

Competency	Aims / Learning outcomes	Capable standards
A. Preperation and Planning		
A1. To be able to interpret “project” aims and determine if they are met by the proposed survey	A1.1 Understand how the overall “project” aims influence data requirements, survey design and analysis	Aware of the survey’s aims and of the link between data quality, scientific value and survey field practice. Recognises the implications of the survey site’s location and features and selected methods for the outcome of the survey and achievement of its aims. Has detailed knowledge of relevant fish species and their links to the habitat of the surveyed waters and how that may influence abundance and diversity
	A1.2 Understand the Influence of spatial and temporal variability on survey design and timing and their implication for eplicates and controls	
	A1.3 Understand the influence of target species’ life histories and life stage habitat preferences on survey design and timing	
	A1.4 Understand the influence of survey method on data quality	
	A1.5 Be able to evaluate how this survey’s results and analysis might be influenced by other surveys (i.e. to be aware of what else has been done that might form comparison and QA of data)	
A2. To be able to select appropriate methods and design a survey	A2.1. Understand the range and application of different survey methods and techniques	Able to select methods for surveying fish, their habitat and environment. Can apply procedures to meet specific requirements of a survey, the target species and environmental conditions, in order to maximise the quality, utility and value of data. Able to design bespoke methods when appropriate.
	A2.2 Understand the quality and limitations of data generated by the different methods	
	A2.3 Be able to select and adapt the appropriate survey design and methods to meet the project’s purpose and aims and the prevailing conditions	

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A. Preperation and Planning		
A3. To be aware of and able to apply personal, team and third-party Health and Safety obligations	A3.1 Know how to undertake appropriate risk assessments and safe systems of work and the obligations for all survey team members	Has completed Risk Assessments and Methods Statements to an acceptable standard. Fully conversant with safety procedures for all types of fishing gear. Can recognise when survey procedures or safety may be compromised and how to resolve such problems. Can ensure appropriate qualified first aid is available. Knows when to exert responsibilities with respect to themselves and others on the team and the public.
	A3.2 Know how to ensure that all survey staff have undergone appropriate training for the tasks they are undertaking	
	A3.3 Understand the appropriate first aid requirements for their survey team and its provision	
	A3.4 Be able to check or evaluate to competencies of the survey team staff to ensure they are appropriate	
A4. To be aware of and compliant with survey authorisations and legislation (as relevant to region / country of operation)	A4.1 Equipment usage, permissions and valid certification for survey team members	Knows the relevant legislation for the fish survey work, how to obtain relevant consents and how to be fully compliant with all legislation
	A4.2 Access authorisations and permits	
	A4.3 Conservation legislation and protected sites and species	
	A4.4 The fish welfare and INNS legislation	

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B. Survey Implementation		
B1. To be able to manage surveys and make operational decisions on survey practice in the field commensurate with project aims, staff safety, fish welfare and data quality	B1.1 Be able to complete a dynamic risk assessment and to check equipment and fully brief a survey team before field work begins and to ensure that the team members have competencies and equipment appropriate to the surveys task	Able to complete a dynamic risk assessment. Able to implement methods/techniques for surveying fish, their habitat and environment. Can apply procedures to meet specific requirements of a survey, the target species and environmental conditions, in order to maximise the quality, utility and value of data. Able to recognise when surveys are restricted in terms of efficiency and quality or there is an issue with fish welfare during the survey and has an understanding of how to address it. Capable and confident to decide whether a survey should proceed given the conditions on the day.
	B1.2 Be able to recognise when methods and procedures should be adapted to meet real time environmental conditions and survey results (e.g. few fish, lots of fish, catch efficiency variations)	
	B1.3 Be able to ensure that Personal Protective Equipment (PPE) is appropriate and in good order for all team members	
	B1.4 Recognise when conditions are unsuitable for the survey to be implemented either safely or effectively	
B2. To be aware of and able to select the most appropriate survey techniques (e.g. efish setting, stop net use, net landing site) to maximise the quality, utility and value of the data	B2.1 Understand the pros and cons of commonly used survey techniques/equipment (e.g. anode ring size) for standard survey methods	Aware and can describe the pros and cons of principle fish survey methods and techniques. Able to select the most appropriate technique for a given methods for surveying fish in relation to the habitat and survey requirements. Can apply procedures to meet specific requirements of a survey, the target species and environmental conditions, in order to maximise the quality, utility and value of data.
	B2.2 Be able to differentiate between the different techniques to undertake standard survey methods and be able to select and apply the correct technique appropriate to the water and species targeted	
	B2.3 Be able to evaluate the condition (with respect to their safety and efficiency) of equipment and know the appropriate requirement for repairs, within safety standards	

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B. Survey Implementation		
B3. To be trained and experienced in sampling methods	B3.1 Have attended appropriate training and be able to use specialist equipment safely and in line with corporate and legal standards and have valid certification, where appropriate	Has passed appropriate training to safely use specialist equipment in line with corporate and legal standards and has valid certification, where appropriate, for principal fish survey methods. Has sufficient practical survey experience (40+ surveys and a minimum of one years experience) to be considered competent to act as a survey leader for principle survey methods/techniques and has knowledge and understanding of other non-standard survey methods. Understands the specific limitations of a survey methods and techniques in relation to the target species and environmental conditions, in order to maximise the quality, utility and value of data.
	B3.2 To be familiar with appropriate European and UK standards for monitoring fish	
B4. To be able to maximising sampling efficiency and consistency	B4.1 To be able to recognise the biases and errors that can compromise field survey data	Understands the assumptions, selectivity and biases of standard survey methods and knows how techniques can be implemented/adjusted to optimise the efficiency of the survey and to maximise data quality.
	B4.2 Understand the factors affecting the efficiency of the survey technique and be able to minimise them in the field	
	B4.3 Understand the importance of maintaining level and consistency in sampling efficiency and know how they can be achieved during surveys	

