

NRA FISHERIES STRATEGY





NRA

National Rivers Authority

For further information please contact:

Corporate Planning
National Rivers Authority
Rivers House
Waterside Drive
Aztec West
Almondsbury
Bristol BS12 4UD

Tel: 0454-624400

Fax: 0454-624409

© National Rivers Authority 1993

First Published 1993

ISBN 1 873160 50 X

All rights reserved. No parts of this publication may be reproduced, stored in a retrieval system or otherwise transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the National Rivers Authority.

This document is one of a series, the others in the series are:

NRA Water Quality Strategy
NRA Water Resources Strategy
NRA Flood Defence Strategy
NRA Conservation Strategy
NRA Navigation Strategy
NRA Recreation Strategy
NRA R&D Strategy

Other publications are available from the NRA. These include the following:

NRA Annual Report and Accounts
Policy and Practice for the Protection of Groundwater
Water Quality Series
Low Flows and Water Resources
Annual R&D Review
Conservation & Fisheries Technical Handbooks

Publication catalogues are available from all the NRA Offices.

The addresses and telephone numbers for all NRA offices are listed on the inside back cover of this document.

This document has been printed on totally chlorine free paper from a sustainable source.

This document was designed by:
Stott Meredith Limited
14 Frederick Place
Clifton, Bristol BS8 1AS

and printed by:
The Pheon Press Limited
Western Drive
Whitchurch, Bristol BS14 0AF



ENVIRONMENT AGENCY

NATIONAL LIBRARY &
INFORMATION SERVICE

HEAD OFFICE

Rio House, Waterside Drive,
Aztec West, Almondsbury,
Bristol BS32 4UD

National Rivers Authority
Information Centre
Head Office

Class No

Accession No AMZQ

NRA FISHERIES STRATEGY

The Information Centre
National Rivers Authority
Waterside Drive
Aztec West
Almondsbury
Bristol BS12 4UD

Due for return

Due for return	

ENVIRONMENT AGENCY



099483

MISSION AND AIMS

The NRA's mission is:

- “We will protect and improve the water environment by the effective management of water resources and by substantial reductions in pollution. We will aim to provide effective defence for people and property against flooding from rivers and the sea. In discharging our duties we will operate openly and balance the interests of all who benefit from and use rivers, groundwaters, estuaries, and coastal waters. We will be businesslike, efficient and caring towards our employees”.

Our aims are to:

- Achieve a continuing overall improvement in the quality of rivers, estuaries, and coastal waters, through the control of water pollution.
- Manage water resources to achieve the right balance between the needs of the environment and those of the abstractors.
- Provide effective defence for people and property against flooding from rivers and the sea.

- Provide adequate arrangements for flood forecasting and warning.
- *Maintain, improve and develop fisheries.*
- Develop the amenity and recreational potential of inland and coastal waters and associated lands under NRA control.
- Conserve and enhance wildlife, landscape, and archaeological features associated with inland and coastal waters under NRA control.
- Improve and maintain inland waters and their facilities for use by the public where the NRA is the navigation authority.
- Ensure that dischargers pay the costs of the consequences of their discharges, and, as far as possible, to recover the costs of water environment improvements from those who benefit.
- Improve public understanding of the water environment and the NRA's work.
- Improve efficiency in the exercise of the NRA's functions and to provide challenge and opportunity for employees and show concern for their welfare.



CONTENTS

	Page
Foreword	1
An Integrated Approach to the Environment	2
The Environment - a Finite Resource Under Pressure	4
Legislative, Financial and Institutional Framework	7
NRA Strategy for Fisheries	11
Resources and Timetable for Achievement	15
Research and Development	17
Future Scenarios	18
Measuring Our Success	19
Glossary of Acronyms	20

FOREWORD

This document sets out the National Rivers Authority's strategy for fisheries. It forms part of a series of published documents, covering all the NRA's main functions.

The documents are intended to make the NRA's approach to the integrated management of the water environment plain to all interested parties, whether their interest is private or professional. This is in recognition of the stake that individuals have in the environment, both as taxpayers and water users.

The strategies have been developed as internal drafts over a period of time with much constructive input from a wide range of interest groups, including those represented on our Regional Committees. This consultation demonstrates our commitment to working in response to and influencing public opinion.

The strategies have already served to direct the NRA's policy development over the last two years. Their publication at this point reinforces the essential inter-relationships between the NRA's individual functions, as preparations for the Environment Agency continue. When considered together, they

present a strong case for the continuing integration of all NRA functions. This argument becomes still more convincing when applied to the management of water, land and air proposed for the new Agency.

The overriding aim directing the NRA's work is the protection and improvement of the water environment. We are determined to make a real and positive difference to the rivers, estuaries and underground and coastal waters of England and Wales and the fisheries they support. This resolve will be strengthened by the inclusion of the NRA's integrated approach into what promises to be among the most effective forces for environmental good in Europe.



Ed Gallagher
Chief Executive

AN INTEGRATED APPROACH TO THE ENVIRONMENT

Vision and Reality

When we think of the water environment, most of us would conjure up a vision of an unspoilt river in its natural state, meandering across open countryside, its banks rich with flora and fauna, its waters teeming with aquatic life.

In fact, very little of our water environment remains unaffected by human activity. Alterations to rivers probably started with forest clearances about 3000 BC. The subsequent development of water-milling, navigation and drainage and irrigation systems caused major and lasting changes to habitats, vegetation, and the shape of rivers. Throughout history, people have exploited fish stocks for food and sport. However, with the onset of the industrial revolution and continuing population growth, natural fish stocks have been put under further pressure from man's activities.

Sustainability - a Balancing Act

Considerable progress has been made since 1861, when the Commissioners' Inquiry into Salmon Fisheries first highlighted the declining state of fisheries. The challenge for the NRA into the next century is to protect and improve our rivers, estuaries and coastal waters, and the fisheries they support, in a sustainable and cost-effective way.

