NRA NORTH WEST 56

UPPER MERSEY CATCHMENT MANAGEMENT PLAN CONSULTATION REPORT

ENVIRONMENT AGENCY

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National Rivers Authority
North West Region
February 1996

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THE NRA'S VISION FOR THE CATCHMENT

The Upper Mersey catchment includes the catchments of the River Tame, Goyt, Etherow, Bollin, Mersey and their associated tributaries. These rivers drain an area to the east and south of the Manchester conurbation. They rise in the West Pennine Moors and Peak District and flow into the Manchester Ship Canal. The catchment includes areas of widely diverse land use, including, urban development, agricultural land, protected flood plain and areas of outstanding natural beauty.

The challenge of managing the catchment is reconciling and responding to all the demands of the community in general, whether it be for domestic and industrial water, effluent disposal, recreation, fisheries, conservation or protection from flooding.

The vision of the NRA for the Upper Mersey catchment, during the next 25 years, is to endeavour to realise the full potential of the catchment. There is a general need for improved water quality and this will be achieved through reductions in polluting loads discharged from sewerage, sewage works and industry. Improved water quality will result in enhanced habitats, achieve sustainable healthy populations of fish and other aquatic life and help to promote recreation. The management of river flows will be required to safeguard the availability of water resources for the varied catchment uses. The management of water resources will be achieved through the regulation of abstractions and compensation flows to reconcile the needs for supply, dilution of effluent discharges and "in river" uses. Timely warnings will be issued for the protection of people and properties at risk from flooding and flood defence works will continue to be maintained and improved. Bankside work and development will be regulated and controlled to result in improved recreational access, habitat improvement and undeveloped buffer zones. Water quality improvements and effective management of water resources combined with habitat improvements, in conjunction with river restoration schemes where appropriate, will ensure in the long term:

- The establishment of a catchment wide, self supporting coarse fish population and where appropriate game fish population.
- The establishment of appropriate wild life within the river corridor, for example, otters.
- The establishment and sustainable exploitation of riverside recreational facilities including those for angling, walking and, boating.
- An improved landscape within the river corridor.

It is the intention of the NRA to work in partnership with all the relevant agencies and representative organisations, for example, the Mersey Basin Campaign, in order to achieve an integrated approach to managing the catchment. There will be active involvement in encouraging the future investment in works to improve the recreational facilities of the river corridors especially within the urban areas. The plan will seek to ensure that required improvements will be carried out and future demands catered for, in a sustainable manner.

The catchment management action plan, to be developed from this consultation report, should achieve a balanced approach to all NRA activities in the catchment. It should be capable of a flexible response to the community at large and achieve sustainable use of the water environment.

ENVIRONMENT AGENCY
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1 CATCHMENT MANAGEMENT PLANNING - CONCEPT AND PROCESS

1.1 The National Rivers Authority (NRA)

The NRA's mission statement is as follows:

The National Rivers Authority (NRA) will protect and improve the water environment. This will be achieved through effective management of water resources and by substantial reductions in pollution. The NRA aims to provide effective defence for people and property against flooding from rivers and the sea. In discharging its duties it will operate openly and balance the interests of all who benefit from and use rivers, groundwaters, estuaries and coastal waters. The NRA will be businesslike, efficient and caring towards its employees.

The NRA established in 1989, is responsible for protecting and improving the water environment within England and Wales. It has a wide range of responsibilities which include:

- Flood defence, including the protection of people and property.
- Flood warning.
- Effective management of water resources.
- Control of pollution and improving the quality of rivers, groundwaters and coastal waters.
- Maintenance and improvement of fisheries.
- Promotion of water based recreation including navigation.
- Conservation of the natural water environment.

To achieve its aims, the NRA must work with or seek to influence central government, local government, industry, commerce, farming, environmental organisations, riparian owners and the general public. Successful management of the water environment requires consideration of a wide range of interests and requirements which may sometimes be in conflict.

1.2 ENVIRONMENT AGENCY

From April 1996 the Environment Agency will have all the powers and responsibilities of the NRA, combined with those of Her Majesty's Pollution Inspectorate (HMIP) and the Waste Regulation Authorities, thus giving control over the full range of environmental problem areas.

It is thought that future Catchment Management Plans (CMPs) will be of increased scope to cater for these wider responsibilities.

1.3 SCOPE AND PROCESS OF CATCHMENT MANAGEMENT PLANNING

The production of Catchment Management Plans within the NRA involves three stages:

- The Catchment Management Plan Consultation Report.
- The Catchment Management five year Action Plan.
- The Annual Review.

Consultation Report

The Consultation Report includes the following elements:

Vision

The vision expresses the realistic long term aims for the catchment within a context of up to 25 years.

Uses

The uses of the catchment are identified and discussed. Information is presented in the form of a map with supporting text. Uses that may have impact on the water environment and/or impose requirements on the water environment.

Objectives

The objectives for the use have been considered and summarised.

Issues Arising

Having considered the current state of the catchment and compared it to the objectives, the issues in need of rectification have been identified.

These are listed, referenced and are discussed in more details in the issues section.

Issues and Options

The identified issues are discussed and where possible some options for their resolution are proposed.

The CMP Consultation Report is intended to form a basis for consultation between the NRA and all those with interests in the catchment.

Consultees may wish to:

- Raise additional issues not identified in the plan.
- Comment on the issues and options identified in the plan.
- Suggest alternative options for resolving identified issues.

The NRA recognises that many of the issues and options for action identified by the consultation plan will involve organisations or individuals other than the NRA and their views will be crucial to the preparation of the Action Plan.

