



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **SFIAQUA406C Seed and harvest round pearls**

**Release: 1**

## **SFIAQUA406C Seed and harvest round pearls**

### **Modification History**

Not Applicable

## Unit Descriptor

<p><b>Unit descriptor</b></p>	<p>This unit of competency involves seeding of round pearls, caring of stock and subsequent harvesting of round pearls from a range of molluscs, particularly pearl oysters, freshwater mussels, abalone and conch. It covers interpreting instructions, selecting equipment and method of operation, data entry and analysis, supervising staff and conveying of information.</p> <p>Licensing, legislative, regulatory or certification requirements may apply to this unit. Therefore it will be necessary to check with the relevant state or territory regulators for current licensing, legislative or regulatory requirements before undertaking this unit.</p>
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## Application of the Unit

<p><b>Application of the unit</b></p>	<p>This unit has application to the pearling industry where the seeding and harvesting of round pearls is regarded as a specialised technical skill. Personnel who carry out this work may also supervise the work of others. The removal of the molluscs from the sea can be performed by divers.</p> <p>Skills in supervising and assessing the performance of staff are covered by AHCWRK403A Supervise work routines and staff performance.</p> <p><b>Licences may be required if:</b></p> <ul style="list-style-type: none"> <li>• diving</li> <li>• operating vessels.</li> </ul> <p>All enterprise or workplace procedures and activities are carried out according to <i>relevant government regulations, licensing and other compliance requirements</i>, including <i>occupational health and safety (OHS) guidelines</i> and <i>ecologically sustainable development (ESD) principles</i>.</p> <p>Equipment operation, maintenance, repairs and calibrations are undertaken in a safe manner that conforms to manufacturer instructions. Appropriate <i>personal protective equipment (PPE)</i> is selected, checked, used and maintained.</p>
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## Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

<b>Prerequisite units</b>		

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan for round pearl seeding	1.1. <b>Seeding schedule</b> is read and confirmed with senior personnel. 1.2. <b>Labour</b> and <b>resource requirements</b> for handling are determined and arranged. 1.3. Factors which could place the health of stock at risk during seeding are identified and plans made to minimise risk. 1.4. Operational guidelines to achieve desired handling objectives are planned and communicated effectively to staff.
2. Organise for round pearl seeding	2.1. Equipment is collected and checked for serviceability. 2.2. Repairs and calibrations are made to sub-standard equipment according to manufacturer instructions. 2.3. Transport and holding arrangements are confirmed with contractors or internal staff as appropriate.
3. Carry out round pearl seeding	3.1. Equipment, tools and nuclei are positioned and operated. 3.2. Stock to be seeded are identified and retrieved as directed, and prepared with minimal stress and least risk of injury. 3.3. Stock behaviour is anticipated and controlled. 3.4. Pieces of mantle are prepared from sacrificial oyster. 3.5. Stock are seeded with round pearl in a reasonable time and according to instructions. 3.6. Stock are restocked in their intended culture structure in a reasonable time and allowed to recover and undergo a turning process.
4. Monitor round pearl growth and production and undertake harvesting	4.1. Stock are X-rayed for nuclei retention and returned to culture structure in a reasonable time. 4.2. Full pearls are removed from stock and stock re-seeded, if appropriate, before being returned to culture structure in a reasonable time. 4.3. Seeding activities are supervised and monitored to ensure consistency with harvest schedule and operation guidelines. 4.4. Work practices are monitored to ensure minimal stock stress and damage.
5. Review round pearl	5.1. Clean up of work area, including repairs and storage of equipment, is supervised and condition report

ELEMENT	PERFORMANCE CRITERIA
production	<p>prepared.</p> <p>5.2. Relevant round pearl production data, observations or information are recorded legibly and accurately, and any out of range or unusual records checked.</p> <p>5.3. Compliance and other required reports prepared and conveyed to senior personnel advising of the effectiveness of round pearl production, and recommendations made for improvements.</p> <p>5.4. Staff are given feedback on their work performance.</p>

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

- communicating details of the stock handling operation so staff understand their roles and responsibilities
- communicating with senior personnel on seeding schedule, and labour and resource arrangements
- handling stock
- identifying opportunities for improvement
- maintaining and repairing advanced handling and monitoring equipment
- operating advanced handling and monitoring equipment
- operating radiography equipment
- organising and coordinating labour, transport and holding facilities
- providing feedback to staff on their performance in relation to stock handling, seeding and harvesting activities
- recognising normal stock behaviour and environmental conditions
- reporting orally and in writing to senior personnel on round pearl production activities and recommendations for improvement
- seeding stock.

