Develop and implement an aquaculture breeding strategy

Release: 1

Australian Government

Department of Education, Employment and Workplace Relations

Develop fishery optimisation strategies

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

Manage a farm based aquaculture research trial

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

Provide information about seafood product

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Appendix 2

Existing Modified Units

Australian Government

Department of Education, Employment and Workplace Relations

SFIAQUA314A Support hatchery operations

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIAQUA205C Feed stock

Release: 1

Australian Government

Department of Education, Employment and Workplace Relations

SFIAQUA308C Maintain water quality and environmental monitoring

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIAQUA222A Control diseases

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIPROC609C Monitor the seafood business environment to determine threats and opportunities

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIPROC604C Plan and develop formulations and/or specifications for new seafood product

Release: 1

INDUSTRY SKILLS COUNCILS

Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIPROC603C Develop and manage seafood and related product production trials

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIPROC602C Plan and manage seafood and related product concept development

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIDIST202C Retail fresh, frozen and live seafood

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIAQUA318A Coordinate feed activities

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFISTOR205A Prepare, pack and dispatch non-live product

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Australian Government

Department of Education, Employment and Workplace Relations

SFIAQUA317A Oversee the control of diseases

Release: 1

INDUSTRY
SKILLS
COUNCILS
Creating Australia's Future

Appendix 3

Skills Review

CRC Skills / Knowledge Mapping Matrix

| | | | | = N/A |

Research Title	Author/s	Research Institution	Date Published	Generic Skills / Knowledge
				Skills
MARKETING & MARKET ACCESS				
Review of Technical Market Access Issues Relevant to Australian Seafood Industry Members of the Seafood CRC.	David Padula; Andrew Pointon	SARDI	Oct-07	