Rivers and Streams

The River Hodder and riverbanks
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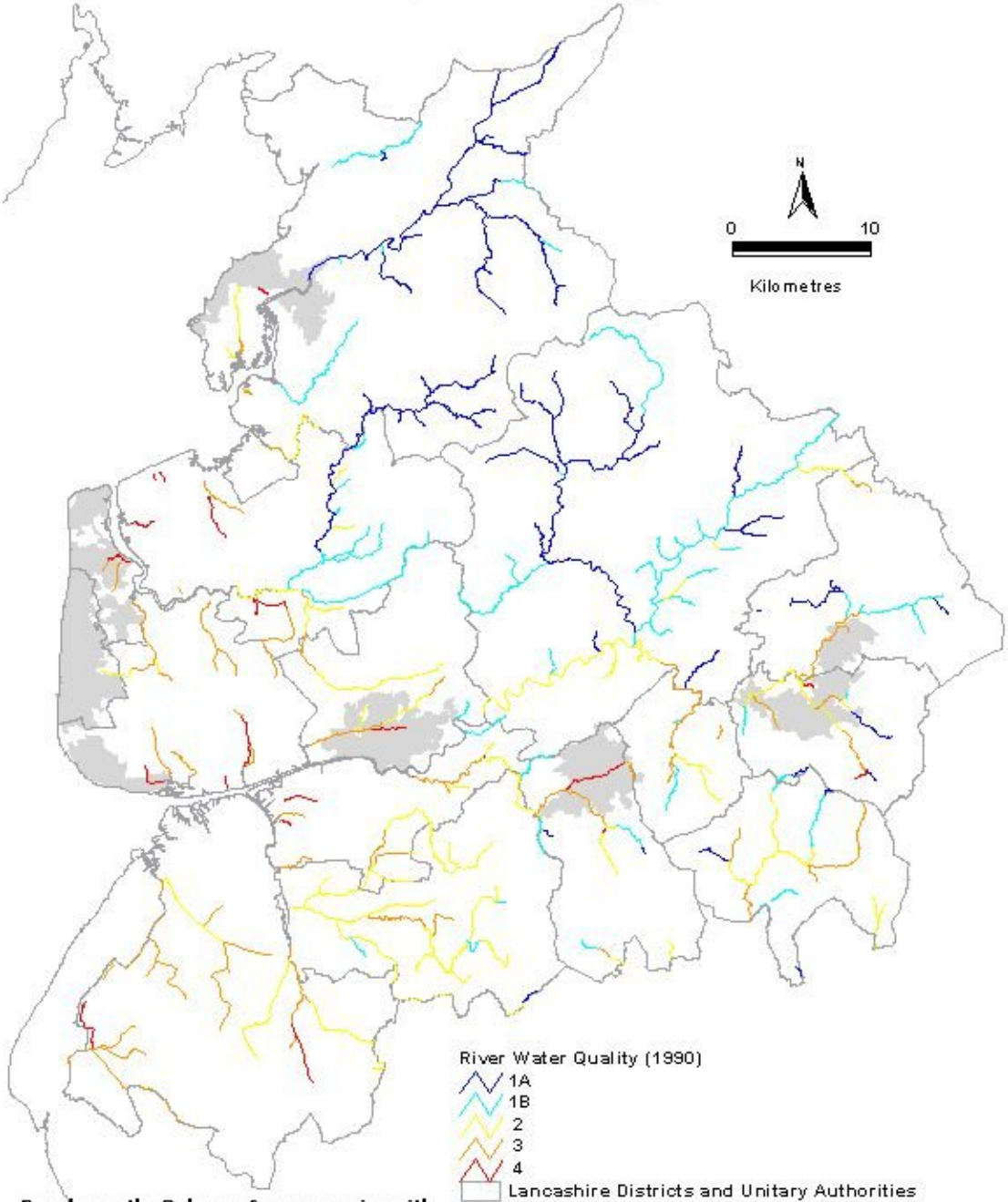
Major Rivers in Lancashire Showing River Quality in 1990 (1A = Excellent)



Habitat Description

Lancashire has a range of watercourse types, from major rivers to canals and small man-made drainage ditches. This plan covers main rivers and the streams that feed them. It also encompasses riverside or streamside ('riparian') habitats. Estuaries with a salt water or brackish influence are beyond the plan's scope.

