Unit 13: Understanding Stillwater Fishery Creation and Management

Unit code: F/601/0105

QCF Level 3: BTEC National

Credit value: 10

Aim and purpose

This unit aims to introduce learners to stillwater fisheries skills and knowledge and how these can be applied in practice. It is designed for learners in centre-based settings looking to progress into the sector or onto further/higher education.

Unit introduction

This unit will enable learners to develop the knowledge and practical skills they need to create, develop and maintain UK stillwater sport fisheries. Animal welfare, health and safety and environmental issues will be stressed during delivery of this unit.

Learners will understand the differences between the physical requirements of various types of coarse and game fisheries and the needs of the fish that they may be stock.

Learners will also understand the importance of the planning process, methods of construction, water supply, landscaping, provision of facilities, together with the associated legal considerations.

The stocking requirements for various types of stillwater sport fisheries will be investigated and learners will understand the needs of the fish, the fishery and the regulatory authorities controlling fish stocking.

On completion of this unit learners will develop the practical skills, knowledge and understanding that will enable them to undertake the practical management and maintenance of stillwater sport fisheries.

Learning outcomes

On completion of this unit a learner should:

1 Understand the characteristics of stillwaters and the requirements of the different sports fisheries

2 Understand the creation of a sports fishery

3 Be able to manage the fish stocks in a stillwater sports fishery

4 Be able to undertake a range of stillwater fisheries management tasks.

Unit content

1 Understand the characteristics of stillwaters and the requirements of the different sports fisheries.

Characteristics: fishery types and objectives, eg coarse and game, match, pleasure, specimen; promotion of angling and fisheries

Requirements: lifecycles and biological requirements of lentic sport fish species, eg water quality, habitat; requirements of anglers, eg access, facilities; assessment of water status, eg physical and chemical determinants and biological assessment; potential impacts on stillwater fisheries, eg pollution, disease; health and safety

Relevant current legislation and codes of practice: eg Environment Act 1995; animal welfare; environmental impact

2 Understand the creation of a sports fishery

Design and construction: types of stillwater sport fisheries, eg online and offline lakes, gravel pits; planning requirements for stillwater fisheries; location and siting factors, eg accessibility, water quality and quantity, geology; fishery design parameters, eg size, depth profiles, shape; site survey methods; construction methods, eg cut-and-fill, direct excavation; fishery features, eg overflows, sluices, silt traps; landscaping; habitat creation; facilities for anglers (angling stations, facilities for anglers with disabilities, access points, paths, parking areas, huts and lodges, tackle shops); health and safety issues; relevant current legislation, eg planning, water supply and disposal; environmental impact

3 Be able to manage the fish stocks in a stillwater sports fishery

Stocking: native and non-native stock species and their advantages and disadvantages; mixed and specialist fisheries; timing of stocking; prices; sources; stocking methods; stocking densities; management of 'catch-and-release' in trout fisheries; environmental impacts, eg introduction of disease, overstocking; relevant current legislation and codes of practice, eg Salmon and Freshwater Fisheries Act 1975; animal welfare issues; environmental impact; health and safety

Stock management: stock dynamics, eg recruitment, mortality patterns; factors influencing stock survival, eg competition, predation, disease; fish habitat requirements; habitat creation, eg spawning areas, fry refuges; causes of habitat loss, eg siltation, weed control; recognition of overstocking, eg stunting, water quality deterioration; methods of stock adjustment, eg seine netting, electric fishing, angling and drain down; stock support measures, eg feeding, aeration; relevant current legislation and codes of practice; animal welfare issues; environmental impact; health and safety

4 Be able to undertake a range of stillwater fisheries management tasks.

Maintain fisheries: aquatic and bankside vegetation control; silt control; maintenance of banks, paths, access points and boundaries; construction and maintenance of angling stations; recognition and impacts of predation, eg otters; cormorants; biology of common predator species, eg cormorants; legal predator control methods; duties of fishery managers, bailiffs and fishery officers; relevant current legislation and codes of practice, eg Wildlife and Countryside Act 1981; health and safety issues; animal welfare issues; environmental impact

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	**To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:**	**To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:**
P1 explain the characteristics of different stillwater sports fishery types [IE]	**M1** explain methods used to determine the status of stillwater	**D1** analyse factors influencing the creation of different stillwater fisheries
P2 explain the habitat requirements of a range of stillwater fish species [IE]		
P3 explain the creation of a stillwater fishery from a greenfield site	**M2** discuss factors that need to be considered in the creation of a stillwater fishery	
P4 explain the creation of a specified fishery from an existing stillwater		
P5 plan the management of fish stocks in contrasting sports fisheries	**M3** discuss legal methods and processes for adjusting stock levels in stillwater fisheries	
P6 plan and carry out a range of aquatic plant management tasks	**M4** compare a range of tasks and techniques for the management of stillwater fisheries.	**D2** evaluate annual maintenance planning carried out for a specified sports fishery.
P7 plan and carry out a range of maintenance tasks for the angler. [CT, RL, SM]		

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key			
	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Delivery of this unit will involve practical assessments, written assessment, visits to suitable collections and will link to work experience placements.

