Higher National Unit specification

General information for centres

Unit title: Fish Farm Records

Unit code: F4S4 34

Unit purpose: This Unit will provide candidates with the skills and knowledge to maintain fish stock and fish farm recording systems required to monitor populations of fish, equipment and resources.

On completion of the Unit the candidate should be able to:

1 Calculate and compile data to monitor fish stock production.
2 Explain the requirements for fish stock records.
3 Maintain records and inventories of fish farm resources and equipment.
4 Maintain a computer-based fish farm recording system.

Credit points and level: 1 HN credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**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.*

Recommended prior knowledge and skills: While entry to this Unit will be at the discretion of the centre, it may be beneficial if candidates are working towards the following HN Units: *Fish Hatchery Management (Salmonid)*, *Fish Production Management* and *Using Software Applications Packages*.

Core Skills: There are opportunities to develop the Core Skill of *IT* at SCQF level 5 and the Core Skill component of Using Number (*Numeracy*) at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

Assessment: It recommended that this Unit is assessed by observation of a candidate's ability to calculate, compile, maintain and enter data and obtain information from a computerised stock recording system. This could be supported by the production of evidence output from the computer-based stock recording system.

In addition, extended response questions could be used to facilitate explanation of legal requirements and consequences of non-compliance (Outcome 2) and the benefits of a specific computer-based fish recording system (Outcome 4).

Higher National Unit specification: statement of standards

Unit title: Fish Farm Records

Unit code: F4S4 34

The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Calculate and compile data to monitor fish stock production

Knowledge and/or Skills

- Fish size and condition factor
- Fish population monitoring
- Stocking density

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can, for a statistically valid sample:

- calculate average weight, average length and standard deviation for a given population of fish and express the results in the form of a bar chart
- calculate the condition factors of a given population of fish based on weight and length data
- calculate the total biomass of a given population of fish
- calculate the stocking density of a given population based on biomass data and the calculation of water volume of the ongrowing unit
- compile a table or spreadsheet detailing in appropriate units of measurement, number, average weight, average length, total biomass, volume of ongrowing Unit and stocking density for a given population of fish

The evidence for this Outcome must be produced in supervised conditions. Candidates should have access to a calculator.

Assessment Guidelines

This Outcome could be assessed in conjunction with Outcomes 2 and 4, details of which are given at the end of Outcome 4.

Higher National Unit specification: statement of standards (cont)

Unit title: Fish Farm Records

Outcome 2

Explain the requirements for fish stock records

Knowledge and/or Skills

- Fish stock records
- Changes in fish populations within a fish farm
- Legal requirements for fish recording

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- maintain fish stock records by monitoring a farm stock composed of six discrete populations over a period of not less than two months. Within this period, daily husbandry effects and movement effects should be accounted for. Also within this period, incoming stock and outgoing stock should be accounted for over three stock movements.
- explain the legal requirements of maintaining accurate records regarding fish stocks, fish movements and fish losses.
- explain the consequences of non-compliance with legal requirements regarding fish movements and fish losses.

The evidence for this Outcome must be produced in supervised conditions. Candidates should have access to a calculator or PC but not to a PC with specific fish stock records software.

Assessment Guidelines

This Outcome could be assessed in conjunction with Outcomes 1 and 4 details of which are given at the end of Outcome 4.

Higher National Unit specification: statement of standards (cont)

Unit title: Fish Farm Records

Outcome 3

Maintain records and inventories of fish farm resources and equipment

Knowledge and/or Skills

- Feed stock records
- Chemical and medicine stock records
- Fish farm equipment inventories

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can, over a two month period:

- maintain up-to-date farm stock records to cover fish feed purchases and consumption
- maintain up-to-date farm stock records to cover chemical and medicine purchases, storage and usage
- maintain an up-to-date farm equipment inventory of date of purchase, manufacturers' details, maintenance requirements and records and safety advice

The evidence for this Outcome must be produced in supervised conditions.

Assessment Guidelines

This Outcome could be assessed by observation and by production of output from a records and inventory system.

