



National Unit specification: general information

Unit title: Aquaculture: Cage Operations

Unit code: H037 11

Superclass: SJ

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Summary

The purpose of this Unit is to enable candidates to develop an appreciation of the site selection processes, and the current legislation affecting the siting and use of floating cages in freshwater and marine fin fish farming. On completion, candidates will be able to recognise the main types of cage, the types of materials used in cage construction and the types of mooring systems used to ensure the containment of fin fish stocks. Candidates will also gain knowledge and practical competence related to the husbandry of fin fish stocks including feeding and grading.

The Unit is suitable for candidates who are either new entrants or those already working in aquaculture. Candidates must have access to a fin fish cage farm to achieve the practical competencies.

This is an optional Unit in the NPA in Fish Husbandry (SCQF level 5), and the NPA in Fish Health and Nutrition (SCQF level 5). It is also available as a freestanding Unit.

Outcomes

- 1 Describe site selection procedures and the design of cage systems including the fitting and maintenance of cage nets.
- 2 Describe husbandry operations for a fin fish farm cage site.
- 3 Carry out husbandry operations on a fin fish farm cage site.

Recommended entry

Entry is at the discretion of the centre.

General information (cont)

Credit points and level

1 National Unit credit at SCQF level 5: (6 SCQF credit points at SCQF level 5*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Core Skills

Achievement of this Unit gives automatic certification of the following Core Skills component:

- ◆ Critical Thinking at SCQF level 4

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit specification.

National Unit specification: statement of standards

Unit title: Aquaculture: Cage Operations (SCQF level 5)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

All activities must be carried out according to current legislation and recognised Standard Operating Procedures (SOP).

Outcome 1

Describe site selection procedures and the design of cage systems including the fitting and maintenance of cage nets.

Performance Criteria

- (a) describe the procedures and criteria used for cage site selection.
- (b) identify and describe the types of cage commonly used in commercial fin fish farming.
- (c) identify appropriate cage systems with regard to given site conditions.
- (d) describe cage configurations and mooring systems used for a given site.
- (e) describe the procedures involved in fitting and maintaining cage nets for a given site.

Outcome 2

Describe husbandry operations for a fin fish farm cage site.

Performance Criteria

- (a) describe the procedures used to stock cages with fin fish at the required stocking density.
- (b) describe feeding systems used to feed fin fish in cages.
- (c) describe the monitoring procedures used on a cage farm.
- (d) describe the methods used to remove fin fish from cages.
- (e) describe containment procedures.

Outcome 3

Carry out husbandry operations on a fish farm cage site

Performance Criteria

- (a) assist in the maintenance of cage nets according to a given site standard operating procedure.
- (b) feed fin fish in a cage according to a given site standard operating procedure.
- (c) conduct monitoring procedures for a cage fin fish farm according to a given site Standard Operating Procedure (SOP).

National Unit specification: statement of standards (cont)

Unit title: Aquaculture: Cage Operations (SCQF level 5)

Evidence Requirements for this Unit

Evidence is required to demonstrate that candidates have met the requirements of all Outcomes and Performance Criteria.

Candidates must have access to a fin fish farm to achieve the practical competences. All activities must be carried out in accordance with current legislation and Standard Operating Procedures.

Outcomes 1 and 2 — written and/or oral recorded evidence that demonstrates that the candidate can:

- ◆ describe the procedures for cage site selection including reference to current legislation and appropriate industry codes of good practice.
- ◆ identify and describe a minimum of two types of cages commonly used in commercial fin fish farming.
- ◆ select suitable cages for two given sites.
- ◆ describe a minimum of one cage configuration and one mooring system for a given site.
- ◆ describe a minimum of three tasks involved in fitting and maintaining cage nets for a given farm.

The candidate must describe the following husbandry operations for a cage fin fish farm:

- ◆ one method of stocking fin fish in cages at the required stocking density.
- ◆ two methods of feeding fin fish in cages.
- ◆ procedures for monitoring fin fish growth, feeding response and health, including effective containment of fish stocks.
- ◆ procedures for monitoring two environmental conditions.
- ◆ two methods for effectively moving live fin fish from a cage when grading and harvesting.
- ◆ two methods for effectively removing fin fish mortalities from a cage.

Evidence will be produced in closed-book conditions.

Outcome 3 — Performance evidence that demonstrates that the candidate can:

- ◆ assist in the maintenance of a cage net with reference to appropriate industry codes of practice and according to a given site Standard Operating Procedure.
- ◆ assist in the fitting of a top net according to a given site Standard Operating Procedure.
- ◆ feed fin fish in a cage on a minimum of one occasion according to a given site Standard Operating Procedure.
- ◆ monitor fin fish growth, feeding response and health according to a given site Standard Operating Procedure.
- ◆ monitor two environmental conditions according to a given site Standard Operating Procedure.

Evidence will be produced in supervised open-book conditions.

National Unit specification: support notes

Unit title: Aquaculture: Cage Operations (SCQF level 5)

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This is an optional Unit in the NPA in Fish Husbandry (SCQF level 5), and the NPA in Fish Health and Nutrition (SCQF level 5). It is also available as a freestanding Unit.