In order to study this unit, learners will have to combine a practical knowledge of stillwater fisheries and management methods with an understanding of the associated environmental factors and concerns. Learners will need to understand the complexities of Stillwater fisheries management, including, for example, the regulatory frameworks for preventing environmental damage and managing stocking levels.

This unit should be delivered in a practical context wherever possible and for certain parts of the unit this is essential. Learners should produce a logbook or diary of their experiences This will need to be supported by good quality research and a wider understanding of current practice.

Visiting practitioners, together with site visits to a range of fisheries, will enhance learner experience. Work placements may provide appropriate opportunities for learners to develop their skills, knowledge and understanding

The nature of stillwater fishery management is often seasonal, particularly where the fishery resource still operates a close season. Care must be taken to ensure that tasks and activities reflect this and are integrated within natural cycles.

Health and safety issues relating to practical aspects must be stressed and reinforced regularly, and risk assessments must be undertaken before any practical activities. Adequate PPE must be provided and used following the production of suitable risk assessments.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value.**

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment
Introduction and overview of the unit.
Assignment 1: Fish and Fisheries (P1, P2, M1) Introduction to the assignment brief.
Preparation for site visit.
Site visit to fishery to investigate habitats and fish types.
Classroom review of site visit and production of factsheet.
Production of factsheets and other portfolio evidence.
Assignment 2: Creating a Fishery (P3, P4, M2, D1) Introduction to the assignment brief.

Topic and suggested assignments/activities and/assessment
Classroom activities on fishery planning and construction.
Visiting practitioner to give case study – includes preparation and debrief.
Research into other fisheries.
Preparation for fishery greensite and alternative site visits.
Site visit debrief. Planning and report assessment preparation.
Production of plans and report.
Tutor support during report production.
Review and assessment of plans and report.
Assignment 3: Managing a Fishery (P5, P6, P7, M3, M4, D2) Introduction to the assignment brief.
Classroom introduction to practical fishery management. To include habitats, facilities and stocking.
Preparation for visiting practitioner, discussion, debrief.
Site visit to investigate fishery management techniques.
Practical application of management techniques.
Classroom review of site work and plan.
Tutor support during plan preparation.
Evaluation of management plan.

Assessment

To achieve P1 and P2 learners will have to show that they can explain the characteristics of fish species and associated types of stillwater fisheries. P1 requires learners to explain the characteristics of different types of stillwater sports fisheries. Evidence for this could be through short case studies of a range of fisheries. P2 requires learners to consider the characteristics of different fish types with particular reference to their habitats. Evidence for this could be through factsheets for different fish or a presentation. This could be based on observations or secondary research.

P3 is concerned with the creation of a stillwater fishery. Learners should consider the need for planning, construction of the fishery and facilities for anglers. Evidence for this could be through annotated sketch plans or a short report.

P4 requires learners to plan the management of fish stocking levels and they should show they are aware that different fisheries will require different stocking levels. Evidence for this could be through short case studies presented in written form or as a recorded discussion.

P5, P6 and P7 require learners to plan and carry out a range of management tasks associated with stillwater fisheries. Learners must provide evidence of the practical tasks that they have carried out. Suitable evidence could include logbooks, diaries and observation records.

M1 requires learners to demonstrate their understanding of the methods used to determine the status of stillwater. Evidence could be in the form of recorded questions and answers during practical activities.

M2 requires learners to develop P3 by showing they understand the factors that need to be considered when developing a stillwater fishery. Evidence could be a table showing how variation in the factors explained for P3 can affect the development of the fishery.

To achieve M3 learners must show that they are aware of the complex issues that need to be considered when adjusting stocking levels in stillwater fisheries and both re-stocking and de-stocking should be included.

Learners need to take account of statutory requirements and guidelines. Evidence could include notes of interviews with practitioners and annotated internet source material.

M4 requires learners to show that they are aware that management tasks and techniques can have a significant impact on the quality and characteristics of a stillwater fishery. Evidence could take the form of personal observations of different techniques together with recorded discussions with practitioners and classroom notes.

D1 requires learners to apply the knowledge acquired through P3 and M1 to specific examples. Care should be taken to ensure that the examples chosen show sufficient variation. Evidence could be through a presentation or report.

