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SALMON Action Plan



River Kent

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**ENVIRONMENT
AGENCY**

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PART 1. SUMMARY

The Environment Agency's 5 year Salmon Action Plan for the River Kent for the period from January 2001 is presented.

The River Kent catchment performed well compared to its Conservation Limit (formerly known as egg target) during the period 1992 to 2000, with the Conservation Limit (CL) exceeded in all years. The Conservation Limit has been refined during the consultation period following modelling of marine survival rates such that the revised CL is **1.52 million eggs**. The revised marine survival rate stands at 8.5%. The stock recruitment relationship is illustrated below in Figure 1 showing the new CL point (Maximum Gain).

Egg deposition estimates are illustrated in Figure 2 (Appendix 1).

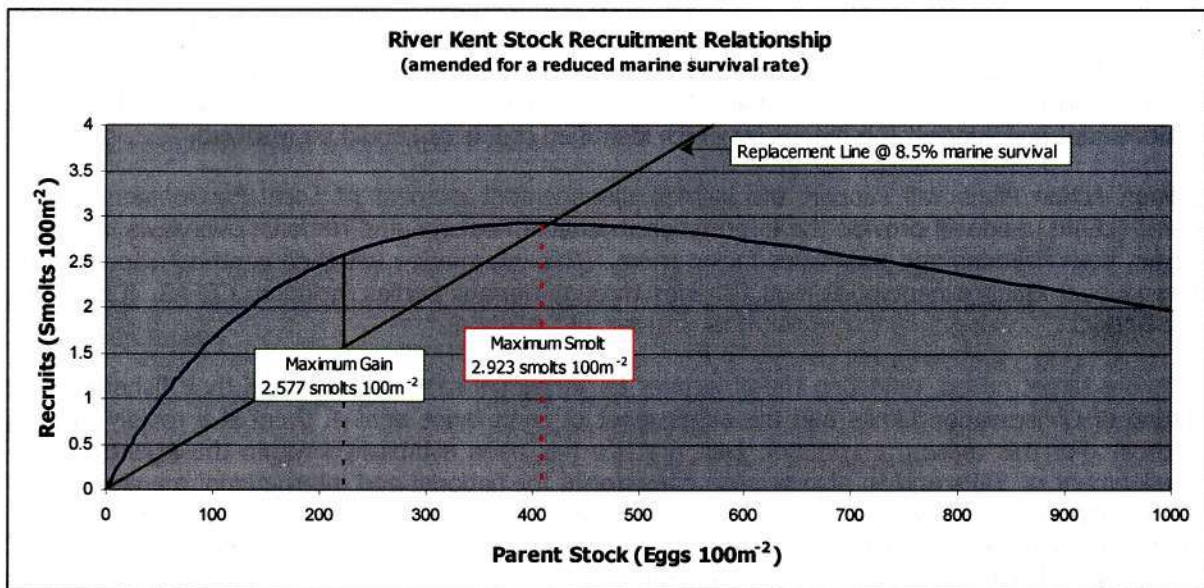


Figure 1: The revised stock recruitment relationship for the River Kent

The poor rod catches recorded during 1999 may, in part, be due to the prevailing environmental conditions experienced by their parent fish in 1995 and the subsequent fry population of 1996. In 1995 and 1996 the Kent catchment experienced near drought conditions. It is possible that adult fish may have been less successful in upstream migration due to low flows in 1995. In addition the resulting fry population in 1996 also experienced unusually warm, dry conditions. Both of these factors may have contributed to a lowering of the survival rates of juveniles, and along with a reduction in survival at sea, resulted in a reduced number of returning adults.

The practice of catch and release is becoming more prevalent on Kent catchment and has the potential to contribute considerably towards the overall egg deposition.

The background to the plan is explained, the responses to the public consultation given, and proposed actions presented.

