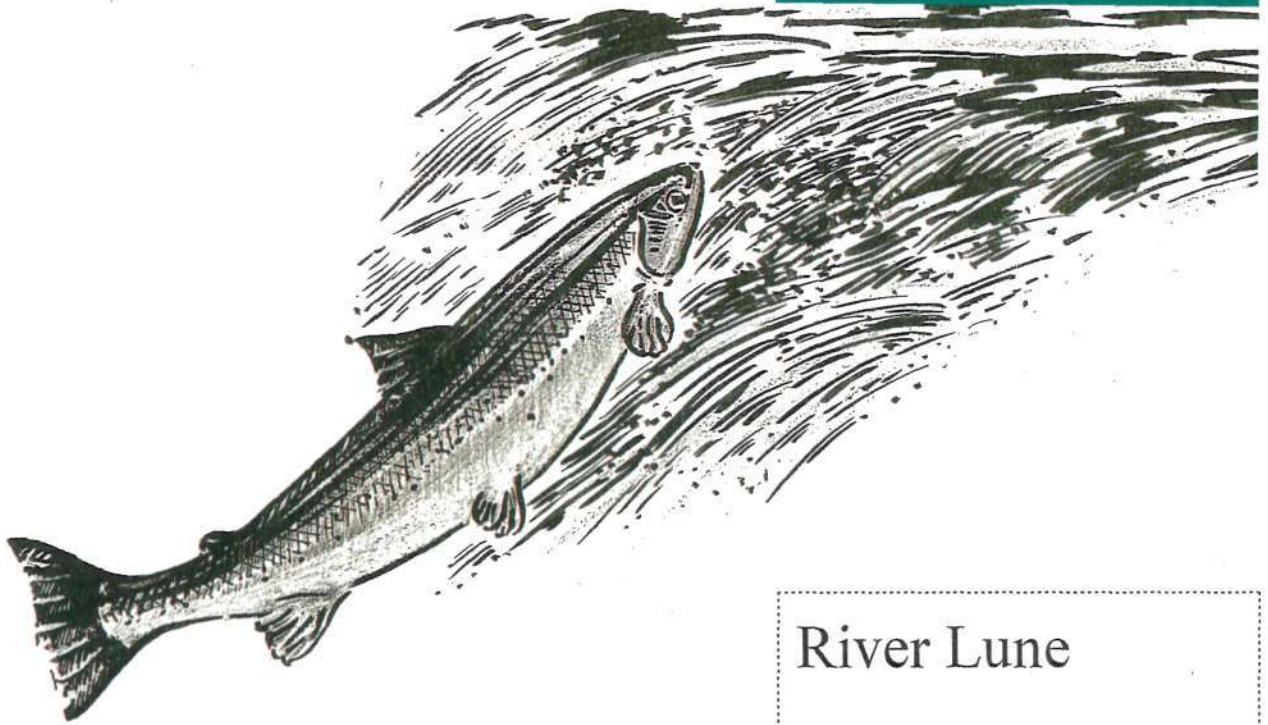


SALMON

Action Plan



River Lune

February 1998



ENVIRONMENT
AGENCY

RIVER LUNE SALMON ACTION PLAN

February 1998

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Summary

1. In February 1996 A Strategy for the Management of Salmon in England and Wales was launched by the National Rivers Authority setting out objectives for the management of salmon fisheries.
2. These objectives are to be met through local Salmon Action Plans which are to be produced for each of the principle salmon rivers in England and Wales by the year 2001.
3. A consultation report was produced for the River Lune and released publicly in August 1997. This document:
 - * Determined an egg deposition figure of 13.8 million eggs which would allow maximum gain from the net and rod fisheries.
 - * Raised a number of issues which are thought to limit existing salmon production
 - * Identified actions which may be undertaken by the Environment Agency and other bodies to improve stocks.
4. Over four hundred copies of the consultation report were circulated to interested parties and thirty one responses received offering useful comments on the document:
5. This document readdresses the issues raised in the consultation document and also highlights some important changes to the historic egg deposition rates following further analysis of the data.
6. Some of the major issues addressed in the plan are:
 - * The impact of farming practices
 - * Possible over-exploitation of the stocks by rods, nets and high seas fisheries
 - * Reduced juvenile production caused by insufficient habitat and bird predation
 - * The spring salmon stock
 - * The impact of potholers on river flows
 - * The ingress of rainbow trout into the river
 - * The potential impact of man-made structures on river ecology.
7. The progress of this plan will be monitored and reported annually.