Catchment Management Action Plan

The Action Plan will be produced following consultation and will have regard to the comments received. Once produced, the plan will form a basis for the NRA's actions within the catchment for the next five years and also provide a public document forming a framework for the NRA's interaction with other organisations. The NRA will be seeking commitment to planned actions by others wherever possible.

Annual Review

The NRA will be jointly responsible, with other identified organisations and individuals, for implementing the Action Plan. Progress will be monitored and normally 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.
- Identification of additional actions to maintain progress in the light of changes in the catchment.
- Consideration of the need to update the catchment management plan.

Update requirements will obviously depend on the particular needs of the catchment. However, updates to the management plan will normally be undertaken every five years. Key organisations and individuals forwarding comments will receive an annual review paper to update them with the action plan progress.

The Upper Mersey Catchment Management Plan Consultation Report (February 1996) attempts to highlight the most significant issues and solutions for rectification within a time scale of five years.

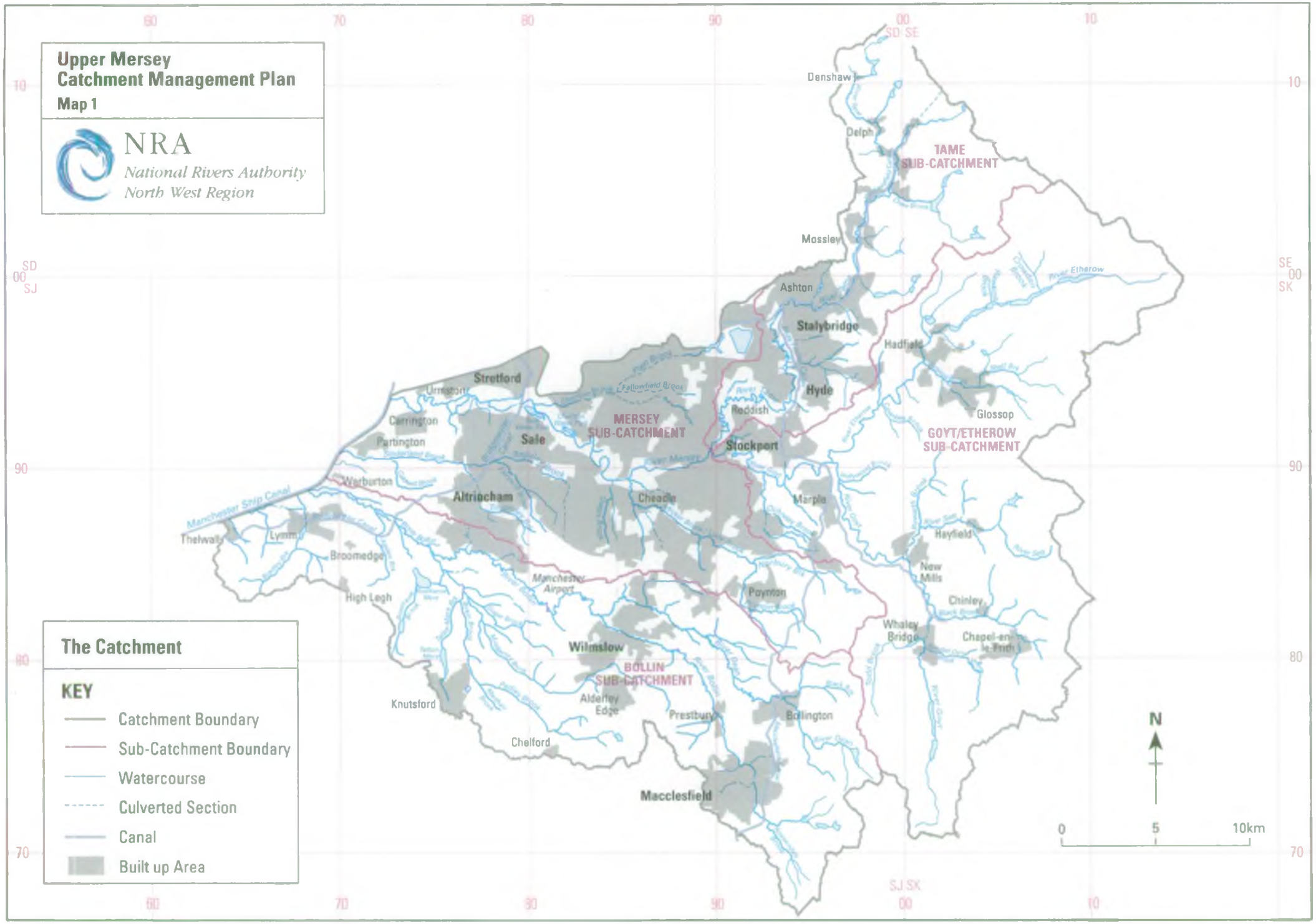
We would like to hear your views:

- Have all the major issues been highlighted?
- Have all the options been considered for resolving the issues that have been identified?
- Do you have any comments to make regarding the plan in general?
- Comments on the Upper Mersey Catchment Management Plan Consultation Report should be received by 1st June 1996.
- All written responses shall be considered to be in the public domain unless Consultees explicitly request otherwise.
- If you would like further detailed information or would like to comment on this document please write to:

Catchment Management Planning Officer
National Rivers Authority
North West Region
"Mirwell"
Carrington Lane
SALE
M33 5NL