PART 2. INTRODUCTION

Under the Environment Act 1995, the Environment Agency has a duty to maintain, improve and develop fisheries under its jurisdiction. To meet its duties and obligations for salmon, the National Rivers Authority launched the National Salmon Strategy in February 1996. The Environment Agency subsequently endorsed this strategy. The Strategy sets out four objectives for the management of salmon fisheries in England and Wales. These are to:

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

A basic principle of the Strategy is that its implementation is tied to the management of individual rivers with the active involvement of all interested parties. Salmon Action Plans, (SAPs) for these individual rivers outline the aspirations for the catchment, identify the issues limiting their achievement and suggest the means by which identified problems should be resolved.

Salmon Action Plans will support the salmon management element of Local Environment Agency Plans, (LEAPs) and will provide the information to enable Regional and National overviews of salmon stocks, their fisheries and the issues facing them. This information will then contribute towards the international management of salmon fisheries through various bodies including CEFAS, ICES, MAFF and NASCO.

SAPs are target based, reflecting the objectives for individual salmon stocks and their fisheries. The setting of Conservation Limits and the assessment of compliance against them is a rapidly evolving science. For this reason, a common best practice has been established within the Agency for the development of SAPs and to also provide consistency for national and international management of salmon stocks. However, in many rivers, including the Kent, assumptions and estimates from catchments where more detailed information is available are used and as knowledge is improved, Conservation Limits and egg deposition numbers are likely to change.

Each Salmon Action Plan comprises two documents, a consultation plan and an action plan. The Kent Consultation Plan was launched at an open presentation in July 2000. This final SAP document is intended to provide a statement of the necessary action and estimated costs over the 5 years from January 2001. It also identifies the responsibilities for progressing the issues in order to benefit the salmon fisheries on the river. The plan has partly been shaped by feedback from external consultation.

Issues relating to climate change were not addressed within the consultation document and as a result no direct actions have been proposed.

Climate change is very much a global rather than a catchment issue but is clearly of importance to salmon in terms of currents and temperatures at sea and rainfall patterns on land. The Agency mainly contributes to reductions in greenhouse gases through control of industrial processes but has also actively reduced business mileage since 1998. It is fully involved in local and national climate change consultations. Changes in lifestyle to reduce environmental impact can be taken by anyone.

The effects of land use on instream and riparian habitats and water quality will continue to be researched through the EA Rural Land Use Group and work on redd siltation and methods to measure it is being carried at the Agency National Salmonid Centre.

This plan is being produced at a time when cuts to Fisheries funding will come into being in April 2001, at this time it remains unclear as to whether these cuts are for a single financial year or permanent. The suite of actions presented will be drastically reduced if these cuts become permanent.

PART 3. PUBLIC CONSULTATION

The consultation plan was presented at an open meeting on 13th July 2000 at Kendal Town Hall. Approximately thirty people including fisheries interests, conservation groups, riparian owners and other members of the public attended. Over seventy copies of the plan were distributed both at the launch and during the consultation period.

Interested parties were invited to comment on the draft Salmon Action Plan and were given approximately two months to do so. From studying comments some issues were raised significantly more than others. A total of three responses were received, some representing the views of a significant number of members, with the issues of funding habitat improvement initiatives, fish counter data apportionment and the source of data used within egg target and egg deposition estimates being raised most frequently.

3.1 SUMMARY OF COMMENTS ON ISSUES CONTAINED IN THE CONSULTATION REPORT

ISSUE 1 NET MARKED FISH (SALMON AND SEA TROUT) BEING CAUGHT IN MAY / JUNE

No consultees commented on the above issue.

ISSUE 2 APPORTIONING FISH COUNTER DATA INTO SPECIES

Three consultees commented on the above issue, all supporting the proposal for the introduction of underwater cameras at Basinghyll in order to obtain a more refined estimate of river specific exploitation rates.

ISSUE 3 ASSESSMENT OF:

- A) FECUNDITY**
- B) SMOLT SURVIVAL**
- C) MALE / FEMALE STOCK COMPONENT**
- D) GRILSE / MSW STOCK COMPONENT**

No consultees commented on the above issue.

ISSUE 4 ILLEGAL FISHING

No consultees commented on the above issue.