Higher National Unit specification: statement of standards (cont)

Unit title: Fish Farm Records

Outcome 4

Maintain a computer-based fish farm recording system

Knowledge and/or Skills

- Computerised fish stock recording systems
- Fish stock management information

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- maintain a computerised fish stock recording system by inputting data for six discrete populations over a period of not less than two months. Within this period, daily husbandry effects and movement effects should be accounted for. Also within this period, all incoming stock and outgoing stock should be accounted for.
- produce fish stock management information, necessary for maintaining production efficiency and fish welfare, from the system for six discrete populations over a period of not less than two months.
- interpret and evaluate the production efficiency and fish welfare data obtained from the system for six discrete populations over a period of not less than two months.

The evidence for this Outcome must be produced in supervised conditions.

Assessment Guidelines

This Outcome could be assessed in conjunction with Outcomes 1 and 2. The assessment could be by observation of a candidate's ability to calculate, compile, maintain and enter data and obtain information from a computerised stock recording system. This could be supported by the production of evidence output from the computer-based stock recording system.

In addition, extended response questions could be used to facilitate explanation of legal requirements and consequences of non-compliance (Outcome 2) and the benefits of a specific computer-based fish recording system (Outcome 4).

Administrative Information

Unit code: F4S4 34

Unit title: Fish Farm Records

Superclass category: SJ

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History of changes:

Version	Description of change	Date

Source: SQA

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of Higher National qualifications.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Customer Contact Centre for further details, telephone 0845 279 1000.

Higher National Unit specification: support notes

Unit title: Fish Farm Records

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 intended for candidates who are working in or seeking a career in the aquaculture industry or for candidates working or seeking a career in the freshwater fisheries management industry.

The teaching and learning of this Unit should be delivered in this context.

Additional information relating to each Outcome is given below:

1 This Outcome covers the calculation of data important for monitoring the performance of fish populations in a fish farm environment. This Outcome ensures that the candidate has the necessary numeracy skills to calculate the average weight, biomass, population number, and stocking density of any given population of fish from gathered information. This information is vital for the efficient management and welfare of stocks of fish in a fish farm. This information can be used for determining feed requirements, husbandry requirements and growth of a population of fish. It is also vital that candidates are proficient and competent with the units of measurement of the various data — this is usually metric units of length, weight, and volume, however in some fisheries work candidates still need to have an understanding of some imperial measurements.

2 This Outcome covers the maintenance of fish stock records primarily concentrating on maintaining accurate numbers of populations of stock in a fish farm. Maintaining an accurate record of fish population numbers is not only vital for fish production management, but is also a legal requirement. Dead fish may be removed from populations during daily husbandry duties or because of a disease or welfare problem. It is vital that these numbers are recorded daily as fish health inspectors need to have access to this data. Fish are commonly added or removed from fish populations either during fish sales or transfers or during grading operations or stocking of ongrowing systems. It is vital that accurate numbers and details of fish movements onto and off the farm as well as within the farm are maintained. Again, fish movement records onto and off sites are a legal requirement.

3 This Outcome covers the maintenance of an inventory of farm equipment and resources. Maintaining an inventory of farm equipment can help with the efficient management of the farm. It should allow a record of when and where machinery was purchased, and should include a schedule of the necessary maintenance that is required to keep the machinery working efficiently and meet health and safety requirements. Fish feed is very often the biggest expenditure on a fish farm. It is absolutely vital that a fish farm maintains an accurate record of food purchased and food fed to the fish. It is also vital that the food fed to different populations is monitored in order for feeding efficiency to be calculated. Stock management of fish feed is vital in order to maintain efficient production. The feed has a use by date and also is obtained at various pellet sizes depending on the size of fish being fed. It is vital that efficient stock management of food is carried out in order that food is not wasted or out of date food used for fish which could lead to health problems.

Environment agencies are also required to have access to feed records in order to make sure that fish are not being overfed, which may lead to a deterioration of the water environment. The maintenance of chemical and medicine usage is also a legal requirement as well as essential farm management practice. All chemicals and medicines have to be stored to meet COSHH requirements. Environment agencies also require an inventory of all chemicals being used. The use of spreadsheets, databases, or purpose-designed software can be used in the stock recording and inventory requirements of a farm. It is essential that candidates are able to maintain these recording systems or devise their own.

4 This Outcome covers the maintenance of a computerised fish recording system. There are many purpose designed fish recording systems that are available to the commercial fish farm. It is important that the candidates get the opportunity to use and understand the requirements of these systems. The candidate should also be able to input data into the recording system and use the recording system to process stock information once data has been inputted. Many of the systems are able to predict important information on growth and feed prediction that provides vital information for stock management purposes.