Tel: 0161-973-2237
Fax: 0161-973-4601

Front cover photograph: River Mersey, Stockport Town Centre
NGR SJ 889 902


Upper Mersey
Catchment Management Plan
Map 1
NRA
National Rivers Authority
North West Region
The Catchment
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse
Culverted Section
Canal
Built up Area
TAME
SUB-CATCHMENT
MERSEY
SUB-CATCHMENT
GOYT/ETHEROW
SUB-CATCHMENT
BOLLIN
SUB-CATCHMENT
Denshaw
Delph
Mossley
Ashton
Stalybridge
Hadfield
Hyde
Glossop
Reddish
Stockport
Stretford
Urmston
Carrington
Partington
Sale
Warburton
Altrincham
Cheadle
Marple
Thelwall
Lymm
Broomedge
High Legh
Manchester Airport
Poynton
Hayfield
New Mills
Chinley
Whaley Bridge
Wilmslow
Knutsford
Aldeley Edge
Prestbury
Bollington
Chelford
Macclesfield
Manchester Ship Canal
River Etherow
Fallowfield Brook
N
0
5
10km

2 OVERVIEW OF CATCHMENT

2.1 INTRODUCTION

The Upper Mersey catchment management plan includes the rivers Tame, Goyt, Etherow, Bollin, Mersey and all their associated tributaries. These rivers drain the area to the East and South of the Manchester conurbation.

The Tame flows from New Years Bridge Reservoir at Denshaw and flows in a southerly direction until it joins the Goyt in Stockport. The river drains the eastern edge of the Manchester conurbation and the western edge of the West Pennine Moors with almost a quarter of the catchment being urbanised.

The Goyt rises to the south west of Buxton and flows in a northerly direction to its confluence with the Tame in Stockport. The Goyt's main tributary is the Etherow which drains the northern area of the Peak District, its upper reaches being dominated by five large reservoirs. Other main tributaries are Black Brook, draining the Chapel-en-le-Frith area and the Sett which drains the Hayfield and Kinder Scout area of the High Peak.

The Mersey is formed in Stockport by the confluence of the Goyt and Tame and flows in a westerly direction until it joins the Manchester Ship Canal at Irlam Weir. Due to the growth of the Manchester conurbation, parts of the flood plain of the Mersey have been developed for industrial and residential purposes. Much of the river has been embanked, which with the two flood basins at Sale and Didsbury, operated by the NRA, prevents flooding. The Mersey has two main tributaries, Micker Brook which drains the south Stockport area and Chorlton/Platt/Gore Brook which drains the heavily urbanised area of south Manchester.

The Bollin rises in the Macclesfield Forest and flows in a westerly direction to the south of Manchester until it enters the Manchester Ship Canal. Downstream of Wilmslow the river flows through agricultural land, has minimal gradient and is prone to siltation. The main tributaries of the Bollin are the River Dean which flows from the east of Macclesfield, Agden Brook, Sutts Hollow Brook and Birkin Brook.

Although not tributaries of the four main rivers of the catchment; Bradley Brook, Thelwall Brook and Morris Brook which are found to the southeast of Warrington and Sinderland Brook draining areas of Altrincham and Sale have been included in the Upper Mersey Catchment Management Plan.

(See Map 1)

2.2 CATCHMENT DETAILS

Area

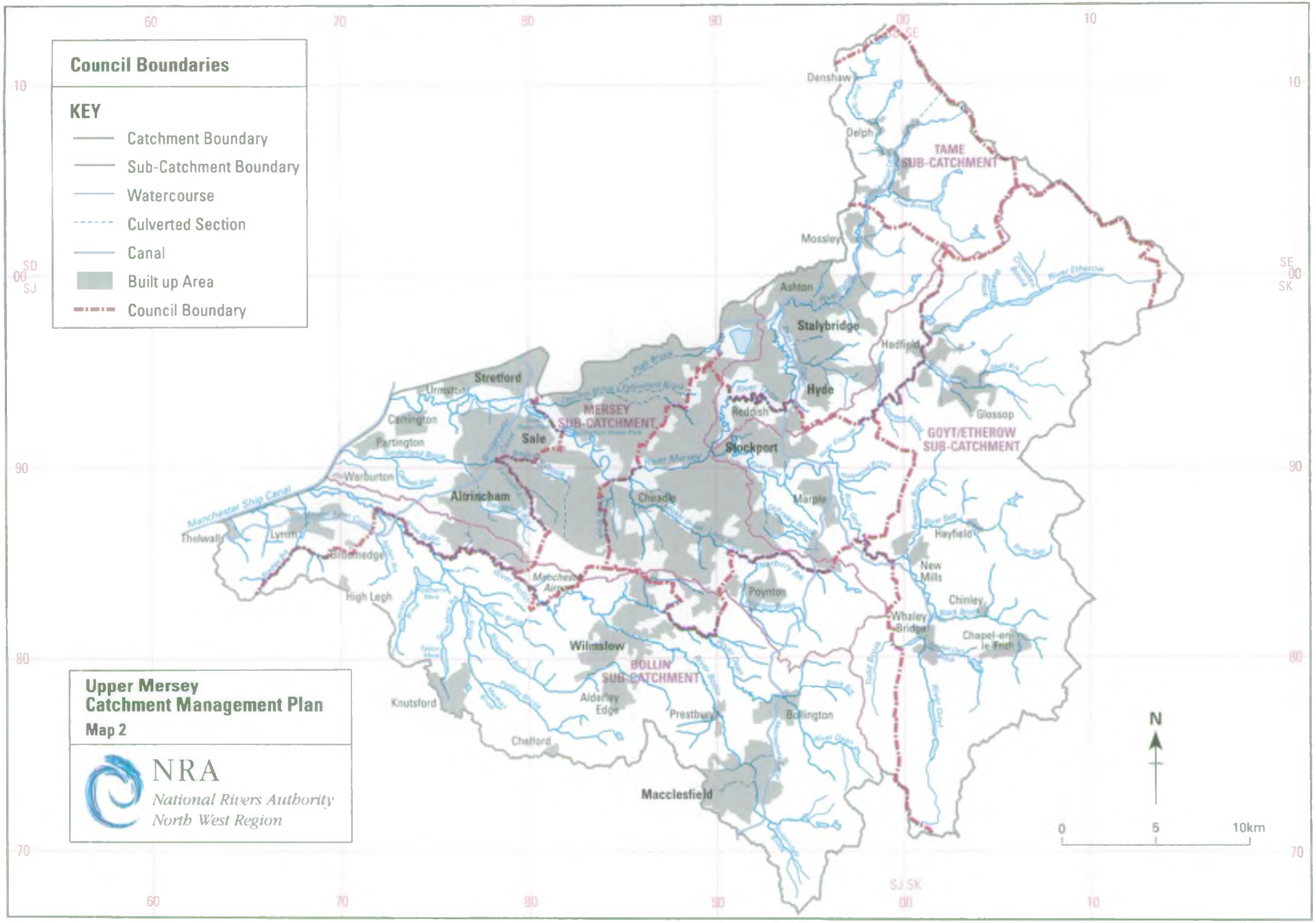
River Tame	146km^2
River Goyt and Etherow	365km^2
River Bollin	312km^2
River Mersey	223km^2
TOTAL AREA	1046km^2