ISSUE 5 PROTECTION OF SALMON STOCKS FROM OVER EXPLOITATION

Three consultees commented both directly and indirectly on this issue. Suggestions included stopping the practice catch and release as it was thought that this form of conservation could lead to a total ban on salmon fishing. However, other consultees supported the initiative and suggested tighter restrictions on the time of year and locations that could be fished (i.e. earlier closure of the salmon fishing season and prevention of salmon fishing above Kendal in September and October).

Voluntary conservation measures are essentially considered to be good practice, although in the light of the current favourable status of the salmon stock on the Kent further legal restrictions are not thought to be necessary.

ISSUE 6 HABITAT PROTECTION

One consultee commented on the above issue, supporting habitat improvement initiatives in principle, however believing that landowners should be compensated for loss of grazing value.

These are appropriate issues for agri-environment schemes.

ISSUE 7 AVAILABILITY OF SUITABLE SPAWNING SUBSTRATE (AS PART OF LEAP ACTION)

No consultees commented on the above issue.

ISSUE 8 HISTORIC HABITAT MODIFICATION OF THE RIVER GOWAN AS PART OF FLOOD DEFENCE WORKS (AS PART OF LEAP ACTION)

No consultees commented on the above issue.

ISSUE 9 IMPACT OF EFFLUENT DISCHARGES (AS PART OF LEAP ACTION)

One consultee commented on the above issue, supporting proposed improvements at the Kendal WWTW site, and suggested potential improvements to general water quality could be achieved through the education of farmers and industry.

ISSUE 10 SSSI / SAC DESIGNATION OF PART OF THE CATCHMENT

No consultees commented on the above issue.

3.2 SUMMARY OF COMMENTS ON ISSUES NOT CONTAINED IN THE CONSULTATION REPORT**CONTROL OF PREDATORS**

One consultee commented that predators should in some way be controlled on the catchment although no specific suggestion was put forward. The Agency's position on piscivorous birds is contained within the SAP (consultation draft) for the River Kent.

TAGGING SCHEME FOR SPRING RUN SALMON

One consultee proposed that all salmon caught between February and June (i.e. spring run salmon) should be tagged and released to allow other anglers to identify these fish should they be subsequently caught, allowing them to be released thereby affording better protection this stock component. However, recent studies investigating the behaviour of rod caught spring fish post release suggest that very few if any a recaptured prior to spawning (ca. 5-10%) (Gowans, A. pers comm.).

ANGLER BUYOUT OF NET FISHERY

One consultee proposed that the anglers on the Kent catchment should consider the possibility of paying compensation to the lave net fishermen for not fishing the estuarine waters of the Kent.

PART 4. SUMMARY OF ACTIONS

The following list of actions has been produced following consultation between the Agency and interested parties on Kent catchment. It outlines factors believed to be limiting the production of salmon on the catchment and proposes actions to alleviate them.

ISSUE 1 NET MARKED FISH (SALMON & SEA TROUT) BEING CAUGHT BY ANGLERS IN MAY / JUNE

Anglers on the lower reaches of the Kent have reported a number of rod caught fish apparently showing signs of net damage. Although not a regular occurrence this form of damage to fish has the potential to reduce in-river survival rates and may also be an indication of possible illegal exploitation at sea (depending on time of year).

Therefore to ascertain the extent of the problem the Agency is seeking the co-operation of anglers on the river in reporting all net marked fish to Agency personnel.

ACTION	RESPONSIBILITY	COST	PRIORITY	TIMESCALE
Reporting of all net marked fish to Agency personnel to determine timing, extent of problem and proportion of stock affected	Agency / Anglers	Staff Time	H	Ongoing

ISSUE 2 APPORTIONING FISH COUNTER DATA INTO SPECIES

As part of the Salmon Action Plan process of determining the number of fish caught and consequently the number of fish escaping to spawn, exploitation rates of salmon and sea trout are required. Currently the fish counter at Basinghyll on the lower river cannot distinguish between salmon or sea trout. It is therefore proposed that the Agency install underwater cameras at the counter site to determine the numbers of salmon and sea trout crossing the counter and consequently determine a more refined rate of exploitation for the river.