We make increasing - and sometimes conflicting - demands of our natural environment. These demands, working in concert with natural phenomena, can result in serious environmental problems. River flows, already reduced by abstraction, are further reduced by drought. Water quality, affected by low river flows, is at greater risk from pollution by industry and agriculture. Polluted water puts aquatic life - including fish - and abstraction for public supply at risk. Similarly complex interactions exist between river flow and flooding, channel morphology and navigation, and water quality and watersports. These demands and their interactions make the protection and improvement of the water environment, the NRA's core business, an increasingly delicate balancing act. Economic

cost-benefit analysis is a useful tool for rationalising the balancing process.

The Answer - an Integrated Approach

The NRA believes that the best way of arriving at sustainable solutions is to take an integrated approach to river management. This treats a river, together with the land, tributaries and underground water connected with it, as a discrete unit or catchment.

This approach is not new - the NRA and its predecessors have laid the foundations for it over a period of time - but the means of achieving it *is* new.

The NRA's approach is called *catchment management planning*. Under this system, the major uses within a catchment - such as abstraction and discharge needs, fisheries, recreation and navigation use, areas of special conservation interest or in need of flood protection - are investigated and a *catchment management plan* is devised in consultation with interested bodies and the public. These plans present catchment issues, address conflicting uses and identify actions needed by the NRA and others to ensure that use-related environmental objectives are met.

In this way, the management of local fisheries can take account of any specific needs, whilst ensuring a national balance with all the NRA functions. This allows us to operate as a flexible national organisation, making real improvements at local level that meet the community's needs. This is a clear demonstration of our commitment to the principles of the Citizen's Charter.

Targeting the Resource

The NRA has to be seen to be using money from taxpayers and those who pay specific charges, in a cost-effective way, to make a tangible difference to the quality of our water environment. The NRA's system of integrated catchment management will achieve this by targeting resources to areas where they are most needed.

The NRA's drive for efficiency and increased value for money will bring added benefits. Our review of activities to see whether there is further scope for market testing - the process of exposing in-house functions to competition from the private sector - forms an integral part of this efficiency drive.

Towards an Integrated Agency

This move towards closer integration of all our functions will be a cornerstone in our preparations for the Environment Agency.

The new Agency's responsibilities will embrace air, land and water and will incorporate functions currently performed by NRA, Her Majesty's Inspectorate of Pollution and Local Waste Regulatory Authorities.

The Agency promises to be one of the most effective powers for environmental improvement in Europe and as strong a regulator as any in the world. These preparations will ensure a firm foundation for safeguarding the environment of England and Wales for future generations.

THROUGHOUT HISTORY,
PEOPLE HAVE EXPLOITED FISH
STOCKS FOR FOOD AND SPORT.

THE ENVIRONMENT - A FINITE RESOURCE UNDER PRESSURE

Use of our Environment

The uses we make of our environment include:

- water abstraction for public and private water supply, industry, agriculture and navigation;
- effluent discharge from sewage treatment works, industrial processes and farms;
- development needs for housing, industrial parks and new infrastructure;
- waste disposal ranging from land-fill of domestic waste to the disposal of sewage/agricultural sludge;
- emissions to air from industrial processes and vehicle exhausts;
- mineral extraction from coal and other mineral and quarry workings;
- recreation in the form of fishing, walking, bathing, and a whole range of other outdoor activities;
- commercial harvesting of fish and shellfish.

These uses are legitimate and contribute to the continuance of our way of life. Sometimes they are of positive benefit as in the case of a properly treated discharge helping to supplement low river flows. However, the evidence of the

pressures on our fisheries is clear:

- poor water quality due to changes in land use limits the quality, or even the existence of, fisheries in some waters;
- excessive abstraction of water in some areas has aggravated the recent natural low flows, damaging fisheries;
- land drainage works have led to the straightening of river and drainage channels and damage to fish habitat;
- illegal netting has damaged legal fisheries in some rivers, estuaries and coastal waters;
- escape of non-native species from fish farms;
- potential impact of estuarial barrages on migratory fish.

Table 1 illustrates the use of our environment in general terms and highlights some uses of particular relevance to fisheries.

The need to balance uses against environmental pressures will require the evaluation of a range of policies, projects and courses of action. Economic analysis will help reveal the best use of the increasingly scarce resource within an overall strategy for sustainable use.

Table 1 - Uses of our Environment

GENERAL	
● Total Abstraction Licences in Force	48,000
● Total Water Abstracted*	59,200 Megalitres/day ²
● Water put into Public Supply	18,000 Megalitres/day
● Approximate Number of Angling Licences Sold	1,000,000/year
● Estimated Number of Recreational Walkers	20,000,000/year
● Number of Farming Units	186,000
● Total Discharge Consents in Force	110,000
KEY FISHERIES STATISTICS	
● Number of Netsmen Licensed	c. 3,500
● Number of Native Species of Freshwater and Estuarine Fish	>50
● Number of Introduced Species of Freshwater Fish	>10
● Length of River Fisheries	c. 19,000 kilometres
● Length of Canal Fisheries	> 2,000 kilometres
● Number of Stillwater Fisheries	c. 15,000
● Area of Coastal Waters	3.6 million hectares
● Number of NRA Prosecutions for Fisheries Offences	c 5,500/year

Notes:

* This figure, when compared with recent publications, is higher due to a re-definition of the calculation

* Megalitre = 1 million litres

Present Status of the Fisheries Resource

In the broadest sense, the NRA's primary aim for fisheries is to maintain, improve and develop fish stocks, the basic fisheries resource, in order to optimise the social and economic benefits from their sustainable exploitation. In addition to their wider enjoyment by the general public, fisheries can be exploited by anglers or by netmen, for recreation or for financial gain. Any form of exploitation of wild fish stocks must be on a sustainable basis.

Reason for Optimism

Despite the obvious pressures on the fisheries resource, there is some reason for optimism.

The distributions of salmon and sea-trout have been expanding in recent years, reflecting the rehabilitation of industrialised rivers such as the Thames, Taff, and Tees.

Angling continues to be one of Britain's most popular sports, with certain sectors, notably trout fishing, expanding.

Species of significant conservation interest are thriving in their native waters. An example is the twaite shad, in the Severn Estuary, which run local rivers to spawn.