1. Introduction

In February 1996 **A Strategy for the Management of Salmon in England and Wales** was launched by the National Rivers Authority (NRA 1996).

The strategy concentrates on four main objectives for the management of salmon fisheries in England and Wales.

- (i) Optimise the number of salmon returning to home water fisheries.
- (ii) Maintain and improve the fitness and diversity of salmon stocks.
- (iii) Optimise the total economic value of surplus stocks.
- (iv) Ensure necessary costs are met by beneficiaries.

These four objectives will be addressed through local **Salmon Action Plans (SAPs)** which will be produced for each of the principle salmon rivers in England and Wales by the year 2001. Each plan will review the status of the stock and the fisheries on a particular river, seek to identify the main factors limiting performance, draw up and cost a list of options to address these, and, consult with local interest groups.

One concept introduced by SAPs is that of setting spawning targets to assess stock and fishery performance. This has been successfully applied on Canadian rivers for a number of years and has recently been advocated by the North Atlantic Salmon Conservation Organisation (NASCO) to facilitate salmon management internationally. It will provide a more objective approach to British rivers than has previously been possible.

The final SAPs has resulted from extensive consultation with local fishery owners and other interested parties. It publicly defines the Agency's intentions for salmon management into the next century. The issues raised will cascade to Regional and National Plans which will focus the Agency's business activities in the wider context. Furthermore, this SAP will feed into the River Lune Local Environment Agency Plan (LEAP) which serves to integrate all environmental responsibilities within the Agency's remit, including management of air, land and water.

1.1 The Salmon Action Planning Process

There are four key stages of the planning process

The Consultation Document. The consultation document determined an egg deposition figure which would allow maximum gain from the net and rod salmon fisheries, raised a number of issues which are thought to limit existing salmon production, and identified actions which may be undertaken by the Environment Agency and other bodies to improve stocks.

Supporting information on catches and economic valuation was also included to enable the document to provide long term reference which may now be read in conjunction with this plan.

The Consultation Period. The consultation document was widely circulated to all interested organisations and parties and comments were welcomed from any member of the public. The consultation period extended over three months following the publication of the report and the responses provide an indication to the Agency that the major issues had been correctly identified within the catchment.

The Action Plan. This document readdresses the issues raised in the consultation document giving more information on responsibilities, funding sources, priorities and timetables. There are also some major changes to the historic egg deposition rates following extensive further analysis of the data. This plan will then become incorporated into the River Lune Local Environment Agency Plan (LEAP), Regional and National summary Salmon Action Plans.

Future Review and Monitoring. see section 4 of this document

2. Public Consultation

The Regional Fisheries Advisory Committee and the Area Environment Group were consulted prior to the consultation document being released publicly. On August 7th 1997 the public launch of the document took place at the Lansil Sports and Social Club, Lancaster and marked the start of the external consultation process. Over 100 key consultees were invited to attend coinciding with press releases.

In addition, over 300 copies of the report were circulated to angling clubs and associations, local authorities, environmental organisations, as well as individuals within the catchment.

A total of 31 responses was received providing constructive comments and general support for the plan. The comments raised were fully considered in preparation of the Action Plan and incorporated where appropriate. Some of the more frequent comments received are as follows:

Exploitation by the rods and nets. This issue generated the largest number of comments with a general consensus that the current exploitation rate was too high. A number of proposals were suggested including; the phasing out of the estuarine nets or changing their mesh size; shortening the rod fishing season, banning some methods or operating catch and release.

Salmon stocking. This issue produced a large number of comments, most against the closure of the Middleton Hatchery although some supported the decision of the Agency to cease enhancement stocking.

Fish eating birds. All of the comments received on this issue suggested that the current populations of fish eating birds were too high and that licences should be obtained to cull.

Habitat improvement works. Almost all of the comments received on the issue agreed that this was a good practice to improve juvenile populations.

Salmon Action Plans. There was some scepticism concerning the egg deposition targets that are central to this plan and the accuracy of the statistics cited in the document, particularly with respect to historic catch returns.

The Environment Agency. There were a number of comments referring to the Agency's statutory duties to fisheries and on the need to maintain or increase its current Grant in Aid funding from the government.