ACTION	RESPONSIBILITY	COST	PRIORITY	TIMESCALE
Improved interpretation of fish counter data from Basinghyll using underwater cameras	Agency	£7k (estimate)	H	2001

ISSUE 3 ASSESSMENT OF:

- A) FECUNDITY
- B) SMOLT SURVIVAL
- C) MALE / FEMALE STOCK COMPONENT
- D) GRILSE / MSW STOCK COMPONENT

Much information about salmon stocks is obtained from catch data, but invariably this data contains biases and thus direct unbiased river specific data is preferred in order to allow informed management and better estimates of egg deposition.

ACTION	RESPONSIBILITY	COST	PRIORITY	TIMESCALE
Monitor smolt numbers	Anglers / Agency	£5k yr ⁻¹	M	2004
Micro-tagging programme	Agency	£20k	L	2005+
Adult trapping for age / sex determination and smolt survival	Anglers / Agency	£5k yr ⁻¹	L	2005+
Scale sample submissions	Anglers / Agency	£0.1k yr ⁻¹	M	Ongoing

ISSUE 4 ILLEGAL FISHING

The Agency is committed to protecting salmon stocks from illegal exploitation through maximising the effectiveness of fisheries enforcement activities.

ACTION	RESPONSIBILITY	COST	PRIORITY	TIMESCALE
Maximise the effectiveness of fisheries enforcement activities to protect salmon stocks from illegal exploitation	Agency / Fishery Owners	£30k+ yr ⁻¹	H	Ongoing

ISSUE 5 PROTECTION OF SALMON STOCKS FROM OVER EXPLOITATION

Anglers on the Kent catchment have the ability to directly influence the numbers of salmon escaping to spawn through catch and release practices. This form of stock conservation is becoming more widespread and recent data from the Kent is encouraging. During the period 1993 to 1999 anglers on the Kent catchment contributed on average 16.1 % (range 6.9% - 35.5%) of the egg target for the catchment by returning fish to the river. Although one consultee felt that the promotion of catch and release may lead to a total ban on fishing, the Agency believes that this form of stock management will afford improved stock protection in times of poor adult returns.

ACTION	RESPONSIBILITY	COST	PRIORITY	TIMESCALE
Promotion of catch and release during periods of low adult returns	Agency	None	H	Ongoing
Introduction of appropriate restrictions (legal or voluntary) on exploitation based on current status of the salmon population (i.e. Spring salmon byelaws)	Agency / Anglers	Variable	H	Ongoing

ISSUE 6 HABITAT PROTECTION

The Agency is a statutory consultee on relevant planning applications and issues land drainage consents authorising works within the river corridor. The Fisheries function has the opportunity to voice any concerns it may have in relation to each application thereby minimising any potential adverse impacts of any work affecting the river or riparian zones.

In addition the Agency, in collaboration with landowners, angling clubs and other conservation bodies, also undertakes numerous habitat improvement schemes aimed at ameliorating degraded areas of the river corridor

ACTION	RESPONSIBILITY	COST	PRIORITY	TIMESCALE
Screening of planning applications and land drainage consents	Agency	£3k yr ⁻¹	H	Ongoing
Identify areas suitable for habitat improvement / stabilisation	Agency / Fishery Owners / Riparian Owners / FRCA	Variable inter-functional costs	H	Ongoing

ISSUE 7 SSSI / SAC DESIGNATION OF PART OF THE CATCHMENT

The recent designation of parts of the Kent catchment may have an impact (potentially beneficial) on salmon due to catchment management which targets the primary features of the SSSI / SAC.

ACTION	RESPONSIBILITY	COST	PRIORITY	TIMESCALE
Liaison between agencies and fisheries interests to support the conservation of salmon stocks	English Nature / Agency	Staff Time	H	Ongoing

PART 5. MANAGEMENT OF THE PLAN

The Agency will monitor and report on progress of issues and actions of individual Salmon Action Plans at a local level through various groups. These groups will include fisheries consultatives, angling associations, and the Area Environment Group (AEG).