MAIN TOWNS

Stockport	New Mills
Sale	Stretford
Altrincham	Marple
Lymm	Hyde
Wilmslow	Glossop
Alderley Edge	Mossley
Knutsford	Stalybridge
Macclesfield	Dukinfield
Whaley Bridge	Denton

ADMINISTRATIVE DETAILS

District Councils:-	Warrington Borough Council Tameside Metropolitan Borough Council Macclesfield Borough Council Stockport Metropolitan Borough Council High Peak Borough Council Manchester City Council Trafford Metropolitan Borough Council **(See Map 2)**
NRA-	North West Region - South Area
Water Service Companies:-	North West Water Limited Severn Trent Water Limited


Council Boundaries
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse
Culverted Section
Canal
Built up Area
Council Boundary
Upper Mersey
Catchment Management Plan
Map 2
NRA
National Rivers Authority
North West Region
TAME
SUB-CATCHMENT
MERSEY
SUB-CATCHMENT
GOYT/ETHEROW
SUB-CATCHMENT
BOLLIN
SUB-CATCHMENT
Denshaw
Delph
Mossley
Ashton
Stalybridge
Hadfield
Hyde
Reddish
Stockport
Glossop
Stretford
Urmston
Carrington
Partington
Sale
Warburton
Altrincham
Cheadle
Marple
Manchester Ship Canal
Thelwall
Lymm
Bridgehedge
High Legh
Manchester Airport
Poynton
Hayfield
New Mills
Chinley
Whaley Bridge
Chapel-en-le-Frith
Wilmslow
Knutsford
Alderley Edge
Prestbury
Bollington
Chelford
Macclesfield
N
0
5
10km
SJ SK

Principal Sewage Treatment Works:-

Stockport STW	Macclesfield STW	Hazel Grove STW
Stretford STW	Wilmslow STW	Whaley Bridge STW
Sale STW	Alderley Edge STW	Saddleworth STW
Knutsford STW	Mobberley STW	Mossley STW
Dukinfield STW	Denton STW	Ashton under Lyne STW
Hyde STW	Glossop STW	

TOPOGRAPHY

Ground Levels:- Min.Level 10m AOD
Max.Level 636m AOD

GEOLOGY

Solid Geology: South - Predominantly Permo-Triassic Sandstone.

North - Predominantly Carboniferous Coal Measure and Millstone Grit Series.

Superficial Geology:-Variable - Glacial Till (Boulder Clay) Sand and Peat deposits.

WATER RESOURCES

Availability:- Groundwater - Generally site specific.

Surface water - Good availability

Flow Monitoring Stations within the Upper Mersey Catchment:-

			Daily Flows m^3/sec		
Station	**Watercourse**	**NGR**	**Maximum**	**Median**	**Minimum**
Ashton Weir	Mersey	SJ7723 9356	401	7.4	1.9
Brinksway	Mersey	SJ8844 9003	250	9.2	1.3
Broomstair Bridge	Tame	SJ9375 9532	55.2	2.7	0.3
Compstall	Etherow	SJ9624 9078	65.5	1.8	0.3
Dunham Massey	Bollin	SJ7267 8753	41.9	3.0	0.6

Flow Monitoring Stations within the Upper Mersey Catchment cont:-

			Daily Flows m^3/sec		
Station	**Watercourse**	**NGR**	**Maximum**	**Median**	**Minimum**
Marple Bridge	Goyt	SJ9637 8979	70.1	2.3	0.4
Partington	Sinderland Brook	SJ7264 9047	12.3	0.37	0.05
Portwood	Tame	SJ9060 9175	144.2	2.76	0.7
Stanneylands	Dean	SJ8458 8298	10.3	0.49	0.1
Wilmslow	Bollin	SJ8497 8149	12.4	0.92	0.3