Fisheries of local significance, helped by NRA management, are contributing to their local economy. The cockle fishery in the Dee Estuary, in North Wales, is one such example.

No Room for Complacency

These positive signs must be tempered however by concerns in the following types of fishery.

Salmon and Sea Trout Fisheries

Declared catches of both species have been poor in many rivers in recent years (see Figures 1 to 4). There is also concern over the long-term decline in the stocks of large, early-run salmon.

The poor performance of some fisheries is thought to be due in part to conditions in the North Atlantic. Nevertheless, within the NRA's area there are other significant problems which are being, or remain to be addressed, e.g. poor estuarine water quality, habitat deterioration and illegal netting.

Non-Migratory Trout Fisheries

While the increased demand for trout fishing is positive for the sport, this has been fostered by heavily stocked fisheries on reservoirs and small stillwaters.

Indiscriminate stocking by some fishery owners is an added pressure on native stocks of trout in the rivers of England and Wales. These are already in need of careful husbandry as a result of pressures from drought, excessive water abstraction, and pollution. Indiscriminate stocking poses problems for the maintenance of the genetic integrity of wild stocks.

Coarse Fisheries

The majority of NRA rod licence holders go coarse fishing. This branch of angling is particularly popular with young anglers. Improvements in water quality have enhanced coarse fisheries, emphasising the importance of their continued assessment. Figure 5 provides Fish Biomass statistics for the last 8 years in just one of the NRA's regions.

The recent concern over Spring Viraemia of Carp has highlighted the need for disease checks prior to restocking.

Eel Fisheries

Historically, eel stocks in England and Wales have been lightly exploited. Recently, a decline in the number of elvers reaching parts of Europe, including England and Wales, has resulted in high prices being paid for young eels - Figure 6 illustrates the trend in elver catches in NRA Welsh Region over the last 13 years. The species is also a significant prey item for some predators, particularly otters, providing a further reason for careful stock management. Obstructions such as weirs and barrages may be a significant factor in limiting eel stocks.

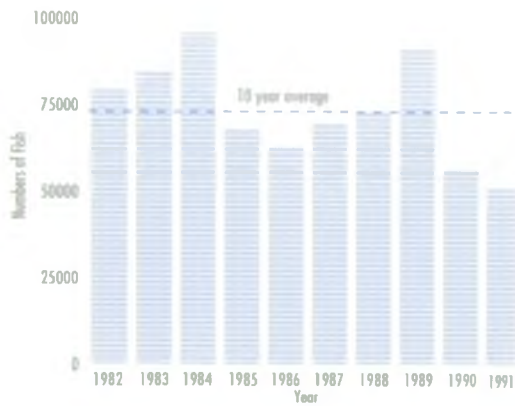


Figure 1 - Declared Net Catches of Migratory Trout for England and Wales.

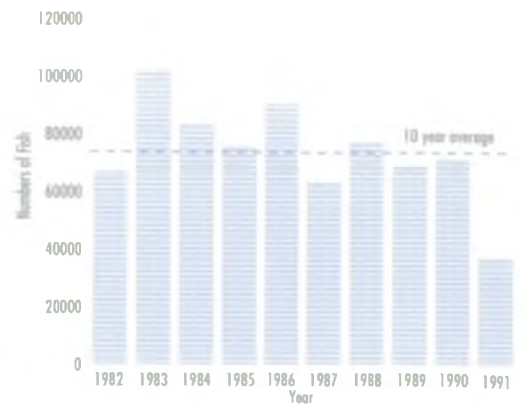


Figure 2 - Declared Net Catches of Salmon and Grilse for England and Wales.

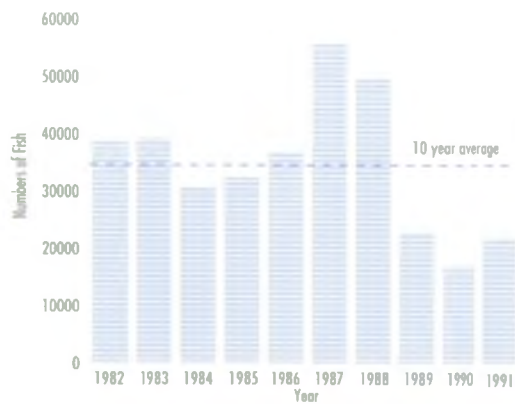


Figure 3 - Declared Rod Catches of Migratory Trout for England and Wales.

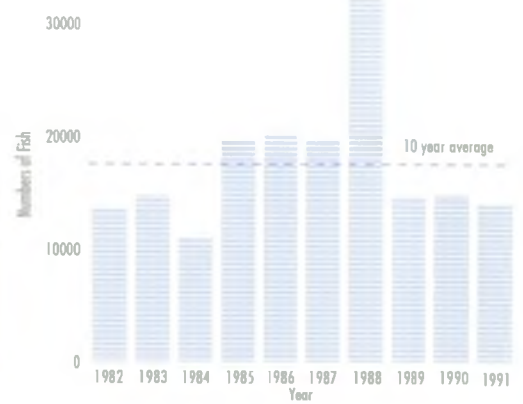


Figure 4 - Declared Rod Catches of Salmon and Grilse for England and Wales.



Figure 5 - Fish Biomass in Rivers in the Anglian Region.

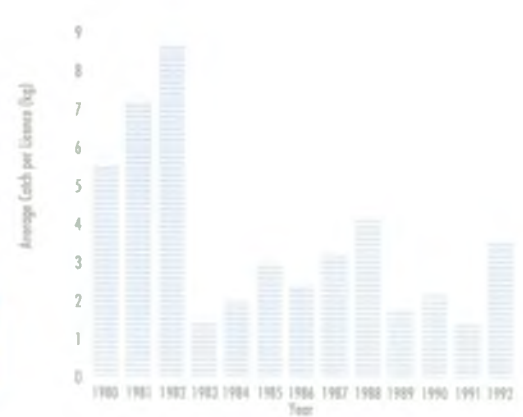


Figure 6 - Elver Catches in the Welsh Region.