'Rivers and streams' is a very broad habitat category and within it there are a diverse range of features that support differing communities of plants and animals. Such features include riffles, shingle banks and pools within the natural course of the river or stream as well as bankside features such as earth cliffs, stands of reed, grasslands and wet woodlands. These are valuable habitats in their own right and are covered by other action plans.

The geology of the county primarily defines the physical nature and underlying water chemistry of its rivers and streams. Water chemistry alters along the length of the watercourse as the water flows over different substrates. It also changes due to natural and man-made inputs.

The structure of the water course is determined by the energy of the water and the underlying substrate. Small fast-flowing upland streams change into broad, meandering rivers in their lower reaches. Rivers flowing through sandstones can have steeper, higher-sided banks than those on other rock types.

Much riverine habitat is highly modified, and little can be said to be in a "natural" condition. Flood defence works, impoundments, canalisation and the removal of bankside trees alter patterns of sedimentation and the ability of rivers to create new habitat. For much of Lancashire, habitat management for wildlife has to start from a very realistic acceptance of physical and economic constraints. However there are attempts in some areas to restore heavily modified watercourses.

Rivers are vital parts of the landscape. As well as their intrinsic value, rivers and streams act as wildlife corridors linking other wildlife features, and providing safe routes for animals to move between sites. Nowhere in the county is more than a few tens of metres from a watercourse.

National status

The UK BAP contains a habitat statement for rivers and streams. This highlights the threats posed to wildlife by such factors as pollution, excessive abstraction, unsympathetic engineering works, inappropriate floodplain development and poor bankside management.

The UK BAP proposes that degraded rivers and streams should be restored "taking account of water quality and quantity, structure and hydraulic connection with the floodplain".

Regional status

The County contains stretches of river that are recognised in the North west Biodiversity Audit as being 'regionally important'. Rivers that are mentioned in this context include the Douglas, Hodder, Lune, Ribble and Tawd.

Local status

No Lancashire rivers are specifically notified as SAC, SPA or SSSI. Much of the Hodder and parts of the Wyre and Lune are in the Bowland SPA and/or the AONB.

Both the Lune and Ribble are important rivers for fish; the Lune for salmonids, the Ribble for both salmonids and coarse fish.

The Lune, Ribble, Hodder and plus parts of the Wyre, Tawd and Yarrow are notified as County Biological Heritage Sites.

The Lancashire stretch of the Lune is one of the best in the country for its birds.

Many sites notified as SSSI for other reasons have watercourses flowing through them

Important sites

Lancashire's two biggest rivers, the Lune and Ribble rise outside the county. Conversely, some Mersey catchment tributaries (Irwell, Croal) rise in the county and flow out into Greater Manchester.

The county's other catchment systems can be broadly grouped into two physical types based on their geographical location in the County.

The west Lancashire coastal plain –the Fylde and Amounderness – has a maze of small watercourses (ditches, dykes, sluices and drains), that have the potential to support a rich aquatic and riparian flora and fauna.

The north and east of the county has rivers that rise on the uplands – Howgills, Pennines and Bowland. These are characteristically very fast-flowing spate rivers. Their floras are limited by periodic scouring. There are mosses, liverworts and a few specialist river plants such as water- crowfoot and, in slower reaches, water-milfoils. A characteristic habitat is exposed shingle both at the margins and in mid-river. These are now recognised as valuable habitats for a large number of invertebrates as well as birds and plants. Where water quality permits, trout are a characteristic fish.

Long stretches of watercourse in industrialised areas of east Lancashire are heavily canalised and culverted. One example is the upper Irwell in Rossendale.

Current factors affecting the Habitat

Water quality in Lancashire's rivers is generally improving. A number of habitat improvement schemes are in progress.

The main factors that tend to reduce the biodiversity of Lancashire's rivers include:

- Organic pollution causing reduction in dissolved oxygen.
- Toxic pollution leading to the death of some or all types of animals and plants.
- Abstraction of water, which results in reduced flows, and potentially higher water temperature, reduced dissolved oxygen, and restricted habitat.
- River engineering works causing modification or loss of habitat both in-channel and bankside.
- Nutrient enrichment causing eutrophication of the habitats.
- Many Lancashire streams and rivers have been heavily modified in the past to for agriculture or urban development. These changes are most unlikely to be reversed, but the existing habitats can be managed to best advantage.
- Intensive agriculture causes damage such as overgrazing and trampling damage to banks. Fertiliser runoff adds to eutrophication.