Largest Abstraction 154.5 Ml/d

Total Licensed Annual Quantities

Bollin	Groundwater	19,938 Ml
	Surface	8,274 Ml
Tame	Groundwater	678 Ml
	Surface	32,703 Ml
Goyt	Groundwater	2,782 Ml
	Surface	99,046 Ml
Mersey	Groundwater	1,719 Ml
	Surface	13,741 Ml

FLOOD PROTECTION

Length of Main River (maintained by NRA):-

Bollin	247 km
Tame	55 km
Goyt	130 km
Mersey	126 km
TOTAL:	558 km

Riparian owned debris screens cleaned by the NRA on a best endeavours basis:-

Bollin	4
Tame	1
Goyt	6
Mersey	17

WATER QUALITY

Length of River in General Quality Assessment Chemical Grade

1994 Assessment

Grade A (Good)	23.2 km	Grade C (Fair)	92.9 km
		Grade D (Fair)	85.7 km
Grade B (Good)	141.2km	Grade E (Poor)	54.0 km
		Grade F (Bad)	17.7 km

FISHERIES

Length of trout fishery:-	88.3 km
Length of coarse fishery:-	84.0 km

CONSERVATION

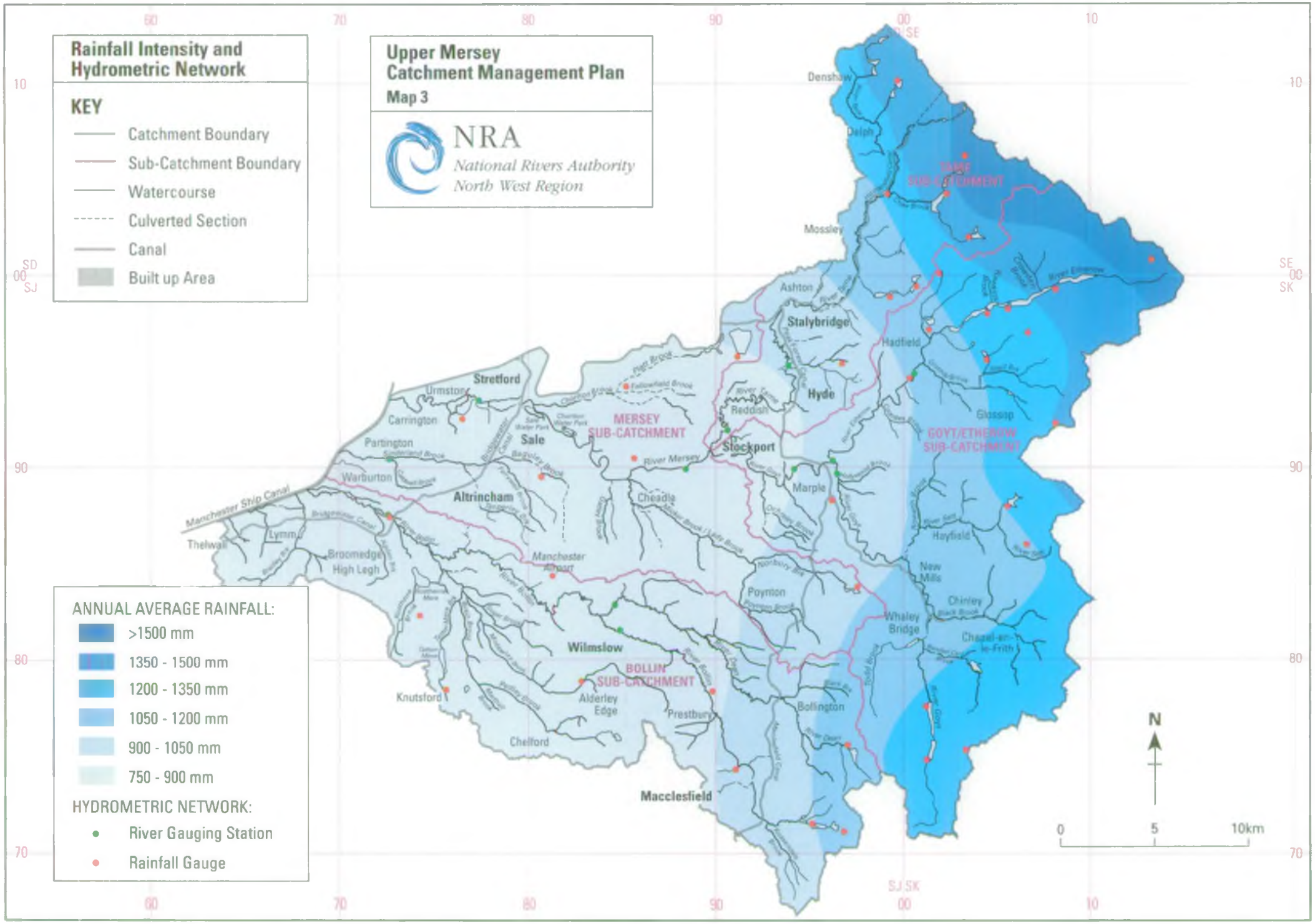
Sites of Special Scientific Interest (SSSI):-	18
SSSIs associated with River Corridor and/or wetland habitats:-	15
Site of Biological Importance (SBI):-	308
SBIs associated with River Corridor and/or wetland habitats:-	233
Environmentally Sensitive Areas (ESA) in the catchment:-	3
Special Protection Areas (SPA) in the catchment:-	2