LEGISLATIVE, FINANCIAL AND INSTITUTIONAL FRAMEWORK

Legislative Framework

The NRA's fisheries functions and the areas in which they are carried out are set out primarily in the Water Resources Act 1991, and also in other national and European Community (EC) legislation.

At National Level

The NRA was formed as a result of the Water Act 1989. Those aspects of the 1989 Act which concerned the NRA were later consolidated into the Water Resources Act 1991.

Under the 1991 Act, the NRA has a general duty to maintain, improve and develop salmon, trout, freshwater fish and eel fisheries under its jurisdiction. It also has a duty to establish and maintain Regional Fisheries Advisory Committees (RFACs), and to consult these committees as to the manner in which the general duties are performed.

In certain areas the NRA acts as a Sea Fisheries Committee under the terms of the Sea Fisheries Regulation Act 1966, and in such areas has powers to regulate sea fisheries under the 1966 Act, and the Sea Fisheries (Conservation) Act 1967.

Under the Diseases of Fish Acts 1937 and 1983, the NRA has a duty to notify the Ministry of Agriculture, Fisheries and Food (MAFF) of the occurrence of fish diseases in waters which do not comprise a fish farm, and duties may be placed upon the NRA if an area is designated by MAFF under these Acts. They also give the NRA the power to remove dead or dying fish from waters other than fish farms.

The majority of the NRA's powers to regulate and protect fisheries are defined in the Salmon and Freshwater Fisheries Act 1975, supplemented by the Salmon Act 1986. To assist enforcement, the Authority can appoint

'water bailiffs' who, in addition to having specific powers, are deemed to be constables for the purposes of the Act. Bailiffs, therefore, have many of the powers, liabilities, and responsibilities of a police constable as defined in the Police Act 1964 and the Police and Criminal Evidence Act 1984.

The NRA has specific environmental duties in relation to all its functions, including the need to further conservation. The NRA also has a duty, generally to promote conservation and the use of inland and coastal waters and associated land for recreational purposes. These duties must be exercised in relation to the Fisheries Function. Details can be found in the relevant strategies.

At European Level

The NRA also acts on behalf of Government for certain EC Directives in England and Wales, such as the Fish Health Directive and the Freshwater Fisheries Directive.

Under Section 116 of the Water Resources Act 1991, the NRA's fisheries powers may be modified to give effect to any Community obligations or any international agreement. The NRA helps advise the EC delegation to the North Atlantic Salmon Conservation Organisation (NASCO), the UK being represented at Community level. Close links are maintained with the European Inland Fisheries Advisory Commission (EIFAC).

Legislation in Practice

The legislation imposes duties on the NRA that it must carry out. Other provisions take the form of powers that the NRA uses to fulfil its duties and meet its aims. This combination of duties and powers determines the broad allocation of effort and resource.

Table 2 shows how NRA fisheries activity relates to the NRA's duties and powers.

Table 2 - Duties and Powers

Regulation of Fishing

The NRA has a duty to regulate fishing for salmon, trout, freshwater fish and eels by a system of licensing. It may also limit the number of licences to fish for salmon and trout, other than by angling. The NRA may with Ministerial approval make byelaws under the Water Resources Act 1991 to regulate, amongst other things, fishing methods and times.

Enforcement

The NRA polices fisheries and has extensive powers to deal with illegal fishing methods such as poisoning, electric fishing, explosives, snaring and unlicensed netting. The NRA also polices the sale and export of salmon and trout.

Free Passage of Fish

The Authority has a range of powers to help ensure the unobstructed migration of salmon and sea trout between the sea and their spawning grounds. These include the power to require the construction of fish passes on weirs or other dams.

Control of Movement and Introduction of Fish

The NRA's written consent is required for the introduction of fish or spawn into any waters other than fish farms.

Control of Fish Disease

The NRA has a duty to notify the Ministry of Agriculture, Fisheries and Food (MAFF) of occurrences of fish disease in waters other than fish farms, and duties may be placed on the NRA if that area is designated by MAFF.

Monitoring of Fisheries

The Authority can require fishermen to make returns detailing their fishing effort and catches of salmon, trout, freshwater fish and eels. It may authorise or use otherwise illegal fishing techniques (eg electric fishing or traps) to monitor fish stocks.

Financial Powers

The NRA, like its predecessors, raises income through duties on licences for angling and other forms of fishing. Changes in the level of licence duties require Ministerial approval.

In addition the NRA may require, subject to Ministerial Order, contributions from fisheries owners under Section 142 of the Water Resources Act 1991. The Act also provides an incidental power to fix and recover charges for services and facilities.

Financial Framework

The NRA is funded largely by a combination of Government grant-in-aid (GIA) and self-generated income from NRA charging schemes. For fisheries, the service can be funded through five primary sources:

- attribution of costs to other NRA functions;
- income from angling and other fishing licences;

- income from fisheries owners through Section 142 Orders (not implemented);
- income from sales and services;
- Grant-in-Aid from Central Government.

To date the NRA has not applied for any Section 142 Orders, though some historical orders still exist under previous legislation. Costs of mitigating damage to fisheries will be recovered whenever practicable from those who cause damage.

Institutional Framework

The NRA and Government

The NRA is a non-departmental public body, sponsored by the Department of the Environment (DoE). It also has important policy links with the Ministry of Agriculture, Fisheries and Food (MAFF) and the Welsh Office (WO).

The Other Players

The NRA is only one of many bodies and organisations which have a role to play in the protection and management of inland and coastal fisheries. The NRA can influence their activities by its actions and vice versa. Effective liaison with the following organisations is key to the success of the NRA's Fishery Strategy.