2.1 Additional Information

Lancashire County Council and Lancashire Wildlife Trust commented that much of the Lune system has been identified as a Biological Heritage Site and that land owners in these areas could benefit from financial assistance and specialist advice to help maintain and possibly enhance the nature conservation interest of the land.

In addition, the Forestry Commission commented that grant aid may be applicable where riparian woodland zones are greater than 15 metres wide.

Both of these projects have aims very similar to those of the Environment Agency in terms of the creation of riparian habitat. Liaison with these and other parties is needed.

2.2 Changes to the Consultation Document

Significant alterations have been made to the egg deposition rates for the years 1989-1995 originally stated in the consultation document. Full details of these have been included in the appendix.

No evidence has been found that acidification due to forestry in the catchments of the Rivers Rawthey and Hindburn are having an impact on salmon production. Consequently, this issue has been dropped from this final document.

No	ISSUE	LIMITING FACTORS	OPTIONS	RESPONSIBILITY		ESTIMATED COST	DURATION OF ACTION							
				Lead	Other		98	99	00	01	02	Future		
6.	Lack of data on in-river juvenile stocks	Current juvenile population densities, may be affected by two dry summers and the closure of hatchery	Electric fishing survey of main river and becks undertaken in 1997 to assess fry and parr populations. Report and recommendations to be produced in 1998	Agency		£15,000	---							
7.	Spring salmon stock	Unknown if stock component still present	Collect and analyse available data from clubs	AC's Agency		Data analysis and report	---							
			Tag early running stock and determine spawning areas. If distinct stock present, protect spawning areas	Agency AC's		£5K per annum	.....	.....	.....	.....	.....	.....	.....
8.	Impact of potholers	Potholing activities affect river flows on River's Dee, Clough, Twiss and on Barbon Beck	Educate potholing groups on better river practices	Agency	Other parties	Meeting and influencing	---	---						
9.	Ingress of rainbow trout into the River Wenning	Potential predation or competition with salmon juveniles by adults. Impact of trout farm intakes on salmon smolts	Monitor catches in river	Agency AC's		Advice from Agency	.....	.....	.....	.....	.....	.....	.....	.....
			Identify risk to salmon stocks and if necessary order changes to existing screening arrangements. Powers come into place in 1999	Agency,		£1,000	---	---						
10.	Impact of man made structures on river ecology	May affect the stability of the river bed and the whole river ecology	Investigative work ongoing with PhD project	Agency UL		£10,000 pa.	---	---						

Key	EP	Environmental Protection (Agency function)
	Agency	Environment Agency
	FWAG	Farming and Wildlife Advisory Group
	LWFA	Lune and Wyre Fisheries Association
	MAFF	Ministry of Agriculture, Fisheries and Food
	NFU	National Farmers Union
	RO	Riparian Owner
	UL	University of Lancaster
	.....	Ongoing action
	----	Completion of action

Notes.

1. **Agriculture.** Agricultural activity predominates over much of the Lune area with an emphasis on sheep farming in the upper Lune and dairy farming in the middle and lower river. Pollution incidents from livestock farms can cause serious problems for the watercourse. Proactive surveys and farm visits are ongoing within the catchment to identify sources of farm pollution and pollution control staff provide advice to farmers on improvements to their waste handling and storage facilities. The use of Farm Waste Management Plans to control diffuse pollution is promoted by the Agency and agricultural consultants.
2. **Exploitation.** The graph of historic egg deposition for the Lune (see appendix) clearly indicates that the target is not currently being met. In order to achieve this target radical changes to the existing exploitation regime may need to be enforced on the fisheries until such time as the salmon stocks improve. In order to be fair and impartial, these changes should be borne by both the rod and net fisheries.
3. **Habitat.** The degradation of in-river and bankside habitat is a major problem within the River Lune catchment. The creation of riparian and in-river habitat should alleviate this. The Sustainable River Management project, a collaborative scheme between Agency and FWAG encourages riparian fencing and assists in claiming for grants. The Agency is also seeking to rectify habitat issues in partnership with AC's, farmers and RO's by assisting in their bid for European funding under the EAGGF Objective 5b Scheme.

4. **Management of the Plan**

Progress at addressing the issues raised by this Salmon Action Plan will be measured through the normal reporting procedures of the River Lune Local Environment Agency Plan (LEAP), of which this document forms a part.