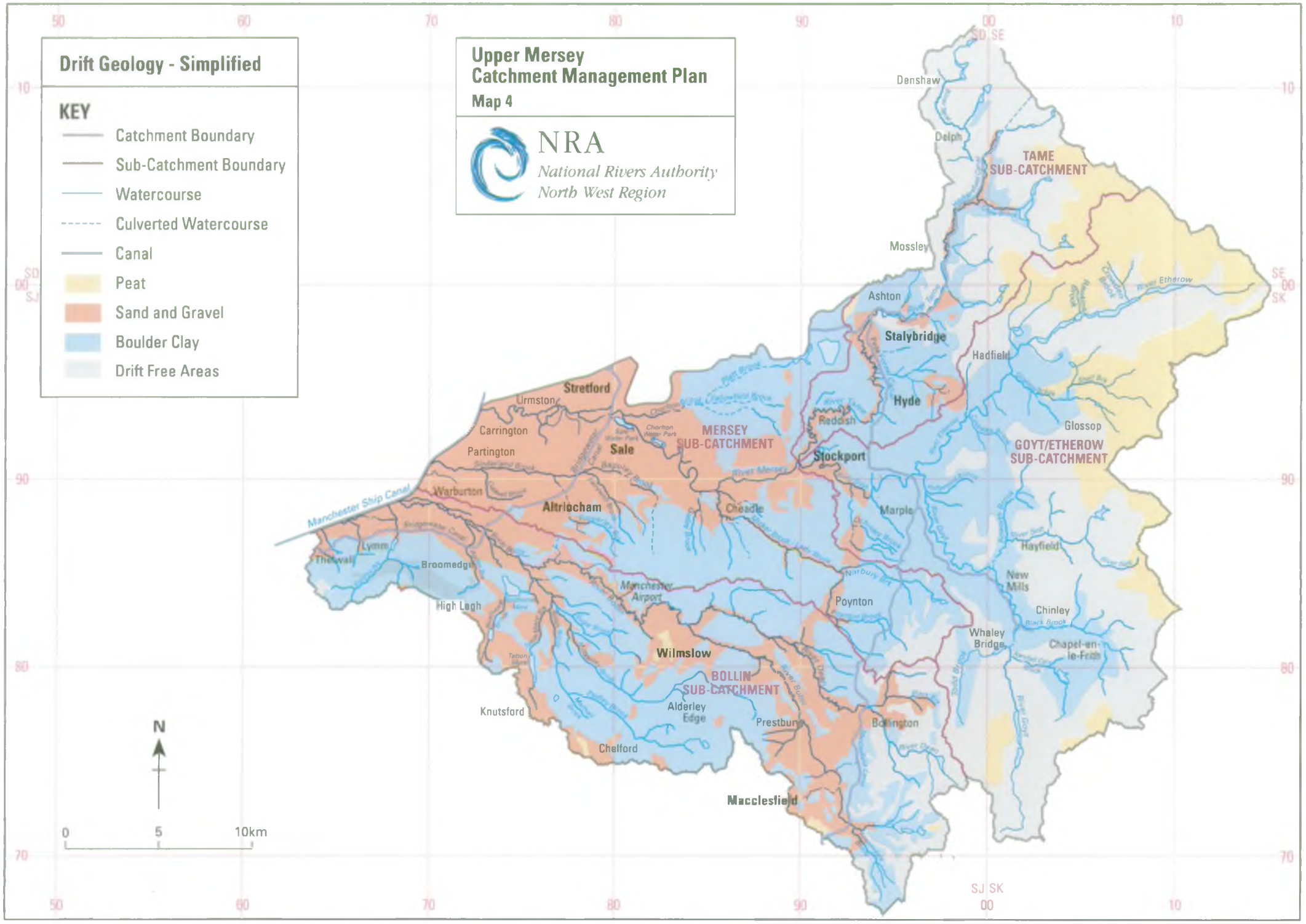
2.3 HYDROLOGY

The Long Term Average (LTA) annual rainfall varies from 832 mm in the west of the catchment to 1220 mm in the Pennine uplands in the east. Rainfall records for the four sites in the catchment are as follows :-

Sale Raingauge											
Year	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**LTA 1961 - 1990**
Rainfall mm	866	864	896	783	757	590	800	789	845	586	832
Higher Swineshaw Reservoir											
Year	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**LTA 1961- 1990**
Rainfall mm	1470	1248	1328	1150	1235	1007	1225	702	1336	958	1220
Langley Bottoms											
Year	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**LTA 1961- 1990**
Rainfall mm	1034	1000	1048	923	993	766	1072	964	1114	788	996
Kinder Filters											
Year	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**LTA 1961- 1990**
Rainfall mm	1403	1160	1274	1065	1116	1029	1208	1124	1231	992	1175

(See Map 3)


Rainfall Intensity and Hydrometric Network
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse
Culverted Section
Canal
Built up Area
Upper Mersey Catchment Management Plan
Map 3
NRA
National Rivers Authority
North West Region
ANNUAL AVERAGE RAINFALL:
>1500 mm
1350 - 1500 mm
1200 - 1350 mm
1050 - 1200 mm
900 - 1050 mm
750 - 900 mm
HYDROMETRIC NETWORK:
River Gauging Station
Rainfall Gauge
TAME SUB-CATCHMENT
MERSEY SUB-CATCHMENT
GOYT/ETHEROW SUB-CATCHMENT
BOLLIN SUB-CATCHMENT
Denshaw
Delph
Mossley
Ashton
Stalybridge
Hadfield
Hyde
Reddish
Stockport
Glossop
Stretford
Urmston
Carrington
Partington
Sale
Warburton
Altrincham
Manchester Ship Canal
Thelwall
Lymm
Broomedge
High Legh
Cheadle
Marple
Hayfield
New Mills
Manchester Airport
Poynton
Chinley
Whaley Bridge
Chapel-en-le-Frith
Wilmslow
Knutsford
Alderley Edge
Prestbury
Bollington
Chelford
Macclesfield
River Mersey
N
0
5
10km