Current Action / Mechanisms

The Environment Agency (EA) is the main statutory body engaged in regulating the quality of riverine and riparian habitats. The Agency is a statutory consultee on planning applications affecting watercourses.

The Environment Agency is a major regulator and has control of:

- discharges to and abstractions from watercourses;
- impoundments and diversions of watercourses;
- disposal and movement of wastes
- fish stocking;
- any works within 8 metres of a main river;

In all of these both regulation ("consenting") and enforcement actions are taken.

A statement of the main issues that the Agency perceives in each catchment along with its proposed actions is to be found in their Local Environment Agency Plans (LEAPs). LEAPs are statutory documents that the Agency has to prepare and periodically review for each river catchment.

There are numerous EC Directives and pieces of environmental legislation that apply to rivers and streams. The main ones are:

- Urban Waste Water Treatment Directive. 91/271/EEC;;
- Freshwater Fish Directive 78/659/EEC;
- Nitrate Directive 91/676/EEC;
- Groundwater Directive 80/68/EEC;
- Bathing Water Directive 76/160/EEC;
- Sludge to Land Directive 86/278/EEC;
- Dangerous Substances Directive 76/464/EEC;
- Salmon and Freshwater Fisheries Act 1975;
- Water Resources Act 1991;
- Environment Act 1995;
- Wildlife and Countryside Act 1981.

The EA is the main organisation responsible for constructing new flood defences and maintaining existing structures. From July 2001 the Agency will have to report on all gains and losses of UK BAP habitats that result from their flood defence works.

Rehabilitation work on rivers or streams is occasionally undertaken. An example from a neighbouring area is the Alt 2000 project. Meanders and other ‘natural’ features have been restred successfully to sections of the Alt in Merseyside. Action to improve polluted watercourses is also underway in several areas. These include a major scheme to treat acid mine seepages into the Irwell near Bacup. A locally based group is taking forward rehabilitation of a degraded stretch of the River Keer near Carnforth. Local anglers groups are actively undertaking habitat improvement works (e.g. Lune Habitats Group, Ribble Conservation Trust).

The Environment Agency is generally opposed to the culverting of watercourses because of the adverse ecological, flood defence, and other effects that are likely to result. The Agency also encourages the re-opening of culverted watercourses where new opportunities arise to improve wildlife corridors and flood defence maintenance. The Agency also operates a presumption against development on the functional floodplain which can form an integral part of riparian corridors.

There are a number strategic partnership initiatives in place, such as the Sustainable Rivers Project and the Mersey Basin Campaign, that seek to improve riparian and riverine habitat in the region. The Campaign acts as an umbrella organisation for River Valley Initiatives focused on whole catchments. An example is the ‘Source to Sea’ initiative dealing with the River Ribble from its source in the Yorkshire Dales through to the internationally important Ribble Estuary.

MAFF's Countryside Stewardship Scheme is a potential source of funding for landowners that wish to improve riparian habitat. MAFF also encourage best practice through its Code of Good Agricultural Practice for the Protection of Water.

The Environment Agency undertakes monitoring of water quality and quantity, fish stocks, and monitors and maintains the state of flood defences.

Flood Defence works are reviewed to ensure best environmental practice consistent with operational requirements.

Indicators of Habitat Quality:

Possible biodiversity indicators for rivers include:

- For those rivers which are physically suitable, the presence of self-sustaining stock of migratory salmonids (e.g. Atlantic salmon, sea trout);
- Many Lancashire rivers have been heavily modified and in these the best indicator is a good overall diversity of water plants and animals (including aquatic invertebrates);
- Achieving EA Water Quality Objectives;
- Increased numbers and distribution of otters and water voles;
- Stable populations of key riverine bird species;
- For certain rivers (e.g. Ribble), reduced Cladophora (alga) cover and increased water-crowfoot cover;
- Shingle bars in mid-river and at the edges, where these are appropriate to the river flow type.