The Environment Agency will be jointly responsible, with other identified organisations and individuals, for implementing this Action Plan. Progress will be monitored and reported annually by means of a review document which will be publicly available. The review document will comprise the following information:

- * A detailed comparison of actual progress against planned progress, including updated egg deposition figures.
- * Additional actions to maintain progress in the light of changes in the Catchment.

A Regional and a National Salmon Action Plan summary report will be produced each year and will include information on the status of the salmon stocks in the rivers and progress against the plans.

Appendix

A number of important changes have been made to the data contained in the original River Lune Salmon Action Plan Consultation Document following further analysis in preparation for the forthcoming Net Limitation Order (due in 1999) and questions from consultees.

The separation of automatic fish counter data at Forge Weir has been re-assessed. Previously, the stock has been reported as fish above and below 4lbs in weight and this split deemed to approximate that between the salmon and sea trout stock components. For determination of accurate egg deposition rates, this was not considered satisfactory.

Analysis of the estuarine haaf net returns, considered to be representative of the stock present in each month of the season, with information from the Forge Weir trap, were used to separate the counter data into salmon and sea trout.

This further refinement of the data has resulted in the change in the egg deposition rates for the period 1989 to 1995 indicated in Figure 1 and Table 1. Egg deposition for 1996 is also shown. These data indicate that the River Lune has failed its target egg deposition rate in the periods 1989- 1991 and 1992-1994. A summary of the egg deposition in the current year is shown in Table 2.

Table 1. Calculation of egg deposition rate and exploitation by rods and nets

Year	Salmon from Counter	Reported Net catch	Net Exploitation rate (%)	Corrected Rod Catch	Rod exploitation rate (%)	Egg Deposition (million)	Previous Egg Deposition (million)
1996	4605	1341	23	1030	22	9.2	
1995	4437	1522	26	1054	24	8.8	10.2
1994	5970	2982	33	2100	35	10.1	14.8
1993	7586	2969	28	2725	36	12.6	14.5
1992	3916	1501	28	1634	42	5.9	7.4
1991	5277	2104	29	1440	27	10.0	10.1
1990	5311	2682	34	2308	43	7.8	8.3
1989	4931	3504	42	1366	28	9.3	9.4
Av	5254	2326	30	1707	32	9.2	10.7