Drift Geology - Simplified
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse
Culverted Watercourse
Canal
Peat
Sand and Gravel
Boulder Clay
Drift Free Areas
Upper Mersey
Catchment Management Plan
Map 4
NRA
National Rivers Authority
North West Region
TAME
SUB-CATCHMENT
MERSEY
SUB-CATCHMENT
GOYT/ETHEROW
SUB-CATCHMENT
BOLLIN
SUB-CATCHMENT
Denshaw
Delph
Mossley
Ashton
Stalybridge
Hadfield
Hyde
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Whaley Bridge
Chapel-en-le-Frith
Wilmslow
Knutsford
Alderley Edge
Prestbury
Bollington
Chelford
Macclesfield
Etherow
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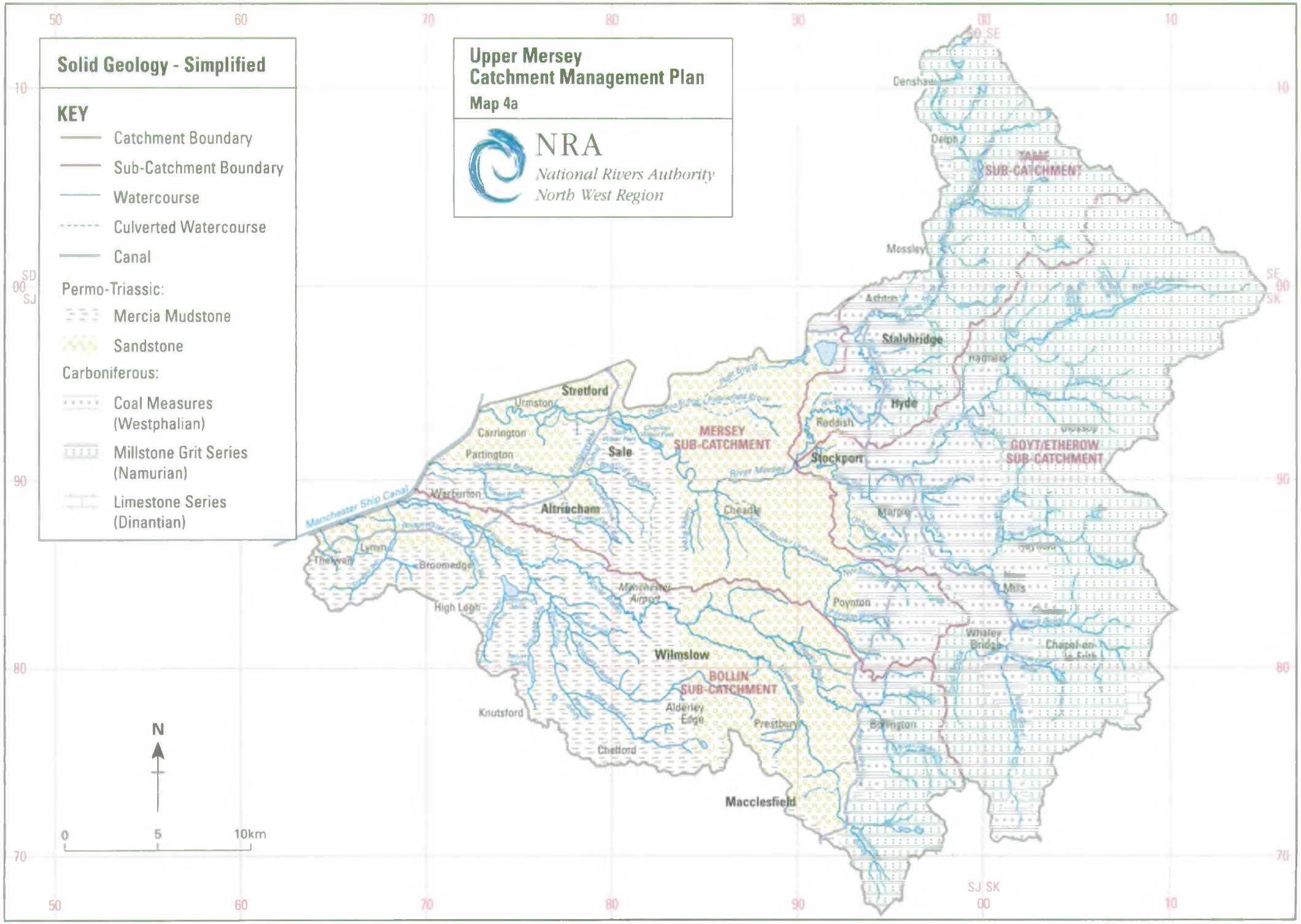

Solid Geology - Simplified
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse
Culverted Watercourse
Canal
Permo-Triassic:
Mercia Mudstone
Sandstone
Carboniferous:
Coal Measures (Westphalian)
Millstone Grit Series (Namurian)
Limestone Series (Dinantian)
Upper Mersey Catchment Management Plan
Map 4a
NRA
National Rivers Authority
North West Region
N
0
5
10km
Denshaw
Delph
TAME SUB-CATCHMENT
Mossley
Ashton
Stalybridge
Hyde
Reddish
Stretford
Urmston
Carrington
Partington
Sale
MERSEY SUB-CATCHMENT
Stockport
GOYT/ETHEROW SUB-CATCHMENT
Manchester Ship Canal
Warburton
Altrincham
Cheadle
Marple
Lymm
Thelwall
Broomedge
Manchester Airport
High Legh
Poynton
Mills
Whaley Bridge
Chapel-en-le-Frith
Wilmslow
BOLLIN SUB-CATCHMENT
Knutsford
Alderley Edge
Prestbury
Bollington
Chelford
Macclesfield
SJ SK