- **Commission for the European Communities (CEC):** sees environmental legislation as being of primary importance. Much recent UK environmental law, particularly relating to water quality, has been determined by EC Directives. The EC also represents the UK in international negotiations within the North Atlantic Salmon Conservation Organisation.
- **Department of the Environment (DoE):** as sponsors, the Secretary of State for the Environment plays a major role in national policy, particularly in relation to finance.
- **Ministry of Agriculture, Fisheries and Food (MAFF):** also a sponsoring Department and responsible for regulatory aspects of the NRA's fisheries function. Its Minister has a variety of specific powers including approval of licence duties and any charging scheme for fisheries owners, as well as net limitation orders and the design of fish passes. This department is also the focus for the UK in any international negotiations on fisheries.
- **Welsh Office:** for the NRA's Welsh Region, the Secretary of State for Wales has similar powers to those of MAFF and DoE in England.
- **The NRA's Fisheries Committees:** advise the Authority on the way it executes its fisheries duties. Regional Fisheries Advisory Committees are supported in many areas by Local Fisheries Committees. The members of these committees represent fisheries interests including anglers, fisheries owners, netsmen, and fish farmers.
- **Catchment Action Plan Groups:** although not statutorily required, some NRA regions have formed such groups from a range of interests, including fisheries, to help advise on integrated management of specific catchments.
- **Sea Fisheries Committees:** are empowered under Salmon Act 1986 to introduce controls on fishing for sea fish, so as to prevent interference in the migration of salmon and sea trout.
- **Fishery Owners:** whether clubs, local authorities or private individuals, fisheries owners have significant rights, powers and responsibilities, complementing those of the NRA. In some areas, they are major beneficiaries of the NRA's service.
- **Fishermen:** anglers are perhaps the most obvious customers of the fisheries service and numerically are the most important direct beneficiaries of NRA fisheries activities. As with fisheries owners, their collaboration and support are essential to successful management of fisheries. Fishermen are consulted when major changes are planned. Netsmen, although comparatively few, are responsible for the majority of salmon and sea trout catches.
- **English Nature:** the statutory body responsible for nature conservation and the designation of SSSIs in England.
- **Countryside Commission:** the conservation of landscape and promoting access to the countryside in England is the main responsibility for this statutory body.

- **Countryside Council for Wales (CCW):** the remit of CCW encompasses nature conservation, landscape conservation and promoting access to the countryside.
- **Other Enforcement Agencies:** liaison with other agencies, particularly the various police constabularies, is crucial to the success of the NRA's enforcement role.
- **Water Companies:** as the main abstractors of clean water and dischargers of waste water, the activities of these companies have a major impact on fisheries. They are also providers of stillwater fishing on their reservoirs.
- **The Media:** can readily influence public opinion. Their interest in news - good and bad - must be focused to ensure that the NRA's point of view and policies are placed before the general public in an objective and clearly understood manner.
- **The Public:** millions of people have an interest in fisheries, regardless of whether they are fishermen. Healthy fisheries are a clear indicator of the quality of the aquatic environment.

Liaison

The accurate and efficient transfer of information between internal and external agencies is essential.

- All NRA staff will be made aware of the Fisheries Strategy.
- Education of NRA staff by both formal training and information exchange will continue to be encouraged. Staff attend workshops designed to improve awareness of current issues and modern technologies.
- Regular coordinated meetings of Regional Fisheries Advisory Committees will continue to take place and are open to the public.
- Liaison with fishermen, fishery owners and the general public will be improved so that they can more closely identify with the aims and achievements of the Fisheries Function. These groups will be kept informed of fisheries activity both directly and via the media. Consideration will be given to the establishment of interpretation centres to enhance public understanding.
- Angling will be encouraged by the production of angling guides, as in the past, and where appropriate video based material. Efforts will be made to promote good angling practice, including care of the riverine environment and how to handle the fish they catch.

The Broad Strategy

The NRA's principal aim in relation to fisheries is to:

- maintain, improve and develop fisheries.

To achieve this aim the NRA seeks to:

- protect and conserve salmon, trout, freshwater fish, eel and, where appropriate, coastal fisheries;
- regulate fisheries through the enforcement of a consistent series of licences, orders, byelaws and consents;
- monitor the fisheries status of rivers and inland, estuary and, where appropriate, coastal waters;
- formulate policies to maintain, improve and develop fisheries and restore and rehabilitate damaged fisheries;
- provide an efficient and effective fisheries service which is responsive to the needs of its customers and which is based on a sound charging system.

This requires an efficient balancing of costs and benefits within an integrated system of catchment management, taking the needs of all users and all NRA functions into account. NRA activity on a catchment level falls into four main areas and these are described below.

Regulation & Enforcement

Control of exploitation

The uncontrolled and illegal exploitation of fish poses a significant threat to the value and extent of fish stocks and a national enforcement strategy is required to minimise this activity. Migratory fish stocks face different risks at each stage of the life cycle, and the varying forms of exploitation will require careful and scientifically-based control measures.

Enforcement

The NRA will continue to:

- review enforcement methods and results, to ensure they include effective equipment and intelligence;
- liaise with outside enforcement agencies where appropriate. To achieve this, enforcement staff will be trained to a high standard of professionalism;
- vigorously pursue the prosecution of fisheries offenders, as a means of protecting fisheries and of deterring potential offenders;
- strive to raise the general public awareness of the seriousness of fisheries offences.

Byelaws

At present within NRA Regions there is a diversity of fisheries byelaws, as inherited from the Water Authorities.

The NRA will:

- review byelaws, with the aim of producing a national, uniform set for those issues that are common to all regions, where this makes practical, legal and biological sense;
- retain certain byelaws where they are required to deal with local issues or problems.

Planning consultation

Many development schemes have significant implications for fisheries. The NRA's role as a consultee for planning applications and the requirement for developers to produce Environmental Impact Assessments (EIAs) and Statements both give the NRA an opportunity to identify potential problems in a proactive way. The NRA will continue to:

- maintain effective links with local authority planning departments to ensure an NRA input into planning applications and development plans;

- seek to prevent potential problems caused by developments, through active involvement in determining the requirements of EIAs;
- develop procedures and techniques (eg modelling skills) to assess the implications of major developments and to allow audit of Environmental Statements.

Land Drainage

Land drainage works carried out by non-NRA agencies remain a significant problem as they can result in damage to fish and their habitat.

The NRA will:

- give consideration to achieving greater control over activities in this area by education of outside agencies and, if necessary, the introduction of regulatory controls.

