



Australian Government

Department of Education, Employment and Workplace Relations

SFIAQUA407C Coordinate sustainable aquacultural practices

Release: 1

SFIAQUA407C Coordinate sustainable aquacultural practices

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency involves coordinating sustainable practices in the operation of aquaculture, seafood holding or ornamental facilities. The unit includes implementing strategies that minimise waste, conserve energy resources and manage water use. 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.
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Application of the Unit

Application of the unit	This unit has application to all aquaculture, holding and ornamental facilities and their operations. Aquaculture enterprises are required to meet strict environmental requirements as part of their conditions of operation. Supervisory skills are covered by AHCWRK403A Supervise work routines and staff performance. All enterprise or workplace procedures and activities are carried out according to <i>relevant government regulations, licensing and other compliance requirements, including occupational health and safety (OHS) guidelines and ecologically sustainable development (ESD) principles.</i> 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.
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	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. Coordinate water quality and environmental monitoring programs	1.1. Strategies for meeting legislative and environmental obligations and allocations of labour and financial resources are confirmed with management. 1.2. Water quality variables and environmental criteria to be monitored are selected according to monitoring plans, and monitoring schedules are prepared and conveyed to staff. 1.3. External contractors are briefed on management policies and priorities. 1.4. Monitoring systems are developed to ensure that the quality of the water supply system meets the requirements of the cultured or held stock. 1.5. Options for mechanisation or automation of process or activity are assessed, including the use of specialised contract services, and recommendations made to senior personnel.
2. Develop effluent and waste treatment and disposal programs	2.1. Environmental risks are determined and effluent and waste treatment and disposal programs are developed to minimise emissions and discharges according to legislative requirements. 2.2. Options for on-site or off-site disposal of wastes are evaluated against environmental management plan. 2.3. Adverse environmental impacts due to effluent and waste treatments and disposal are minimised.
3. Manage water use for facility	3.1. Water is sourced from locations other than mains water, where possible and where appropriate. 3.2. On-land run-off or overflow water is managed to optimise its use and minimise pollutants entering river and drainage systems, settlement ponds or effluent treatment works are used appropriately according to management policies. 3.3. Culture or holding structures are positioned to achieve appropriate water flow and quality. 3.4. Stock production strategies are developed to efficiently use available water supply. 3.5. Water utilisation strategies are developed to minimise evaporation, run-off and seepage of water. 3.6. Contamination of water effluent with chemicals is minimised through sound utilisation strategies.
4. Finalise environmental	4.1. Clean up of work area, including repairs and storage of equipment, is supervised and condition report

ELEMENT	PERFORMANCE CRITERIA
protection activities	prepared. 4.2. Relevant environmental protection data, observations or information are recorded legibly and accurately, and any out of range or unusual records checked. 4.3. Compliance and other required reports are prepared and conveyed to senior personnel advising of the effectiveness of environmental protection, and recommendations made for improvements. 4.4. Staff are given feedback on their work performance. 4.5. Innovations in environmental protection are examined and implemented, when appropriate. 4.6. All environmental protection activities are confirmed as complying with government regulations and requirements. 4.7. Administrative planning takes into account the evaluation of environmental assets for insurance purposes.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- briefing staff on monitoring requirements and external contractors on management policy
- confirming legislative and environmental obligations with management
- assessing options for mechanisation or automation of process or activity, including the use of specialised contract services
- conserving energy resources
- coordinating the implementation and monitoring of multiple strategies to achieve ecologically ESD principles
- managing water use
- minimising waste
- providing feedback to staff on performance in relation to monitoring and environmental protection activities
- researching and analysing options for disposal of waste, the use of mechanised or automated equipment, and the use of contract services

REQUIRED SKILLS AND KNOWLEDGE

- reporting orally and in writing on environmental protection data and compliance to senior personnel
- undertaking an environmental audit.

Literacy skills used for:

- developing and documenting monitoring schedules
- reading and interpreting environmental protection guidelines and management policies
- reading and writing reports
- researching innovations in environmental protection.
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Numeracy skills used for:

- analysing budgets
- interpreting monitoring records.

Required knowledge

- conservation of energy and water resources
- energy flows and food webs
- environmental control standards
- legislative requirements, including OHS, HAZCHEM, duty of care and dangerous goods
- light or noise control
- nutrient cycling
- principles of composting and waste management
- principles of sustainable aquaculture, seafood holding or ornamental systems
- principles of recycling, reuse and reduction of wastes
- sediment or soil testing processes and procedures and results interpretation.

Evidence Guide

EVIDENCE GUIDE	
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.	
Overview of assessment	
Critical aspects for assessment evidence required to demonstrate competence in this unit	Assessment must confirm the ability to: • implement sustainable practices in the aquaculture, seafood holding or ornamental workplace. Assessment must confirm knowledge of: • conservation of energy and water resources • environmental control standards • legislative requirements, including OHS • principles of sustainable systems for aquaculture, seafood holding or ornamental facilities • principles of composting and waste management.
Context of and specific resources for assessment	Assessment is to be conducted at the workplace or in a simulated work environment. Coordination of sustainable practices is best assessed over a period of time and taking into account a range of environmental management strategies. Resources may include: • functional aquaculture, seafood holding or ornamental facility • management policies.
Method of assessment	The following assessment methods are suggested: • project (work or scenario based) • case study analysis • research assignment • written and oral short-answer tests.
Guidance information for assessment	This unit may be assessed holistically with other units within a qualification.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised 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 situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Relevant government regulations, licensing and other compliance requirements may include:

- business or workplace operations, policies and practices:
 - commercial law, including fair trading and trade practices
 - consumer law
 - corporate law, including registration, licensing and financial reporting
 - disability policies and practices
 - equal opportunity, anti-discrimination and sexual harassment
 - industrial relations and awards, individual employment contracts and share of catch agreements
 - jurisdictional variations
 - superannuation
 - taxation
 - trade practices
 - warnings and dismissals
 - worker's compensation
- ESD principles, environmental hazard identification, risk assessment and control
- fisheries or aquaculture regulations, permits, licences, quotas, catch restrictions and other compliance requirements, including:
 - Australian Exclusive Economic Zone
 - international treaties and agreements
- imports quarantine and inspection, and importing approved arrangements for Australian Quarantine Inspection Service (AQIS), Australian Customs Service (ACS) and Biosecurity Australia (BA)
- Indigenous native title, land claims and cultural activities, including fishing by traditional methods

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- maritime and occupational diving operations:
 - foreign and Australian legislation applying to quarantine and customs
 - International Convention for the Safety of Life at Sea (SOLAS)
 - International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 1978)
 - Marine Emergency Response Search and Rescue (MERSAR)
 - National Standards for Commercial Vessels
 - pollution prevention - International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)
 - Uniform Shipping Laws (USL) Code
 - use of vessels, right of way and other marine orders, bunkering and refuelling
- land, buildings and vehicles:
 - buildings and structures design and appearance, constructions and additions
 - poaching, trespass and theft
 - road laws for use of motor vehicles, bikes, trucks and other transport equipment
 - soil and water management
 - use of chemicals and biological agents
 - use of firearms and powerheads
 - use of utilities, including water, natural gas, electricity and sewage
 - water or land lease, tenure or ownership and use
- OHS hazard identification, risk assessment and control
- product quality assurance:
 - correct naming and labelling (e.g. country of origin, Australian Fish Names Standard and eco-labelling)
 - correct quantities, sizes and other customer requirements
 - third-party certification (e.g. Australian Grown and ISO 14001:2004 Environmental management systems).

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<i>OHS guidelines</i> may include:	• appropriate workplace provision of first aid kits and fire extinguishers • clean, uncluttered, hygienic workplace • codes of practice, regulations and/or guidance notes which may apply in a jurisdiction or industry sector • enterprise-specific OHS procedures, policies or standards • hazard and risk assessment of workplace, maintenance activities and control measures • 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 • OHS training register • safe lifting, carrying and handling techniques, including manual handling, and the handling and storage of hazardous substances • 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 • systems and procedures for the safe maintenance of property, machinery and equipment, including hydraulics and exposed moving parts • the appropriate use, maintenance and storage of PPE.
<i>ESD principles</i> may include:	• controlling use and recycling of water, and managing water quality and quantity • increasing use of renewable, recyclable and recoverable resources • managing environmental hazard identification, risk assessment and control • managing imported products quarantine and inspection, facility biosecurity, translocation of livestock and genetic material, and health certification • managing stock health and welfare, especially for handling, holding, transport and slaughter • managing sustainable fisheries or broodstock/seedstock collection requirements, such as size limits, quotas, season restrictions,

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	population dynamics, fishing impacts, reducing by-catch, fisheries management strategies and maintaining biodiversity • managing, controlling and treating effluents, chemical residues, contaminants, wastes and pollution • minimising noise, dust, light or odour emissions • planning environmental and resource efficiency improvements • preventing genetically modified and live cultured or held organisms from escaping into environment • 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. • reducing emissions of greenhouse gases • reducing use of non-renewable resources • reducing disturbances to soils, erosion and surface water flows from machinery use and other activities • reducing energy use and introducing alternative energy sources.
PPE may include:	• buoyancy vest or personal floatation device (PFD) • gloves, mitts or gauntlets, and protective hand and arm covering • hard hat or protective head covering • hearing protection (e.g. ear plugs and ear muffs) • insulated protective clothing for freezers or chillers and refrigeration units • non-slip and waterproof boots (gumboots) or other safety footwear • personal locator beacon or Emergency Position Indicating Radio Beacon (EPIRB) • protective eyewear, glasses and face mask • protective hair, beard and boot covers • protective outdoor clothing for tropical

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	conditions • respirator or face mask • safety harness • sun protection (e.g. sun hat, sunscreen and sunglasses) • uniforms, overalls or protective clothing (e.g. mesh and waterproof aprons) • waterproof clothing (e.g. wet weather gear and waders).
<i>Water quality variables</i> may include:	• alkalinity • ammonia • carbon dioxide • dissolved organic matter • dissolved oxygen • hardness and carbonate hardness • nitrate • nitrite • pH • phosphorus • salinity and conductivity • temperature • turbidity, suspended and settleable solids.
<i>Environmental criteria</i> may include:	• activity of pests and predators • climatic conditions (e.g. rainfall, amount of cloud cover, and wind direction and speed) • coastal geology • contaminants • economic issues • historic, cultural or other social issues • Indigenous issues (e.g. native title) • natural foods • polyculture, aquaponics and hydroponics • stakeholder interests • tidal flow direction and speed • water quality variables • wave size and direction.
<i>Waste treatment and disposal programs</i> may include:	• constructed wetlands • mechanical, chemical or biological filters • rearing of filter feeding species, aquatic plants or seaweed

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	• self-composting toilets or septic tanks • settlement ponds.
Emissions and discharges may include:	• fumes • gas • light • liquids and solids • noise • odour • particulates • smoke • vapour.
Wastes may include:	• chemical • construction waste • fouling organisms • glass • green waste • metals • moribund or dead stock • paper • plastics • processing leftovers • solid and soluble waste.
Run-off may include:	• cooling systems • inefficient or defective drains • irrigation systems • rain • stormwater • water supply.
Chemicals may include:	• antifoulants • biological agents • chemical • fertilisers • pesticides, herbicides and other poisons.

Unit Sector(s)

Unit sector	Aquaculture operations
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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