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C. Fish Welfare and Biosecurity		
C1. To be able to manage fish welfare and handling	C1.1. Understand that fish welfare covers fish capture, handling, holding (transport) and release	Has detailed knowledge of what factors create good or poor fish welfare throughout the fish capture, handling, holding and release phases. Can demonstrate where they have used methods to improve fish welfare and any indicators that were monitored during this process.
	C1.2 Understand the sensitivities and tolerances of different species and sizes of fish and be able to handle them to minimise stress	Can easily overview most sensitivities and tolerances of most fish species, overviewing this in relation to fish life stage. Can Give clear examples of differing tolerances and how correct handling can address this, e.g. eel in comparison to shad. Can demonstrate an understanding that fish sensitivities should always be considered in the pre-planning of fisheries monitoring.
	C1.3 Be able to identify signs and symptoms of fish stress and how to limit it during capture, counting and measurement	The individual will be able to list most symptoms of fish stress from capture to release and mitigation options to reduce stress at different stages. Can give examples of where they (as part of a team) have applied some of the mitigation measures.
	C1.4 Recognise the environmental conditions under which a survey would be postponed or cancelled	The individual can list most environmental conditions where a survey should be cancelled and why, showing a good understanding of the link between environmental conditions and fish physiology. They will be able to give at least one example of where they have had to cancel a fish survey.
	C1.5 Recognise the conditions under which additional aeration and oxygen may be needed to maintain fish welfare	The individual has a good understanding of the significance of good oxygen levels to maintain fish welfare. They will be able to demonstrate their understanding of how other environmental factors will also impact on oxygen levels such as change in temperature, increased fish stocks, time fish are held. They will be able to give examples of where they have identified these parameters and what actions they have put in place to ensure oxygen levels are either not impacted or are improved.

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C. Fish Welfare and Biosecurity		
C2. To be able to manage biosecurity on all types of surveys	C2.1 Understands the need for good biosecurity to protect fisheries and the wider environment	Is aware of and can give examples of important fish diseases and invasive non-native species. Can describe the steps in the Check, Clean, Dry campaign. Is aware of how INNS and disease can be transferred between locations and waterbodies on kit and PPE. Can demonstrate planning and implementation of best practice biosecurity on surveys.
	C2.2 Has an underpinning knowledge of biosecurity protocols and processes for working in the field and field biosecurity plans	
	C2.3 Be able to conduct surveys to limit the risks of transfer of disease and INNS within and between catchments	
C3. To be aware of all types of Invasive non-native species (INNS) and procedures for dealing with them if encountered	C3.1 Be able to identify aquatic INNS (key fauna and key flora)	Has undertaken the NNSS e learning courses on an introduction to non-native species, freshwater plants and invertebrates, as well as riparian plants. Can accurately identify common/ high risk species (aquatic and riparian fauna and flora). Understands that some INNS require different biosecurity approaches to ensure that they are no longer viable. Knows the relevant legislation relating to INNS. Knows how to check for records of INNS in the survey and surrounding area, and how to record and report findings in the field.
	C3.2 Have a working knowledge of INNS ecologies and how they impact native species	
	C3.3 Understand and can apply procedures to reduce or stop the spread of INNS	
	C3.4 Know what to do if INNS are captured or identified during a survey	
C4. To be aware of fish Health and the legislative framework around fish health	C4.1 Be able to identify signs and symptoms of fish disease (fungal, viral, bacterial and parasite)	Is aware of and can provide examples of common fish diseases and symptoms of ill-health. Knows what legislation is in place to protect fish health. Knows when to escalate findings of disease and who to notify.
	C4.2 Understand Legislation and Regulation around fish health	

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D. Sample Processing and Data Recording		
<p>D1. Have the underpinning knowledge, ability and skills required to identify fish to the taxonomic level required for the survey</p>	<p>D1.1 Be able to accurately identify fish species in the field</p>	<p>Is aware of and can identify the key features used to accurately identify the fish (including hybrids and invasive species) in the field and can describe the features to be recorded and photographed to aid accurate identification. Has an awareness of the methods to safely collect and store samples for later evaluation.</p>
	<p>D1.2 Be able to record photos of appropriate quality of key features to enable identification of unknown species at a later date</p>	
	<p>D1.3 Understanding of methods and appropriate instances to preserve samples for later identification</p>	
<p>D2. Have the ability in data recording to accurately record data, to monitor data recording and apply QA and safely store the data once complete</p>	<p>D2.1 To be fully aware of the crucial importance of recording accurately fish, fish habitat, environmental and survey practice data to reflect the survey aims and objectives and to ensure the long term viability of the results</p>	<p>Can design, complete and store appropriate data sheets for varied fish survey methods. Can design, complete and react to Quality Assurance methodology for given monitoring methods. Can complete methodology for data security and accessibility on a given survey operation.</p>
	<p>D2.2. Understand the need for and be able to monitor and apply real time QA on data quality and recording during surveys</p>	
	<p>D2.3 Knowledge of data security and accessibility</p>	