Table 1: NVC Communities associated with rivers and streams in Lancashire

Code	Community	Code	Community
A5	Ceratophyllum demersum aquatic community	A18	Ranunculus fluitans aquatic community
A9	Potamogeton natans aquatic community	A19	Ranunculus aquatilis aquatic community
A10	Polygonum amphibium aquatic community	A21	Ranunculus baudotii aquatic community
A12	Potamogeton pectinatus aquatic community	A24	Juncus bulbosus aquatic community
A15	Elodea canadensis aquatic community	S23	Glycerio-Sparganion
A16	Callitriche stagnalis aquatic community	S28	Phalaris arundinacea tall herb fen
A17	Ranunculus pencillatus ssp. pseudofluitans aquatic community		

Table 2: Species of vascular plant associated with rivers and streams in Lancashire

Common name	Scientific name	Status

Riverside trees		
Alder	Alnus glutinosa	
Willows,	Salix spp	
Black poplar	Populus nigra ssp. betulifolia	Ff3
Bankside plants		
Purple loosestrife	Lythrum salicaria	
Creeping yellow-cress	Rorippa sylvestris	
Water forget-me-not	Myosotis scorpioides	
Meadow saxifrage	Saxifraga granulata	
Yellow Star-of-Bethlehem	Gagea lutea	Ff3
Figwort	Scrofularia sppumbrosa	Ff4b
Common meadow-rue	Phalictrum flavum	Ff4b
Marsh stitchwort	Stellaria palustris	Ff3
Emergents (i.e. plants standing in water with leaves clear of the water surface):		
Bur-reeds	Sparganium spp	
Reed canary-grass	Phalaris arundinacea	
Yellow flag-iris	Iris pseudacorus	
Common reed	Phragmites australis	
Northern Spike-rush	Eleocharis austriaca	NR
Water violet	Hottonia palustris	
Water plantain	Alisma plantago-aquatica	
Submerged plants		
Water crowfoots	Ranunculus spp.	
Pondweeds	Potamogeton spp.	
Water Milfoils	Myriophyllum spp.	

Willow moss	Fontinalis antipyretica	

Table 2: Animal species associated with rivers and streams in Lancashire

Common name	Scientific name	Status
Fish		
Atlantic salmon	Salmo salar	Fi1
Sea trout	Salmo trutta ssp. trutta	
Brown trout	Salmo trutta	
Roach	Rutilus rutilus	
Perch	Perca fluviatilis	
Dace	Leuciscus leuciscus	
Chub	Leuciscus cephalus	
Bream	Abramis brama	
Pike	Esox lucius	
Eel	Anguilla anguilla	
Grayling	Thymallus thymallus	
Bullhead	Cottus gobbio	Fi1
River lamprey	Lampetra fluviatilis	Fi1
Brook lamprey	Lampetra planeri	Fi1
Birds		
Mute swan	Cygnus olor	
Mallard	Anas platyryhnchos	
Goldeneye	Bucephala clangula	
Goosander	Mergus merganser	
Cormorant	Phalacrocorax carbo	
Oystercatcher	Haematopus ostralegus	
Common sandpiper	Actitis hypoleucos	

Grey wagtail	Motacilla cinerea	
Yellow wagtail	Motacilla flava	
Grey heron	Ardea cinerea	
Kingfisher	Alcedo atthis	
Dipper	Cinclus cinclus	
Sand Martin	Riparia riparia	
Mammals (Representative species from large groups are shown in brackets)		
Water shrew	Neomys fodiens	
Water vole	Arvicola terrestris	UK & LBAP
Otter	Lutra lutra	UK & LBAP
Bats (e.g. Daubenton's bat)	(Myotis daubentoni)	(LBAP)
Invertebrates (Representative species from large groups are shown in brackets)		
Beetles (e.g. on river shingles)	(Bembidion fluviatile)	(NS)
A wolf spider (on river shingles)	Arctosa cinerea	NS
Banded demoiselle damselfly	Calyopteryx splendens	
Brown hawker dragonfly	Aeshna grandis	
'True' flies (A cranefly)	(Lipsothrix nigristigma)	(NR)
Caddis flies	(Plectrocnemia brevis)	(NS)
Alder flies	(Sialis fuliginosa)	
Mayflies (Olive Dun)	(Baetis rhodani)	
Stoneflies	(Leuctra geniculata)	
Freshwater shrimp	Gammarus pulex	
Water hoglouse	Asellus aquaticus	
Freshwater white-clawed crayfish	Austropotamobius pallipes	UK & LBAP
Freshwater pearl mussel	Margaritifera margaritifera	UK & LBAP
Water snails (Wandering pond snail)	(Lymnaea peregra)	