#### Literacy skills used for:

- reading and interpreting seeding schedule
- recording handling, seeding and harvest information
- writing reports on seeding and harvest activities.

**REQUIRED SKILLS AND KNOWLEDGE**

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**Numeracy skills used for:**

- calibrating equipment
- counting stock.

**Required knowledge**

- advanced stock behaviour and biological requirements as they relate to seeding and harvesting of pearls
- handling hand monitoring equipment maintenance and advanced repairs
- safety considerations and hazards associated with stock handling equipment options and limitations, including use of radiography equipment.

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
<b>Overview of assessment</b>	
<b>Critical aspects for assessment evidence required to demonstrate competence in this unit</b>	<p>Assessment must confirm the ability to:</p> <ul style="list-style-type: none"> <li>• seed and harvest round pearls to acceptable industry standards</li> <li>• supervise staff assisting in the process.</li> </ul> <p>Assessment must confirm knowledge of:</p> <ul style="list-style-type: none"> <li>• seeding and harvesting techniques.</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>Assessment is to be conducted at the workplace or in a simulated work environment.</p> <p>Resources may include:</p> <ul style="list-style-type: none"> <li>• seeding schedule</li> <li>• stock suitable for seeding</li> <li>• seeding laboratory, equipment, tools and nuclei.</li> </ul>
<b>Method of assessment</b>	<p>The following assessment methods are suggested:</p> <ul style="list-style-type: none"> <li>• demonstration</li> <li>• practical exercises</li> <li>• written or oral short-answer testing.</li> </ul>
<b>Guidance information for assessment</b>	This unit may be assessed holistically with other units within a qualification.

## Range Statement

<b>RANGE STATEMENT</b>
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. <b>Bold italicised</b> wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work



<b>RANGE STATEMENT</b>	
situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
<p><b><i>Relevant government regulations, licensing and other compliance requirements</i></b> may include:</p>	<ul style="list-style-type: none"> <li>• business or workplace operations, policies and practices:               <ul style="list-style-type: none"> <li>• commercial law, including fair trading and trade practices</li> <li>• consumer law</li> <li>• corporate law, including registration, licensing and financial reporting</li> <li>• disability policies and practices</li> <li>• equal opportunity, anti-discrimination and sexual harassment</li> <li>• industrial relations and awards, individual employment contracts and share of catch agreements</li> <li>• jurisdictional variations</li> <li>• superannuation</li> <li>• taxation</li> <li>• trade practices</li> <li>• warnings and dismissals</li> <li>• worker's compensation</li> </ul> </li> <li>• ESD principles, environmental hazard identification, risk assessment and control</li> <li>• fisheries or aquaculture regulations, permits, licences, quotas, catch restrictions and other compliance requirements, including:               <ul style="list-style-type: none"> <li>• Australian Exclusive Economic Zone</li> <li>• international treaties and agreements</li> </ul> </li> <li>• imports quarantine and inspection, and importing approved arrangements for Australian Quarantine Inspection Service (AQIS), Australian Customs Service (ACS) and Biosecurity Australia (BA)</li> <li>• Indigenous native title, land claims and cultural activities, including fishing by traditional methods</li> <li>• maritime and occupational diving operations:               <ul style="list-style-type: none"> <li>• foreign and Australian legislation applying to quarantine and customs</li> <li>• International Convention for the Safety of Life at Sea (SOLAS)</li> </ul> </li> </ul>

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 1978)</li> <li>• Marine Emergency Response Search and Rescue (MERSAR)</li> <li>• National Standards for Commercial Vessels</li> <li>• pollution prevention - International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)</li> <li>• Uniform Shipping Laws (USL) Code</li> <li>• use of vessels, right of way and other marine orders, bunkering and refuelling</li> <li>• land, buildings and vehicles: <ul style="list-style-type: none"> <li>• buildings and structures design and appearance, constructions and additions</li> <li>• poaching, trespass and theft</li> <li>• road laws for use of motor vehicles, bikes, trucks and other transport equipment</li> <li>• soil and water management</li> <li>• use of chemicals and biological agents</li> <li>• use of firearms and powerheads</li> <li>• use of utilities, including water, natural gas, electricity and sewage</li> <li>• water or land lease, tenure or ownership and use</li> </ul> </li> <li>• OHS hazard identification, risk assessment and control</li> <li>• product quality assurance: <ul style="list-style-type: none"> <li>• correct naming and labelling (e.g. country of origin, Australian Fish Names Standard and eco-labelling)</li> <li>• correct quantities, sizes and other customer requirements</li> <li>• third-party certification (e.g. Australian Grown and ISO 14001:2004 Environmental management systems).</li> </ul> </li> </ul>
<i>OHS guidelines</i> may include:	<ul style="list-style-type: none"> <li>• appropriate workplace provision of first aid kits and fire extinguishers</li> <li>• clean, uncluttered, hygienic workplace</li> <li>• codes of practice, regulations and/or guidance notes which may apply in a jurisdiction or</li> </ul>

