



National Unit Specification: general information

UNIT Aquaculture: An Introduction to Finfish Production (SCQF level 4)

CODE F6TB 10

SUMMARY

This Unit is designed to meet the needs of candidates with no previous knowledge of fish farming. The candidate will be made aware of the fish rearing environment and facilities, as well as the production cycle and the main tasks associated with it.

OUTCOMES

- 1 Describe finfish anatomy and the fish production cycle.
- 2 Describe the holding units used to rear farmed finfish.
- 3 Describe and demonstrate the main husbandry tasks that are performed in on-growing farmed finfish.

RECOMMENDED ENTRY

Entry is at the discretion of the centre.

CREDIT VALUE

1 credit at SCQF level 4 (6 SCQF credit points at SCQF level 4*).

**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.*

Administrative Information

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CORE SKILLS

There is no automatic certification of Core Skills in this Unit.

There are opportunities for Core Skill development; these are highlighted in the Support Notes of this Unit Specification.

National Unit Specification: statement of standards

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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.

OUTCOME 1

Describe finfish anatomy and the fish production cycle.

Performance Criteria

- (a) Identify correctly the main external features and internal organs of a selected species of farmed finfish.
- (b) State accurately the functions of the main external features and internal organs of a selected species of farmed finfish.
- (c) Describe correctly the stages of the production cycle for a selected species of farmed finfish.

OUTCOME 2

Describe the holding units used to rear farmed finfish.

Performance Criteria

- (a) Describe correctly different types of holding units used to rear farmed finfish.
- (b) State accurately the types of materials used to construct holding units used to rear farmed finfish.
- (c) State accurately the advantages and disadvantages of holding units used to rear farmed finfish.

OUTCOME 3

Describe and demonstrate the main husbandry tasks that are performed in on-growing farmed finfish.

Performance Criteria

- (a) Monitor and maintain accurately the rearing environment for farmed finfish.
- (b) Outline accurately the methods used to feed, grade and harvest farmed finfish.
- (c) Demonstrate correctly the methods used to monitor finfish production performance and health.

National Unit Specification: statement of standards (cont)

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EVIDENCE REQUIREMENTS FOR THIS UNIT

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

Outcome 1 — Written and/or recorded oral evidence

The candidate must:

- ◆ produce written and/or recorded oral evidence completed to a given structure, for one species of farmed fish, to include a minimum of six external features and a minimum of six internal organs (this must include gills, liver and kidney) and the main stages of the production cycle

One species to be chosen from the following: Atlantic salmon, rainbow trout, brown trout, Atlantic cod, halibut and common carp.

Outcome 2 — Written and/or recorded oral evidence

The candidate must:

- ◆ list the types of holding units, giving two advantages and two disadvantages of each type of holding unit covering:
 - tanks
 - ponds
 - raceways
 - cages
- ◆ produce written and/or recorded oral evidence, to a given structure which describes:
 - the basic design features of one of the above finfish holding units
 - the types of materials used to construct one of the above finfish holding units

Outcome 3 - Written and/or recorded oral and performance evidence

The candidate must:

- ◆ describe the following husbandry practices used during the rearing of one given species of farmed finfish chosen from: Atlantic salmon, rainbow trout, brown trout, Atlantic cod, Atlantic halibut and common carp

Written and/or recorded oral evidence for:

- ◆ two finfish feeding methods using one feed type
- ◆ two finfish grading methods
- ◆ one finfish harvesting method — to include capture, slaughter and post slaughter handling

National Unit Specification: statement of standards (cont)

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The candidate must demonstrate in accordance with industry recognised standards, the following husbandry practices used during the rearing of a given species of farmed finfish chosen from Atlantic salmon, rainbow trout, brown trout, Atlantic cod, Atlantic halibut and common carp.

Performance evidence for:

- ◆ environmental monitoring — to include water quality and mortality removal
- ◆ finfish growth monitoring by sample weighing
- ◆ finfish disease monitoring — to include observation of fish behaviour and external signs of disease

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.

The Assessment Support Pack for this Unit provides instruments of assessment for Outcomes 1 and 2, assessor checklists for Outcome 3 and assessor guidance. Centres wishing to develop their own assessments should refer to the assessment support pack to ensure a comparable standard.

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

National Unit Specification: support notes

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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 Unit is an optional Unit within the NPA in Aquaculture at SCQF level 4 but could also be taken as a free-standing Unit.