Fish Introductions

The introduction and transfer of native and non-native fish species into waters other than registered fish farms throughout the NRA's area is controlled by consent under Section 30 of the Salmon and Freshwater Fisheries Act 1975. In practice, Section 30 consents are also used to help control the spread of diseases and parasites.

The NRA will:

- review consent procedures and policy on fish disease, to ensure a consistent approach and to facilitate the exchange of information;
- refuse consent for the introduction of non-indigenous species or strains of fish, where this poses a threat to native populations.

Monitoring

Careful monitoring of the fisheries resource is an essential element of the NRA's work. There are two basic types of survey: those that are part of a routine programme concerning principal fisheries; and special investigational

surveys that are carried out in response to a demand for specific information about a particular area. Details of both are given below.

Routine Programme

Regular reappraisal of the fisheries resource is a necessary prerequisite for effective management. This is achieved by means of a rolling programme of monitoring, employing netting and electro-fishing techniques.

In addition, information concerning the status of migratory salmonids (salmon and sea trout) is obtained through fish counters, traps and the collection of catch returns.

Consistent approaches to stock assessment and the collection of catch returns will be adopted throughout England and Wales.

Investigational Surveys

These surveys are made in response to specific needs, such as:

- appraisal of the success of previous re-stockings;
- surveys made for angling clubs of their waters (where appropriate a charge is made);
- surveys made at the site of a fish kill to assess the scale of damage and rate of rehabilitation;
- investigations to assess levels of disease or parasite infestation;
- special surveys forming part of a national, or regional research project (eg. levels of accumulation of heavy metals);
- studies on fish behaviour (eg. salmon tagging).

Operations

Protecting the Fisheries Resource

A comprehensive set of base line data is essential for effective strategic planning, so that efficient systems of maintenance,

improvement and development of the fisheries resource can be established.

The NRA will:

- quantify, in terms of river lengths and stillwater areas, the total extent of salmon, trout, freshwater fish and eel fisheries. Coastal fisheries will also be quantified;
- provide a detailed description of the resource to be managed, utilising the national and regional databases established, thus defining the operational limits within which strategic planning and activity will take place;
- develop a fishery classification scheme that will assist the evaluation of fishery resources. Such values will be used in the assessment of the costs and benefits of maintaining and improving the fisheries resource.

Emergencies

In recent years, there have been notable water quality improvements in our industrial rivers with the result that significant fisheries have developed. The presence of valuable fisheries in close proximity to areas of industrial activity increases the potential for major incidents. In some rural areas, intensification of agricultural practice has put established fisheries at risk.

The NRA will continue to:

- respond quickly and efficiently to emergency incidents involving risks to fish or fisheries. Such fisheries activity will form an integral part of the NRA's overall emergency response;
- seek to prevent or limit fish losses by the implementation of rescue policies which combine on-site remedial action and fish removal as the situation demands;
- improve policies to address the financial and environmental aspects of fish stocking to restore fisheries following pollution incidents.

Managing the Resource

Within the NRA's powers, the resource will be managed so as to maintain its current status, as a minimum standard of service.

Where a need is identified, fisheries management strategies will be designed to enhance and develop the resource. Fisheries habitat, water quality and water quantity must all be managed, and the necessary stocks of spawning fish identified.

- **Fisheries Habitat:**

The Fisheries Function is extensively consulted in the planning and implementation of flood defence, water resources and other schemes to ensure that fisheries subject to river engineering works are protected and improved.

- **Water Quality and Quantity:**

Fisheries expertise and experience will play an integral part in the Authority's strategic planning of water resources utilization and water quality objectives.

- **Spawning Targets:**

The NRA will set targets for the number of salmon and sea trout which must be allowed to spawn. Such targets will be used to define fishing regulations in the NRA's area and, where relevant, elsewhere.

- **Fisheries Performance Targets:**

The NRA will develop performance targets for fisheries (e.g. fish biomass, density, catches) to help monitor the resource's status.

Conservation

The NRA's responsibility for conservation includes the protection and enhancement of fish populations. Special attention is given to the need to promote the survival and reinstatement of threatened fish populations. These include not only rare species, but also specific local strains of more common native species. In addition, it is important to protect any pure native fish stocks from potential genetic mixing.

The NRA also acts to promote the conservation of fish populations by external conservation agencies.

There is a widespread public interest in the well-being of fisheries and concern that local rivers are clean enough to support fish populations. The development of this general interest is encouraged, through appropriate educational and promotional initiatives.

Improvement and Development

Much of the NRA's work is directed at maintaining the status quo in the face of increasing demands on the water environment. The importance of this maintenance and its resource needs should not be underestimated. In line with its statutory duty, the NRA is also committed to developing and improving the fisheries resource.

Improving

An overall medium-term capital programme aims to rehabilitate fisheries. This focuses on conventional methods such as fish pass and groyne construction, and also on innovative methods of restoring lost habitat in a cost-effective way. The specification and effectiveness of these methods will be evaluated to ensure maximum success from restoration projects. In particular, as water quality improves and flows are restored, habitat restoration, restocking programmes and anti-poaching work will follow as appropriate.

Fish Culture

The NRA gives priority to maintaining and improving natural fish populations, and rears both coarse fish and salmonids to suit its specific need.

- The NRA's current fish culture capacity is limited. Output from the NRA's fish culture units is thus allocated according to the following priorities:-
 - i) Mitigation
 - ii) Restoration
 - iii) Enhancement

- All units concentrate on species and strains which are in poor supply commercially and consideration may be given to species of special conservation value. Fish production units will be tailored to serve more than one region where appropriate.
- The NRA is not in the business of producing fish stocks for the commercial market which are produced by outside organisations.
- Research is needed to establish the effectiveness of stocking with artificially-cultured fish.

Developing

The NRA will encourage fisheries development by external agencies where appropriate, but the deployment of NRA funds will depend on the detailed knowledge of expected returns based on the demand for, and other potential benefits of, the intended development.