Guidance on the delivery and assessment of this Unit

This Unit is likely to be part of a Group Award designed to provide candidates with the ability to work in the aquaculture and fisheries management industries. It could also be a stand alone Unit for those wishing to improve their knowledge and understanding of fish production management.

Candidates will have to acquire the necessary numeracy skill in order to carry out the various fish stock calculations. This could be achieved in the classroom using hypothetical figures or ideally may take place in a working farm with actual figures obtained from fish sampling data. This Unit could therefore be integrated into the Unit *Fish Production Management* where the practical sampling of a fish population is carried out in Outcome 4. It would be particularly useful for centres to have examples of stock recording systems on computers for candidates to gain the necessary competence before entering the workplace. For candidates already based in the workplace they are likely to be using stock recording software or be undertaking training in its use by management.

This Unit should also allow the candidate to use knowledge gained from the Unit *Using Software Applications Packages* (D85F 34) to devise their own inventory recording systems where necessary. Ideally this may incorporated into the delivery strategy for the IT Unit.

Higher National Unit specification: support notes (cont)

Unit title: Fish Farm Records

Outcomes 1 and 2 for this Unit could be assessed using fish sampling data from which they have to generate the various fish population information required for the two Outcomes.

Outcome 3 could be assessed by the candidate inputting data into suitable inventory recording systems. The candidate should be able to get the computerised inventory system to generate real time information on the current stock situation and usage of equipment, chemicals, and feed. The candidate should be able to produce printouts of the information. In order to make sure that the candidate is actually inputting information into the recording system it may be necessary to use direct observation or witness testimony.

Outcome 4 requires the candidate to demonstrate competency in using computerised fish stock recording systems. This may require direct observation of the candidate inputting information on fish movements and removals from populations. The candidate should then be able to demonstrate competency in generating fish stock management information such as updated fish population numbers and feed requirements. They should be able to produce print outs of the information as evidence.

Opportunities for developing Core Skills

This Unit provides the opportunity to develop Using Number skills at SCQF level 5 in the form of actual calculations required for fish stock records. The Unit also provides the opportunity to develop IT skills at SCQF level 5 both by devising recording systems and using specially designed fish recording software.

Open learning

If this Unit is delivered by open or distance learning methods, additional resources will be required for candidate support, assessment and quality assurance.

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* **(www.sqa.org.uk)**.

General information for candidates

Unit title: Fish Farm Records

This Unit is worth 1 HN credit at SCQF level 7. Maintaining accurate records is absolutely essential not only for the efficient production and management of a fish farm, fish welfare and maintaining the environment but is also a legal requirement.

Prior knowledge: Previous knowledge or experience in fish farms either through employment or as part of the HN Unit *Fish Production Management* is recommended in order to gather data which can be used in the learning and assessing of this Unit. Access to a computer and the necessary skills to input data for recording is essential.

How you will learn: You will learn the necessary recording and analysing skills using actual data obtained by yourself from actual fish farm stocks where possible. The necessary Numeracy skills to analyse the production of fish farm populations will be taught and you will then apply these skills to actual fish populations. Using IT skills and industry software can help to make the recording and analysis process easier but it is important you understand the principles behind the calculations and what the analysis means in terms of efficient production. You will be taught the necessary numeracy and IT recording skills to help achieve the following Outcomes:

1 Calculate and compile data to monitor fish stock production.
2 Explain the requirements for fish stock records.
3 Maintain records and inventories of fish farm resources and equipment.
4 Maintain a computer-based fish farm recording system.

Assessment: In order to successfully complete this Unit, you will need to achieve a satisfactory level of performance in all Outcomes.

You will be required to maintain records and obtain data on fish farm production on actual fish farm stocks over a suitable period. This should give realistic data which you will be required to analyse and make recommendations regarding the best way to maintain optimum production and welfare of the stocks.

You will also have to demonstrate that you can maintain a computerised recording system for fish populations, feed stocks, farm equipment, and chemical storage to meet legal requirements.

Core Skills: The learning and assessment activities will present opportunities for you to develop the Core Skill of *Information Technology* at SCQF level 5 and the Core Skill component Using Number at SCQF level 5, although there is no automatic certification of Core Skills or Core Skills components.