

Technical summary

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Management Advice for Trout, Grayling and Arctic Char Fisheries R&D Technical Summary W2-045/TS

This manual provides best practice management advice for still water and riverine trout, grayling and Arctic char fisheries. The material produced in this manual is derived from extensive reviews of the relevant literature, and incorporates relevant Environment Agency policies. The manual is written to be relevant to both Environment Agency staff and external fishery owners and managers. Topics chosen for inclusion in this manual were derived from questionnaire surveys of Agency Fisheries staff and external fisheries managers and owners. Each chapter includes technical and practical advice and a summary of management options. The content has been quality-assured by Environment Agency staff. Readers are reminded that all fishery management decisions must be related to local circumstances and that this manual should not be read as a 'recipe book' offering generic solutions but should, rather, be used as a guide to good practice.

Chapters included in this manual have been grouped under four headings and include:

Fisheries Ecology: Trout Ecology; Grayling Ecology; Arctic Char Ecology; Feeding Ecology;

Water Quality & Quantity: Water Quality; Water Quantity;

Fisheries Management: Habitat Quality and Improvement; Aquatic Plant Management; Conservation; Fishery Development; Land Drainage Consents; Screens and Obstructions to Fish Migration; Fisheries Socio-Economics;

Fish Stock Management: Stocking; Interactions between fish species; Interactions with other species; Fish Diseases and Parasites; Poaching and Theft; Catch and Release Angling.

Each chapter starts with a brief introduction that outlines the key principles of the topic. The questions that respondents wished to see covered in the manual are then answered as a series of topics within the detailed advice sections of each chapter. At the end of each chapter is a table providing concise information on good management practice. References cited in the text plus additional valuable sources of information are

provided in the list at the end of each chapter. References marked with an asterisk are considered particularly useful reviews on a given subject.

This manual has been produced in support of the Agency's National Trout and Grayling Fisheries Strategy which was published in 2003. The aim of the Strategy is, "to conserve and improve wild stocks of trout, sea trout, char and grayling, whilst enhancing the environment for, and the social and economic benefits from, all types of fisheries for these species in England and Wales". The Strategy policies that are of direct relevance to the manual are quoted in full, in the relevant chapters within this manual.

The Trout Ecology chapter introduces the ecology of the species and under Technical and Practical Advice, goes on to provide detailed advice on topics including determining stock densities, reviewing factors limiting trout production, examples and advice on increasing wild trout populations, fishery management objectives. Main topics included in the Grayling Ecology chapter include, competition with brown trout, sustainable exploitation of grayling, stocking grayling, water quality for grayling and river habitat improvements.

Important current issues on Char Ecology include eutrophication of lakes, degradation of char spawning streams, the impacts of introductions of other fish species and the regulation of exploitation of Arctic char in England and Wales. The Feeding Ecology chapter reviews important aspects of trout feeding ecology in both rivers and stillwaters, of grayling and also of Arctic char, including valuable information on dietary studies.



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In the Water Quality chapter, the important water quality parameters for salmonid fish are reviewed and appropriate limits are defined. The chapter then goes on to provide advice on key pollution threats, including advice on assessing water quality, and to review the effects of catchment land use on water quality. Other key areas covered in the Technical and Practical Advice include the effects and causes of excessive plant and algal growth, the issue of acidification, and causes and remedies for low dissolved oxygen levels. The Water Quantity chapter deals predominantly with river flows, reviewing the importance of natural flow regimes, and providing advice on protection of flows against over-abstraction.

Habitat Quality and Improvement covers aspects of project planning, an overview of the pros and cons of a variety of habitat improvement methods and possible sources of project funding. Aquatic Plant Management provides valuable advice on the legislation regarding herbicides, including guidance on the use of approved products and decision frameworks for mechanical weed control and for herbicide use. The Conservation chapter provides an overview of important conservation designations such as Sites of Special Scientific Interest (SSSIs) and the UK Biodiversity Action Plan (UK BAP) that are of particular relevance to fisheries. Also included is advice on integrating conservation objectives into fisheries management plans.

Options for the development of a stillwater fishery are reviewed in the chapter on Fishery Development which also includes advice on stillwater habitat requirements and water quality considerations for stillwaters. The important process of obtaining Environment Agency consent for any structural work on river or stillwater fisheries, is described in the chapter on Land Drainage Consents.

Important legislative requirements are described in the chapter on Screens and Obstructions to Fish Migration. Practical considerations for the installation and maintenance of screens and of fish passes are described. Issues dealt with in the Fishery Socio-economics chapter include aspects of setting up a new fishery and commercial netting for sea trout.

The Stocking chapter provides advice on a wide range of popular issues and includes relevant policies from the National Trout and Grayling Fisheries Strategy. The chapter includes a good practice decision tree for trout stocking and covers important advice on permissions to introduce fish, fish health checks, minimising the impacts of hatchery trout on wild trout, trout genetics, grayling introductions and several other issues. Some practical examples of stillwater stocking practices are also detailed. The two chapters dealing with Interactions cover main issues on eels, cyprinids, pike, fish-eating birds, mink and otters.

The chapter on Diseases of Trout, Char and Grayling introduces the important links between fish diseases and factors like fish health, stress and environmental quality. The Technical and Practical Advice section reviews the legislative controls of fish disease and the method of disease categorisation in the UK. Advice on recognising the symptoms of disease is presented and

the diseases that may affect trout, grayling and char are described, along with methods of control, and what to do in the event of a disease outbreak.

The Poaching and Theft chapter describes the main Acts relating to fisheries and lists the main fisheries offences, providing advice on security and bailiffing. The chapter on Catch and Release Angling presents valuable results from many catch and release experiences in both the USA, where the technique was pioneered, and the UK.

This R&D Technical Summary relates to information from R&D Project W2-045 reported in detail in the following output:-

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