The prioritisation of deployment of development funds is achieved by identifying areas of imbalance in supply and demand. The underlying cause of, or reason for, any shortfall in local fisheries resources must be clearly defined. There is a relationship between the distribution of anglers and the local availability and quality of angling opportunity. The numbers and distribution of fishermen will be assessed in the light of human population distribution and related to data on the fisheries resource. Market research into the expectations of potential users of the intended development will also be considered.

Where environmental factors such as water quality or quantity are limiting, the costs of alleviating these problems must also be assessed and set against potential benefits.

The programme of fisheries development will seek to achieve both value for money and maximum benefit to its customers.

RESOURCES AND TIMETABLE FOR ACHIEVEMENT

A Flexible Resource

The achievement of our strategy is dependent on a highly flexible, yet specialised resource. The NRA has:

- fishery managers and scientific staff, committed to ensuring the best possible management of the fishery resource;
- full-time professional fisheries inspectors and bailiffs who actively enforce fisheries regulations and combat poaching;
- regional fisheries laboratories, together with a national laboratory, using up-to-the-minute techniques to provide a specialist scientific service;
- a fleet of inshore coastal patrol boats to further enforce fisheries regulations;
- both salmonid and coarse fish rearing units supporting stocking programmes, automated fish counting and trapping facilities on salmon rivers throughout England and Wales;
- aerial survey techniques for radio-tracking tagged fish and for coastal enforcement.

Efficient Use - Better Value for Money

The cost of deploying this resource, in 1993/94, is some £24 million per year; of this some £8 million is on Enforcement; some £5 million on Monitoring; some £3 million on Rearing and Restocking; some £2 million on Physico-chemical improvement and some £2 million on Regulation. Income from NRA rod licences currently amounts to about £10 million, roughly 45% of expenditure. Licences for commercial fishing contribute around £200,000. At present, Government pays about 54% of the cost of the service, but has indicated that this proportion shall be significantly reduced.

The Authority will endeavour to maintain its current level of service, while reducing costs, through increased efficiency. The NRA will continue to examine critically all aspects of the fisheries work to ensure best value for money is achieved by concentrating the available resource on the key activities.

To demonstrate and enhance the level of effectiveness and efficiency the NRA will develop standards of service and output performance measures (OPMs) for its fisheries service. The NRA will where appropriate consider the potential for improving its service by market testing i.e. comparing in-house performance with the private sector.

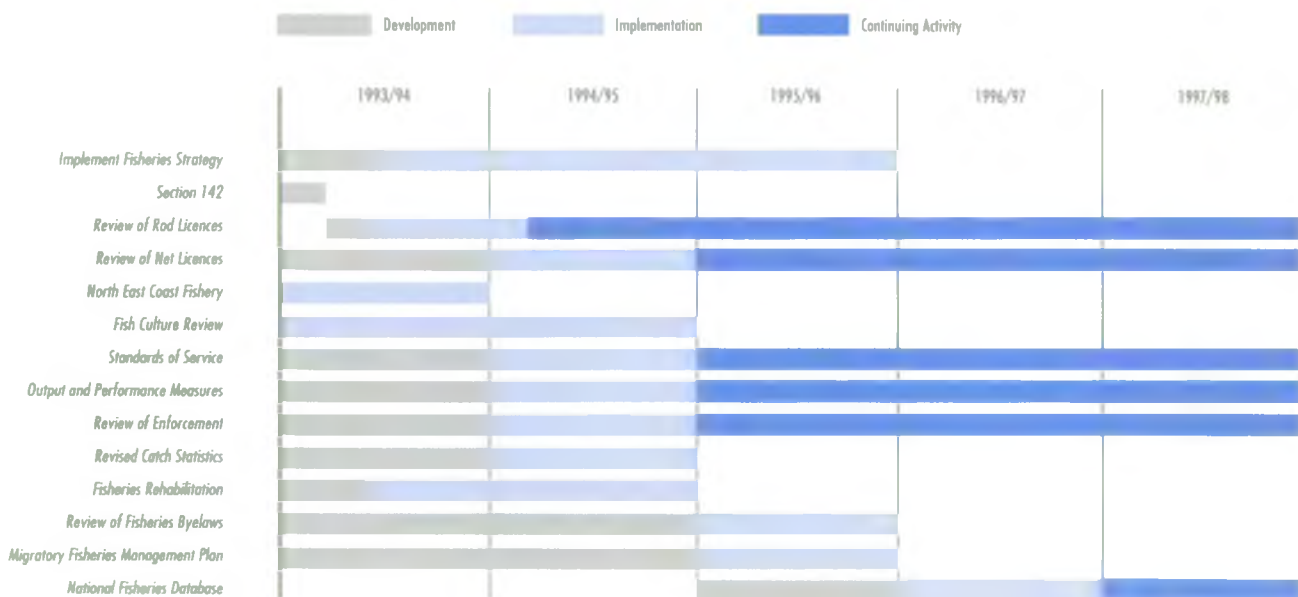
Finance

- In order to provide a sound basis for charging, the Authority will assess the extent to which different groups benefit from the fisheries service.
- The level of charges and duties will reflect in part the extent to which the service is funded through Government Grant-in-Aid.
- The NRA has consulted on the introduction of a particular scheme to charge fisheries owners, under Section 142 of the Water Resources Act 1991. In view of the widespread opposition, the NRA has decided not to proceed with this scheme. Nevertheless, income from this group of beneficiaries remains an option. The Authority is keen to encourage riparian owners to club together and fund improvements which would otherwise not be achievable. The NRA will provide advice and technical expertise, but will need to cover its costs in doing this.
- The level and structure of duties for fishing with nets will be reviewed, to be consistent with rod licence duties.

The Timetable for Achievement

The broad timing of the NRA's major initiatives to maintain and improve the fisheries resource are given in the chart below. Their implementation is supported by business plans. These management documents detail the components of each initiative, their relative priority, outputs, timing and

resourcing. Short to medium-term milestones in the achievement of the overall strategy are set out in the NRA's annual Corporate Plan and reported on in the NRA's Annual Report and Accounts. Achievement of these initiatives is in many cases dependent on action by others to the same timescale, as documented in catchment management plans at local level.