Annual reporting will be given to the Regional Fisheries Ecology & Recreation Advisory Committee (RFERAC) in the form of a Regional Salmon Action Plan summary covering all rivers with SAPs in the North West Region. The Regional SAP summary is expected to consist of the following components relating to each SAP river.

- Tabular summary for rod and net fisheries illustrating current and five year mean statistics;
- Tabular summary for participation in rod and net fisheries illustrating numbers of resident and visiting anglers (where this information exists), and the number of licensed netmen;
- Tabular summary of stock status covering estimates of run size, relationship between current and target number of eggs deposited, and juvenile abundance;
- Tabular summary of planned actions and progress made against those plans.

There will also be a National Plan which will collate all regional information on SAPs and include information on significant events at Regional / National / International level impacting on the execution of plans and fishery performance. These may include some or all of the following.

- Administrative, economic or legislative changes affecting exploitation at high seas, coastal, or regional level, (local events to be included in individual river reports);
- Environmental events affecting natural mortality or fishing effort (e.g. extreme flows affecting various life stages);
- Changes in funding arrangements.

PART 6. ISSUES WITHIN THE SOUTH CUMBRIA LEAP RELEVANT TO SALMON IN THE KENT CATCHMENT



Managing Water Resources



Enhancing Biodiversity



Managing Freshwater Fisheries



Integrated River Basin Management

ISSUE 1 THE NEED FOR THE PROTECTION & ENHANCEMENT OF THE AREA'S BIODIVERSITY



ACTION	RESPONSIBILITY		TOTAL COST (AGENCY)	1998	1999	2000	2001	2002	2003	EA PRIORITY AND LEAD FUNCTION
	LEAD	OTHER		1999	2000	2001	2002	2003	2004	
Identify and undertake collaborative projects in the LEAP area to safeguard existing habitats and species where the Agency is identified as contact point or lead partner by the Cumbria Biodiversity Action Plan.	EN EA Cumbria Biodiversity Partnership CWT LDNPA Land-owners		Cost Unknown Subject to funding being available	✓	✓	✓	✓	✓	✓	National Fisheries, Ecology & Recreation

ISSUE 2 AREAS AT RISK FROM FLOODING



ACTION	RESPONSIBILITY		TOTAL COST (AGENCY)	1998	1999	2000	2001	2002	2003	EA PRIORITY AND LEAD FUNCTION
	LEAD	OTHER		1999	2000	2001	2002	2003	2004	
Arrad Marsh, Poaka Beck, River Rothay, River Kent Investigate the viability of options to resolve potential flooding problems (considering conservation and economic aspects) and promote projects accordingly.	EA		£251k	✓ £80k	✓ £91k	✓ £40k	✓ £40k	✓	✓	Normal Duties Flood Defence

ISSUE 3 OPPORTUNITIES FOR RIVER RESTORATION & HABITAT CONSERVATION



ACTION	RESPONSIBILITY		TOTAL COST (AGENCY)	1998	1999	2000	2001	2002	2003	EA PRIORITY AND LEAD FUNCTION
	LEAD	OTHER		1999	2000	2001	2002	2003	2004	
Assess fish habitats and prepare action plans for the River Gowan	EA		Cost Unknown Subject to funding being available	✓	✓					Area Fisheries, Ecology & Recreation Flood Defence
Undertake habitat enhancement collaborative projects on Rivers Kent, Crake, Leven & Duddon	Riparian Owners Angling Interests EA		£3k	✓	✓					Area Fisheries, Ecology & Recreation