This Unit is aligned to the following Lantra, Sector Skills Council's National Occupational Standard (NOS) Units:

- ◆ Prepare and stock fish holding units (Aqc 1)
- ◆ Grade live fish (Aqc 2)
- ◆ Maintain the aquatic production environment (CU 52)
- ◆ Harvest fish for human consumption (Aqc 3)
- ◆ Feed finfish (Aqc 4)

The Unit covers the basics of finfish production to allow the candidate to gain the knowledge to progress towards further related study or to enter the fish farming industry to gain more experience.

Outcome 1 covers basic anatomy of a finfish to include the identification and functions of the main external features and internal organs of a fish.

The farmed finfish production cycle should be described for one species, stating the main stages of the cycle and the technical terms used for the developmental stages of the fish.

Outcome 2 covers finfish holding units to include their design and how this affects the water flow within the holding Unit. Commonly used water inflow and outflow systems could also be described for each of the main holding Unit types, where applicable.

The most common types of materials used to construct holding units should be described giving reasons why these materials are used.

Possible advantages and disadvantages for each type of holding unit should be discussed.

Outcome 3 covers the main husbandry tasks that need to take place to rear a given farmed finfish successfully from the start of the rearing cycle to the point when the finfish leave the site. These tasks could include the following operations.

- ◆ Feeding of fish using two different methods.
- ◆ Monitoring aspects of the production environment such as water quantity, water quality and holding unit hygiene.
- ◆ Monitoring of the growth of fish through regular sample weighing and assessing efficiency of feed utilisation.
- ◆ Grading of fish into two or more size classes and grading individual fish to a required specification by hand.

National Unit Specification: support notes (cont)

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- ◆ Monitoring the fish for disease on a regular basis by taking random samples from holding units and assessing external condition. Monitoring of fish behaviour should also be undertaken to assess health status.
- ◆ Harvesting fish that are ready to be sold for the table.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Introduction to the biology of fish and fish production cycles could be delivered in a classroom situation with laboratory practical sessions used to reinforce the external features and internal organs of fish.

A visit to a working fish farm could be used as an example to demonstrate the stages of a fish production cycle.

Candidates could be encouraged to research the biology and production cycle of their chosen species of finfish from textbooks, periodicals, industry publications and internet sources as a back up to the classroom sessions.

An introduction to fish holding units could be delivered in a classroom situation and the candidates could also be encouraged to research finfish holding unit types, their design and materials used in their construction.

A visit to a working fish farm would be beneficial to show holding unit types and could trigger discussions on their advantages and disadvantages and on the types of materials used.

The advantages and disadvantages of each type of holding unit could also be researched using textbooks, industry publications and internet sources.

Visits to different finfish farms could also be encouraged whenever possible to see holding units containing fish and to observe husbandry tasks while they are taking place.

Where possible the candidate should be given the opportunity to get involved with husbandry tasks that take place on a fish farm. Such tasks could include:

- ◆ Monitoring of water quantity and quality, removal of waste and mortalities
- ◆ Sample weighing of fish and assisting in the calculation of average weights, weight of stock in holding units and Food Conversion Ratios
- ◆ Monitoring of fish health through observation of behaviour and external appearance
- ◆ Feeding populations of fish as determined by the supervisor
- ◆ Grade fish populations for a given specification.

National Unit Specification: support notes (cont)

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OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

Written and/or Oral Communication skills can be developed in this Unit, particularly through report writing and producing clear descriptions of tasks and the use of labelled diagrams.

IT could be used to research information and retrieve information for a population of fish using the software on a fish farm computer.

Numeracy skills could be developed during sample weighing and the calculation of total fish weights in holding units as well as through the calculation of Feed Conversion Ratios.

Throughout the undertaking of practical tasks, the candidate will be faced with various problems and will have opportunities to develop *Problem Solving* and *Working with Others* skills.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Outcome 1

This Outcome could be assessed by a portfolio of evidence produced in supervised conditions. The portfolio should contain identifications and descriptions of external features and internal organs together with a short report on the production cycle of a selected species of fish. The structure of the portfolio should be determined by the assessor.

Outcome 2

This Outcome could be also be assessed by a portfolio of evidence produced to a given structure in supervised conditions.

Outcome 3

The written and/or recorded oral evidence could also take the form of a portfolio of evidence produced to a given structure in supervised conditions.

The practical aspects of this Outcome should be assessed by performance evidence and observation checklists.

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 e-checklists. 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)*.

Time should be allowed for any necessary re-assessment.

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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