<b>RANGE STATEMENT</b>	
	<p>industry sector</p> <ul style="list-style-type: none"> <li>• enterprise-specific OHS procedures, policies or standards</li> <li>• hazard and risk assessment of workplace, maintenance activities and control measures</li> <li>• induction or training of staff, contractors and visitors in relevant OHS procedures and/or requirements to allow them to carry out their duties in a safe manner</li> <li>• OHS training register</li> <li>• safe lifting, carrying and handling techniques, including manual handling, and the handling and storage of hazardous substances</li> <li>• safe systems and procedures for outdoor work, including protection from solar radiation, fall protection, confined space entry and the protection of people in the workplace</li> <li>• systems and procedures for the safe maintenance of property, machinery and equipment, including hydraulics and exposed moving parts</li> <li>• the appropriate use, maintenance and storage of PPE.</li> </ul>
<i>ESD principles</i> may include:	<ul style="list-style-type: none"> <li>• controlling use and recycling of water, and managing water quality and quantity</li> <li>• increasing use of renewable, recyclable and recoverable resources</li> <li>• managing environmental hazard identification, risk assessment and control</li> <li>• managing imported products quarantine and inspection, facility biosecurity, translocation of livestock and genetic material, and health certification</li> <li>• managing stock health and welfare, especially for handling, holding, transport and slaughter</li> <li>• managing sustainable fisheries or broodstock/seedstock collection requirements, such as size limits, quotas, season restrictions, population dynamics, fishing impacts, reducing by-catch, fisheries management strategies and maintaining biodiversity</li> <li>• managing, controlling and treating effluents, chemical residues, contaminants, wastes and pollution</li> </ul>

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• minimising noise, dust, light or odour emissions</li> <li>• planning environmental and resource efficiency improvements</li> <li>• preventing genetically modified and live cultured or held organisms from escaping into environment</li> <li>• protecting native and protected flora and fauna, marine or land parks or areas, adhering to the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), the Ramsar Convention, World Heritage and other international treaties for which Australia is a signatory</li> <li>• reducing emissions of greenhouse gases</li> <li>• reducing use of non-renewable resources</li> <li>• reducing disturbances to soils, erosion and surface water flows from machinery use and other activities</li> <li>• reducing energy use and introducing alternative energy sources.</li> </ul>
<b>PPE</b> may include:	<ul style="list-style-type: none"> <li>• buoyancy vest or personal floatation device (PFD)</li> <li>• gloves</li> <li>• non-slip and waterproof boots (gumboots) or other safety footwear</li> <li>• personal locator beacon or Emergency Position Indicating Radio Beacon (EPIRB)</li> <li>• protective eyewear, glasses and face mask</li> <li>• protective hair, beard and boot covers</li> <li>• protective outdoor clothing for tropical conditions</li> <li>• safety harness</li> <li>• sun protection (e.g. sun hat, sunscreen and sunglasses)</li> <li>• uniforms, overalls or protective clothing (e.g. mesh and waterproof aprons)</li> <li>• waterproof clothing (e.g. wet weather gear and waders).</li> </ul>
<b>Seeding</b> may include:	<ul style="list-style-type: none"> <li>• insertion of a nucleus (a rounded bead made from a bivalve shell, generally Mississippi pig mussel or mother-of-pearl) into the gonadal or somatic tissue of the shellfish for round pearl</li> </ul>

<b>RANGE STATEMENT</b>	
	production.
<i>Seeding schedule</i> may include:	<ul style="list-style-type: none"> <li>• cleaning</li> <li>• counting</li> <li>• insertion of nuclei</li> <li>• pegging</li> <li>• recovery</li> <li>• retrieval</li> <li>• turning (tento)</li> <li>• X-raying.</li> </ul>
<i>Labour requirements</i> may include:	<ul style="list-style-type: none"> <li>• divers</li> <li>• handling workers</li> <li>• specialised operators</li> <li>• vessel operators.</li> </ul>
<i>Resource requirements</i> may include:	<ul style="list-style-type: none"> <li>• seeding or harvesting and transport equipment</li> <li>• seeding or harvesting equipment, tools and nuclei</li> <li>• vessels, seeding or harvesting laboratory.</li> </ul>

### Unit Sector(s)

<b>Unit sector</b>	Aquaculture operations
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### Co-requisite units

<b>Co-requisite units</b>		

## Competency field

Competency field	
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