To achieve D2 learners must apply the knowledge and skills they acquired in P5, P6 and M3 to a specific fishery. The fishery used for the practical tasks could be used here and evidence could take the form of a management plan presented to the fishery operators. Operator comments could form the basis for self-evaluation through a recorded interview or self-evaluation checklist.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, M1	Fish and Fisheries	You are to investigate a local fishery and ,together with internet and other research, compile a series of factsheets to explain the types of stillwater fishery and fish.	Annotated internet research Fieldbook. Presentation.
P3, P4, M2, D1	Creating a Fishery	You are considering establishing a new stillwater fishery. Create a plan plus a report on the factors you will have to consider. Take into account the requirements of the fishery and the anglers who will use the facility. You must compare other fisheries and show how different factors have influenced their development.	Maps. Plans. Written or verbal report.
P5, P6, P7, M3, M4, D2	Managing a Fishery	You need to understand the tasks required to maintain a stillwater fishery. including the management of stocking levels, the habitats and facilities for the anglers. You must show you can carry out a range of practical tasks and understand why they might be carried out differently. Finally you must prepare a year plan for a specific fishery and assess its effectiveness.	Field notes. Logbook or diary. Observation records. Written management plan. Self-evaluation checklist or notes from peer or practitioner evaluation.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Land-based sector suite. This unit has particular links with:

Level 2	Level 3
Introduction to Game Management	Element FiM1 Prepare to stock fish in a fishery
	Element FiM5 Maintain and improve fisheries habitat
	Understanding Fishery Management
	Understanding River Fishery Creation and Management

Essential resources

Learners will need access to a range stillwater fisheries that offer sufficient variation in species and habitats. They must also provide a range of opportunities for learners to undertake a variety of tasks concerned with the management of habitats and angler facilities. Learners will need access to the tools and equipment relevant to the practical tasks they are to complete. This includes survey and water test equipment and may require workshop facilities. Learners will need to ensure they have suitable personal protection equipment.

Employer engagement and vocational contexts

This unit is concerned with the creation and management of stillwater fisheries. Some fisheries are run as commercial concerns and may provide opportunities for learners to engage with practitioners within the working environment. Many fisheries operate through clubs and associations and opportunities to engage with practitioners may have to be at weekends. Nevertheless, most fisheries will welcome learners who are willing to become involved in practical management and often run weekend working parties that would provide a valuable experience.

Indicative reading for learners

Textbooks

Baldwin C et al – *Management of Carp Fisheries* (Mitchellwing Publications, 2001) ISBN 0954005406

Barnes R and Mann K – *Fundamentals of Aquatic Ecology, 2nd Edition* (Blackwell Science, 1991) ISBN 0632029838

Harding P – *Freshwater Fishes in Britain: The Species and Their Distribution* (Harley Books, 2004) ISBN 0946589763

Holmes N – *Rivers and Wildlife Handbook* (A and C Black Publishers, 1994) ISBN 0903138700

Seagrave C – *Aquatic Weed Control* (Blackwell Science, 1988) ISBN 0852381522

Templeton R – *Freshwater Fisheries Management, 2nd Edition* (Blackwell Science, 1995) ISBN 085238209X

Journals

Anglers' Mail

Angling Times

Fisheries Management and Ecology

Websites

www.environment-agency.gov.uk	Environment Agency
www.defra.gov.uk	Department for Environment, Food and Rural Affairs
www.ifm.org.uk	Institute of Fisheries Management

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	producing a series of factsheets on fisheries and fish types using a variety of research sources
Creative thinkers	working on practical fishery management tasks and adapting their ideas as they progress
Reflective learners	reviewing their progress when carrying out a variety of fishery management tasks and acting on the outcomes
Self-managers	making judgments about risk within close proximity to water.

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Reflective learners	presenting their fishery management plan to a practitioner
Team workers	engaged in fishery management tasks, some of which may require collaboration with others.

Functional Skills — Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	researching using the internet to produce a series of factsheets on fisheries and fish types
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: • text and tables • images • numbers • records	using information from a variety of sources to create a management plan for a stillwater fishery using images and information from ICT sources to compile and maintain a portfolio of evidence including logbooks.
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	using information from a variety of sources to present a report for an agreed audience
Evaluate the selection and use of ICT tools and facilities used to present information	
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	
Identify the situation or problem and the mathematical methods needed to tackle it	

Skill	When learners are ...
Select and apply a range of skills to find solutions	using mathematical formula to investigate habitats and water quality
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	using verbal recording methods as evidence for tasks
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	using information from a variety of sources to compare the management of fisheries.
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	preparing reports and extended pieces of writing to communicate fishery management plans.