ISSUE 4 ADVERSE IMPACT OF EFFLUENT DISCHARGES



ACTION	RESPONSIBILITY		TOTAL COST (AGENCY)	1998	1999	2000	2001	2002	2003	EA PRIORITY AND LEAD FUNCTION
	LEAD	OTHER		1999	2000	2001	2002	2003	2004	
Investigation of Mercury levels.	EA		£3.6k	✓						Area Environmental Protection
Continued utilisation of anti-foam at Kendal WwTW. A permanent solution to resolve this issue has been included in NWW AMP3 process.	NWW Ltd		Staff Time	✓	✓	✓	✓	✓	✓	Area Environmental Protection
Control of trade effluent inputs to sewer, which then find their way to the WwTW.	NWW Ltd		Staff Time	✓	✓	✓	✓	✓	✓	Area Environmental Protection

ISSUE 5 PREMATURE STORM DISCHARGES AT SEWAGE TREATMENT WORKS



ACTION	RESPONSIBILITY		TOTAL COST (AGENCY)	1998	1999	2000	2001	2002	2003	EA PRIORITY AND LEAD FUNCTION
	LEAD	OTHER		1999	2000	2001	2002	2003	2004	
Rebuild Staveley WwTW	NWW Ltd		Staff Time		✓					Normal Duties Environmental Protection

PART 7. REFERENCES

ENVIRONMENT AGENCY (1996)

Salmon Action Plan Guidelines Version 1 including 1999 updates

ENVIRONMENT AGENCY (2000)

Salmon Action Plan (Consultation Draft) For The River Kent

PART 8. APPENDIX

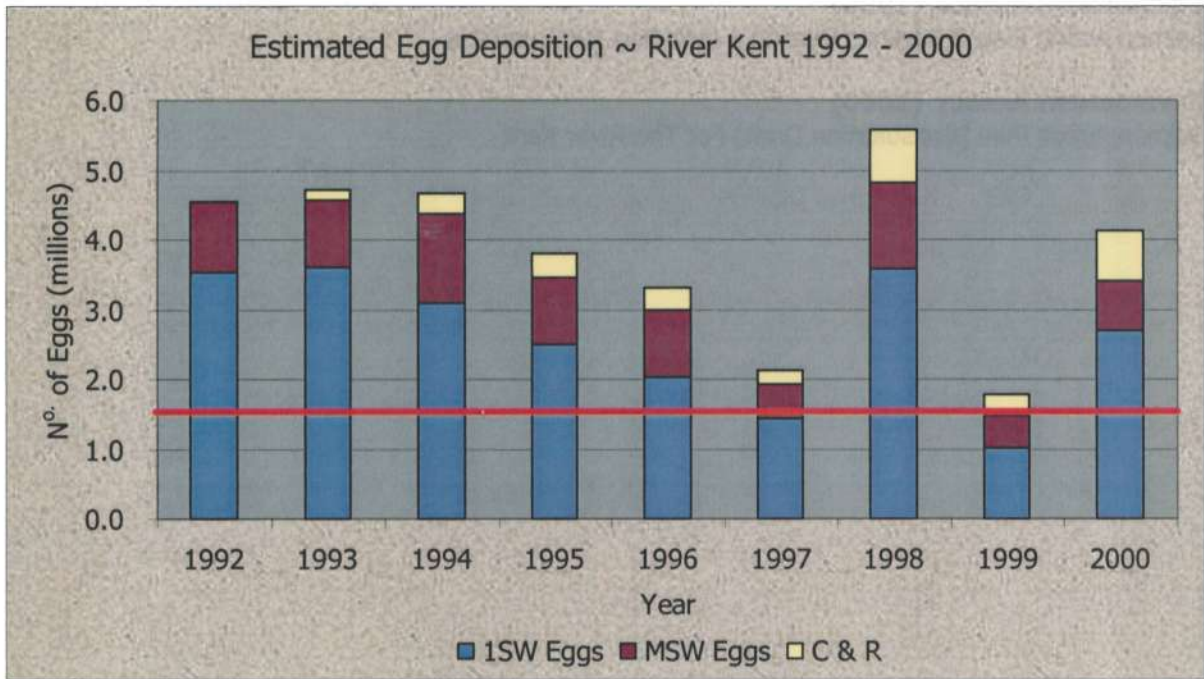


Figure 2 : River Kent Egg Deposition Estimates
 (Red line denotes revised Conservation Limit level of egg deposition (1.52 million eggs))