River limpet	Ancylus fluviatile	
Freshwater sponges	(Spongilla lacustris)	
Fresh water mussels	Unio spp	

Objectives, targets and proposed actions for rivers and streams in Lancashire

Broad Objective:	**A. Improve knowledge of the conservation value of watercourses in Lancashire**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Establish a database to hold information on the biodiversity value of rivers and streams in the County	1. Collate existing data to establish a definitive database of biodiversity of watercourses. (High)	EA, LCC, WT EN, MBC	M	RM
	2. Design a waterways survey methodology and train volunteers in its use by 2002. (Medium)	EA, WT, MBC, RVIs	M	RM
	3. Survey and assess the conservation value of 10% (by length) of watercourses per year starting in 2002. (Medium)	EA, WT, MBC, RVIs	M	RM
	4. Enter survey data onto database. (High)	EA	O	RM
Broad Objective:	**B. Improve bankside habitat along Lancashire's rivers and streams**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Set targets for amounts of habitat to be improved	1. Use preliminary results from action A.1.1. to identify targets for retention / creation of wet grassland, wet woodland and other types of good quality riparian habitat (High)	EA, EN, WT, FC	S	RM, P
2. Encourage retention of important riparian habitats for wildlife by owners and	1. Liaise with riparian landowners and land managers to promote the importance of riparian habitats. (High)	BHSP, FWAG, MAFF, EN	O	A, LM

managers.	2. Lobby for reform of CAP and for more competitive rates on agri-environment schemes. (Medium)	WT, EA, EN, NFU, CLA	O	PR
3. Prevent loss of riparian habitat through inappropriate development.	1. Ensure that all relevant planning authorities are aware of important sites and have development policies that take account of these (Medium)	LCC, LAs, EN, BHS P/ship	O	SS
Broad Objective:	**C. Enhance the overall water quality of Lancashire's river and streams**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Maintain and where possible improve water quality in all rivers.	1. Identify targets from LEAPs for water quality improvements and implement actions. (High)	EA, NWW, Industry	O	P, LM
Broad Objective:	**D. Restore more natural physical form to severely modified watercourses on four sections of river/stream by 2010.**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Set targets for amounts of habitat to be improved and select candidate sites	1. Use results from actions under A.1. to identify potential targets for rehabilitation work. (High)	EA, EN, WT, RVIs	S	RM, P
2. Initiate rehabilitation schemes.	1. Consult with local communities and seek agreement to and local involvement in rehabilitation schemes. (High)	EA, EN, WT, RVIs' LAs Farmers, Land-owners	S/M	LM
	2. Draw up a plan and implement. (High)	LCC, EN, WT Habitat Groups	M	LM
Broad Objective:	**E. Promote the importance of Lancashire's rivers and streams as habitats and wildlife corridors**			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type

1. Promote rivers and streams as a 'flagship' habitat.	1. Work with community-based groups to raise awareness of riverine conservation issues amongst the general public and landowners. (Medium)	RVIs, WT, EA, EN, Farmers and landownerHabitat Groups	O	PR
	2. Encourage public participation in monitoring certain sites. (Medium)	RVIs, WT, EN, Habitat Groups	O	PR, RM
	3. Include information about river biodiversity in press releases, newsletters and leaflets. (Low)	RVIs, WT, EN, Habitat Groups	O	PR, RM

Other Action Plans:

- Broadleaved & mixed woodland HAP
- Bats SAP
- Otter SAP
- Water vole SAP
- Freshwater white-clawed crayfish SAP
- Freshwater pearl mussel SAP
- Reed bunting SAP
- Great crested newt SAP: Environment Agency Salmon Action Plans (See below).

References & additional reading:

1. RSPB Rivers and Wildlife Handbook

2. Environment Agency Pollution Prevention Guidelines

3. UK Biodiversity Steering Group (1995) Biodiversity: The UK Steering Group Report. Volume 2: Action Plans. Rivers and Streams Habitat Statement. Pp 291 – 292. HMSO, London.

4. Environment Agency (2000) Focus on Biodiversity. The Environment Agency's contribution to wildlife conservation. Environment Agency, Bristol.

5. Environment Agency, North West Region, Land Drainage Byelaws.

6. Environment Agency, Lune Salmon Action Plan.

7. Environment Agency, Ribble Salmon Action Plan.

8. Environment Agency, R&D Report, Invertebrates of exposed riverine sediments, Phase 1 &

Date: April 2001.