The Unit is aligned to the following LANTRA Sector Skills Council's National Occupational Standard (NOS) Units:

- ◆ Aqu 1 Prepare holding Units to receive fish
- ◆ Aqu 2 Stock fish into holding Units
- ◆ Aqu 3 Gather fish
- ◆ Aqu 6 Prepare to and feed fish
- ◆ Aqu 7 Collect information of fish growth and development
- ◆ Aqu 11 Carry out routine maintenance and repairs on aquaculture facilities
- ◆ Aqu 12 Monitor the aquatic production environment
- ◆ Aqu 13 Maintain environmental conditions within holding Units
- ◆ Aqu 19 Prepare for the transport of live fish
- ◆ Aqu 20 Transport live fish
- ◆ Aqu 37 Work safely in an aquatic environment

This Unit covers cage site selection criteria and legislation, types and materials used to construct cages, cage configurations, mooring systems, monitoring, maintenance and husbandry tasks that take place on commercial cage systems. Candidates should have access to a fin fish cage farm to achieve the practical competencies.

Outcome 1 covers site selection criteria and legislation, cage types, materials used in the manufacture of cage components, cage configurations and mooring systems.

Cage net fitting and maintenance will be described to include predator nets and cage nets that hold fin fish, and how current legislation and industry codes of good practice deal with containment.

National Unit Specification: support notes (cont)

Unit title Aquaculture: Cage Operations (SCQF level 5)

Outcome 2 covers the description of husbandry tasks that take place on a cage system. This should cover sites in freshwater and marine situations. The standards necessary to ensure that high standards of fin fish welfare are maintained is a recurring theme throughout handling and husbandry tasks.

This will include:

- ◆ methods of stocking cages with fin fish
- ◆ methods of feeding fin fish in a cage
- ◆ monitoring fin fish growth, feeding response and fin fish health
- ◆ monitoring environmental conditions such as water temperature, dissolved oxygen, turbidity and salinity

Outcome 3 covers practical husbandry tasks on one cage system and should include:

- ◆ maintaining a cage net and fitting a top net.
- ◆ feeding fin fish in a cage.
- ◆ monitoring fin fish growth, feeding response and fin fish health.
- ◆ monitoring two environmental conditions from: water temperature; dissolved oxygen, turbidity; salinity.

Candidates must understand the importance of carrying out all routine fin fish husbandry operations on a cage site in line with current health and safety legislation, containment procedures and fin fish welfare standards. This must include reference to SOP and the requirements for appropriate personal protective equipment (PPE).

Guidance on learning and teaching approaches for this Unit

This Unit lends itself to a range of teaching and learning approaches that give consideration to the Curriculum for Excellence capacities and Equalities legislation, through reasonable adjustment for all candidates. Introduction to cages including selection criteria and legislation, types, materials used in manufacture, cage mooring and the use of cage nets could be delivered in a classroom situation with sessions used to investigate the appropriate cage type for a selection of sites.

A visit to a working cage site could be used to demonstrate the cage types, materials, mooring and cage nets. If possible, visits to more than one site would help candidates to appreciate differences in cage type and mooring system.

Access to cages is necessary to fulfil the requirements of Outcome 3. Candidates must feed fin fish, fit predator nets, clean and repair cage nets, monitor fin fish in cages for growth and disease as well as the environment around the cages.

There is scope for student-centred learning exercises based on text references, internet-based resources and interactive IT-based learning objects presented within a virtual learning environment (VLE).

National Unit Specification: support notes (cont)

Guidance on approaches to assessment for this Unit

Outcomes 1 and 2 could be assessed using an integrated open-book approach such as a portfolio of evidence.

Outcome 3 requires the observation of practical activity with the results recorded on checklists to satisfy the Performance Criteria. Evidence could be gathered on an ongoing basis through the observation of candidates performing routine operations and monitoring of fin fish and the cage environment.

Time should be allowed for any necessary re-assessment.

Assessor observation checklists and other assessment records should be maintained and kept up to date to keep track of candidate progress and to provide evidence for internal and external verification purposes.

Centres must be satisfied that the evidence submitted is the work of individual candidates.

Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Opportunities for developing Core Skills

In this Unit candidates will develop skills in the siting and use of floating cages in freshwater and marine fin fish farming.

Candidates will:

- ◆ describe the procedures and legislation requirements for cage siting
- ◆ describe common cage types and their suitability for different site conditions
- ◆ describe cage mooring systems used for a given site and the procedures involved in fitting and maintaining cage nets.
- ◆ carry out husbandry operations including, feeding fin fish, fitting predator nets, cleaning and repairing cage nets, monitoring fin fish in cages for growth and disease as well as the environment around the cages.

This means that as candidates are doing this Unit they will be developing aspects of the Core Skills of *Communication* and *Problem Solving*.

This Unit has the Problem Solving component of Critical Thinking embedded in it. This means that when candidates achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 4.

National Unit specification: support notes (cont)

Unit title: Aquaculture: Cage Operations (SCQF level 5)

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

History of changes to Unit

Version	Description of change	Date
02	Core Skills Component Critical Thinking at SCQF level 4 embedded.	06/01/12

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