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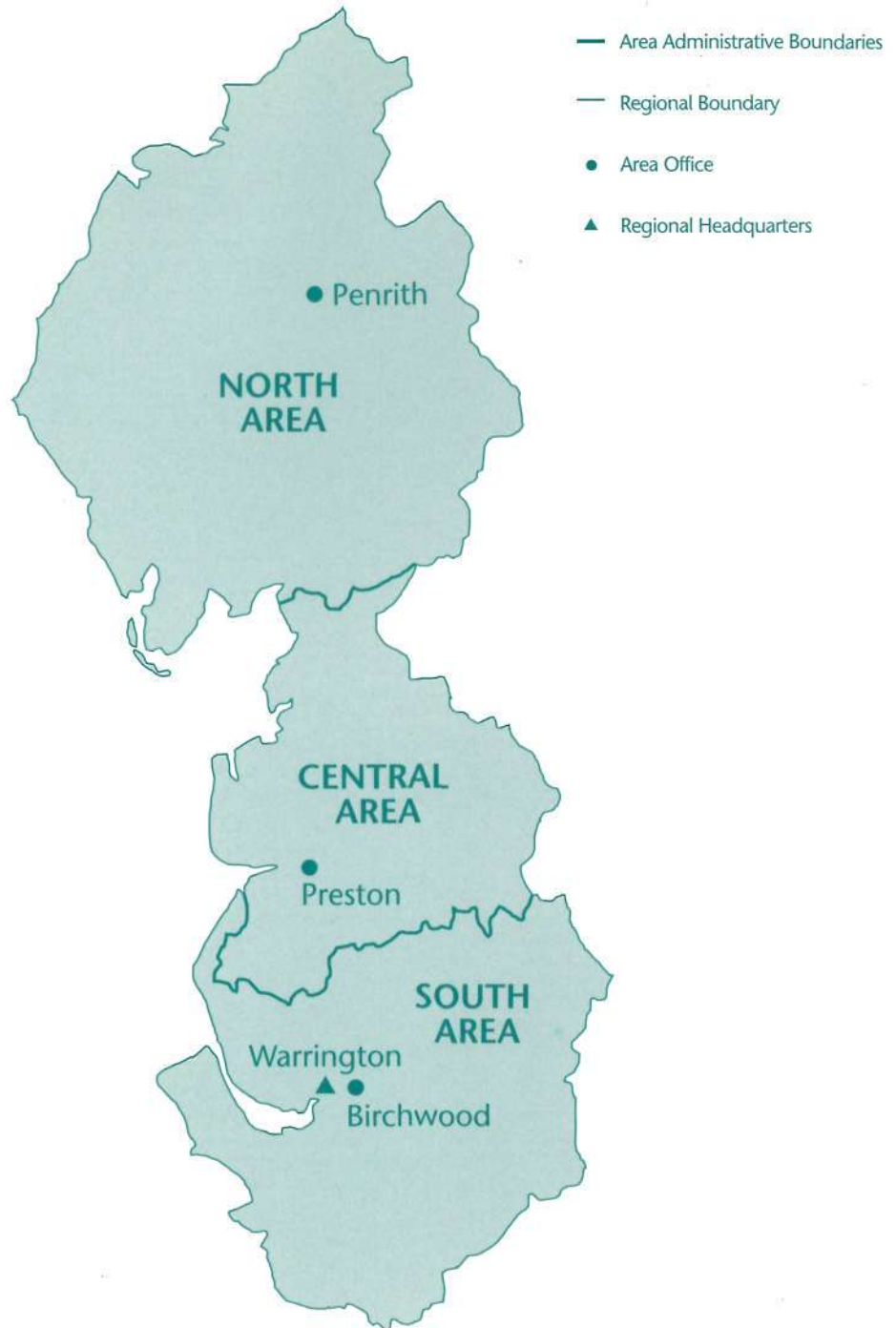
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