RESEARCH AND DEVELOPMENT

Research and development (R&D) makes an essential contribution to the NRA's work. It provides new knowledge and techniques which allow the NRA to carry out its duties better.

Strategic R&D in support of the NRA's fisheries work addresses a number of key issues.

Fisheries Resources

This is research into the individual or population biology of individual species of fish in order to provide basic resource information for operational management.

Examples of research include:

- assessment of elver stocks in the River Severn together with elver exploitation and its implications for river stocks;
- evaluation of the use of salmonid, eel, and freshwater fish catch statistics for the management of stocks, and for the determination of stock size;
- review of information on the genetic characteristics and time of return of spring salmon, to make recommendations on the feasibility of, and techniques for, enhancement of spring salmon;
- investigation to determine the status and variability of sea trout populations including their exploitation and feeding behaviour at sea.

Environmental and Biological Influences

There is a need to improve the NRA's understanding of the effect of environmental and biological influences on fish populations so that results from monitoring programmes can be correctly interpreted and effective fisheries management carried out when natural

or man-made changes occur. Examples of research include:

- evaluating the disease status of fish as an indicator of surface water quality and the role of health factors in limiting population success;
- using telemetry techniques to investigate and describe the behaviour of Atlantic salmon and sea trout smolts during the estuarine phase of their migration;
- identifying critical factors constraining coarse fish populations in lowland rivers, determining management strategies to develop and improve the fisheries.

Fisheries Management

The development and implementation of management strategies allows the NRA to maintain, improve, regulate and develop fisheries in ways that are adequately justified and cost-effective.

Examples of research include:

- evaluating the performance of automatic fish counters and their use in monitoring adult migratory salmonid fish stocks;
- developing electric fishing sampling equipment and methodology which will allow appraisal of fish stocks in large lowland rivers;
- developing new methods of environmental restoration (other than water quality related) that will enable the NRA to improve, develop and rehabilitate damaged fisheries;
- evaluating the effectiveness of stocking with coarse fish, both hatchery-reared and those transferred from other waters, and to determine the most effective stocking practices.

Impact of NRA Fisheries Strategy

One prediction that can be made with reasonable certainty is that the water environment will be subject to a great many changes in the future. Some are within the NRA's sphere of influence, many others are not.

The strategy will communicate NRA direction to all involved parties, in order that its customers can gain maximum benefit from the investment.

Potential effects of climate change

Predicted changes in climate caused by global factors may modify the distribution of different types of fisheries with implications for economic values and future management. The NRA will strive to ensure that there is an early fisheries input to strategic decisions on this matter.

The Environment Agency

The future of the environment in England and Wales will be influenced by the success of the proposed new Environment Agency. Areas of importance include:

- the balance of fisheries funding and ensuring that fisheries interests are adequately represented in the new organisation;
- the relationship between Government and the new Agency. Public confidence in independent enforcement of standards will only be retained by an "arm's length" relationship. The fair attribution of NRA costs to polluters and beneficiaries is also important here - to ensure that public funds are spent where they should be, namely on work carried out on behalf of the Government and the nation.

MEASURING OUR SUCCESS

The success of the work of the NRA, and in due course, of the Environment Agency, will be most clearly shown by real improvements in environmental quality. Our progress in maintaining, improving and developing fisheries will be monitored using the following key indicators:-

- number of licensed fishermen;
- number of licence checks made;
- number of fisheries offences detected;
- number of monitoring surveys undertaken;
- number of habitat improvement structures built;
- number of fish reared and stocked;
- salmon and sea trout catches;
- coarse fish abundance;
- juvenile salmonid fish abundance.

These and other measures will be monitored and published regularly, as an important part of our remit to report to Government and the public on the state of the environment.

THE SUCCESS OF THE NRA WILL BE MOST
CLEARLY SHOWN BY REAL IMPROVEMENTS
IN ENVIRONMENTAL QUALITY.

GLOSSARY OF ACRONYMS USED IN THIS DOCUMENT

CCW	Countryside Commission for Wales	NASCO	North Atlantic Salmon Conservation Organisation
CEC	Commission for the European Communities	NRA	National Rivers Authority
DoE	Department of the Environment	OPM	Output and Performance Measure
EC	European Community	R&D	Research and Development
EIA	Environmental Impact Assessment	RFAC	Regional Fisheries Advisory Committee
EIFAC	European Inland Fisheries Advisory Commission	SSSI	Site of Special Scientific Interest
GIA	Grant-In-Aid	WO	Welsh Office
MAFF	Ministry of Agriculture, Fisheries and Food		

NRA REGIONAL OFFICES

HEAD OFFICE

Rivers House
Waterside Drive
Aztec West
Almondsbury
Bristol
BS12 4UD
Tel: (0454) 624400
Fax: (0454) 624409

LONDON OFFICE

Eastbury House
30-34 Albert Embankment
London SE1 7TL
Tel: (071) 8200101
Fax: (071) 8201603

ANGLIAN

Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: (0733) 371811
Fax: (0733) 231840

NORTHUMBRIA & YORKSHIRE

21 Park Square South
Leeds LS1 2QG
Tel: (0532) 440191
Fax: (0532) 461889
Gosforth Office
Eldon House
Regent Centre
Gosforth
Newcastle Upon Tyne
NE3 3UD
Tel: (091) 2130266
Fax: (091) 2845069

NORTH WEST

Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: (0925) 53999
Fax: (0925) 415961

SEVERN TRENT

Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: (021) 7112324
Fax: (021) 7115824

SOUTHERN

Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: (0903) 820692
Fax: (0903) 821832

SOUTH WESTERN

Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: (0392) 444000
Fax: (0392) 444238
Bridgwater Office
Rivers House
East Quay
Bridgwater
Somerset TA6 4YS
Tel: (0278) 457333
Fax: (0278) 452985

THAMES

Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: (0734) 535000
Fax: (0734) 500388

WELSH

Rivers House/Plas-yr-Afon
St Mellons Business Park
St Mellons
Cardiff CF3 0LT
Tel: (0222) 770088
Fax: (0222) 798555





NRA

National Rivers Authority