Figure 1. Historic salmon egg deposition 1989-1996

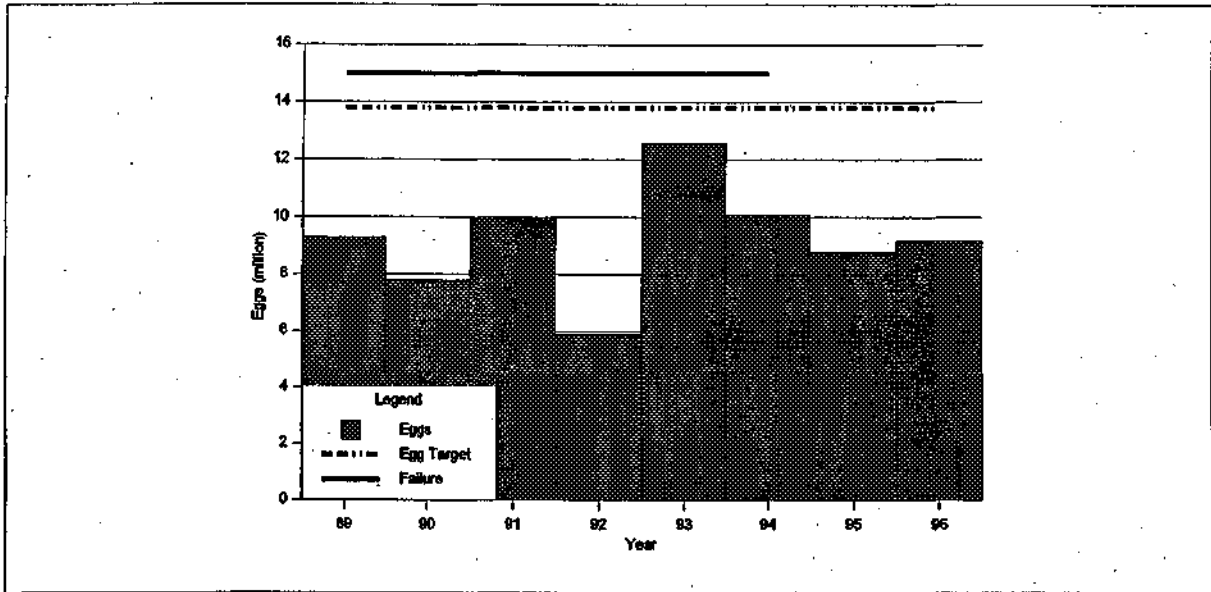


Table 1. Egg deposition

Total number of eggs 1996	Target number of eggs	Has compliance failed within last 3 years?
9.2 million	13.8 million	Yes

The changes in numbers of salmon recorded migrating upstream at the Forge weir fish counter have subsequently altered the average exploitation rates by the net and rod fisheries. The average exploitation rate for the whole stock entering the estuary is 30% and 32% for the salmon stock in the river.

These alterations to the exploitation rate cause changes to the estimated performances of the rod and net fisheries at a time when the spawning targets are regularly met. Given the existing catch declaration and exploitation rates, non rod fishery mortality, fecundity and percentage females: If the egg deposition target were consistently met, the rod fishery might be expected to take 2499 salmon and the net fishery 3347 salmon.

It must be remembered that the Egg Deposition Target remains at 13.8 million eggs.

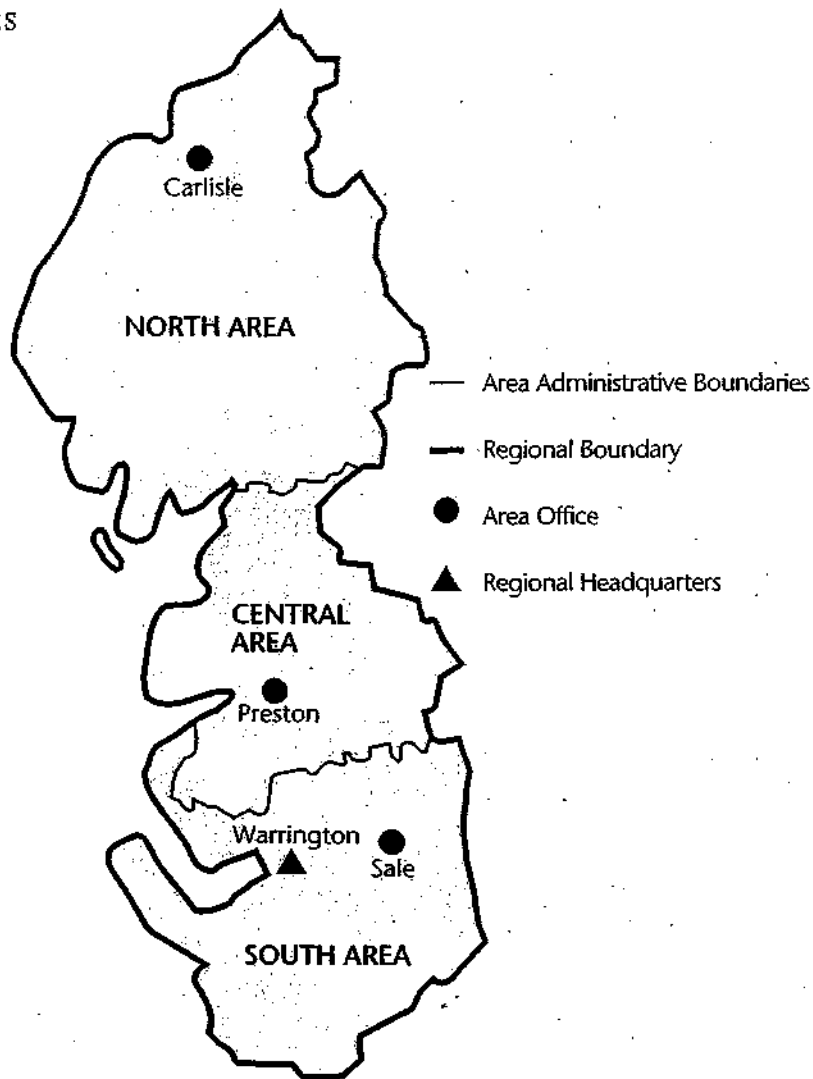
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