2.4 GEOLOGY

The eastern (upland) half of the catchment, drained primarily by the Goyt and Tame, is underlain by rocks of Carboniferous age (Coal Measures and Millstone Grit Series), comprising alternating sandstones, shales/mudstones and in the case of the Coal Measures, occasional coal seams. To the west the watercourses pass onto younger Permo-Triassic rocks, comprising extensive belt of Sherwood Sandstones and the finer grained sediments of the Mercia Mudstone Group in the south and west.

The more erosion resistant Carboniferous sandstones forming the higher ground in the east of the catchment, tend to occur at the surface except where peat deposits have developed to produce the moorlands of the Pennines e.g. Kinder Scout. However, the remainder of the Mersey catchment is covered by glacial deposits and alluvium.

(See Maps 4, 4a)

2.4.1 Mineral Extraction

Local Perspective

Quarrying of the Carboniferous sandstones has taken place in the east of the catchment, for building and roadstone, as well as localised underground mining of coal around Poynton.

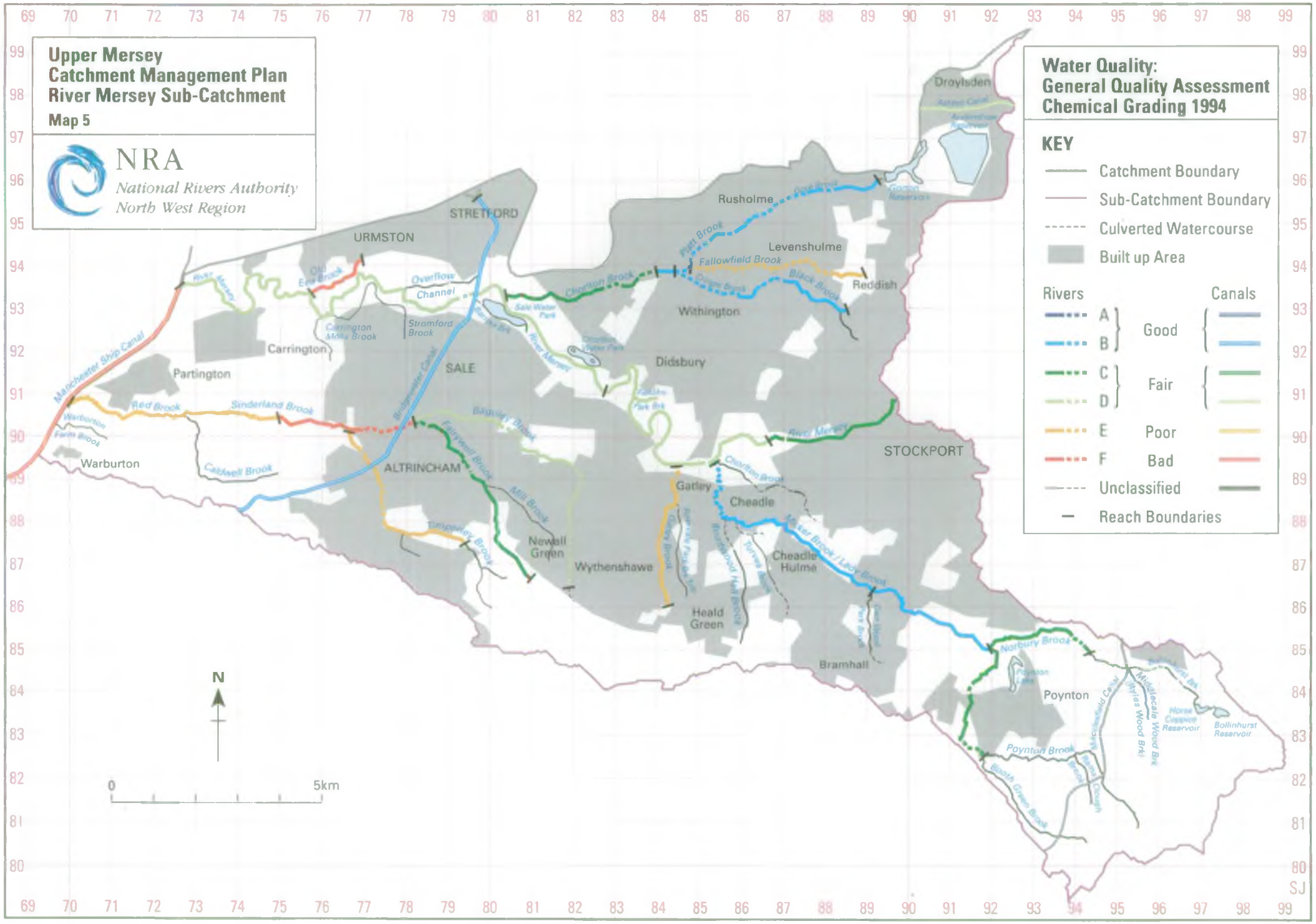
Elsewhere mineral extraction within the catchment has been predominantly associated with the drift deposits; sand and gravel for glass making (around Chelford) and more widely for aggregates, and the boulder clay for brick manufacture.

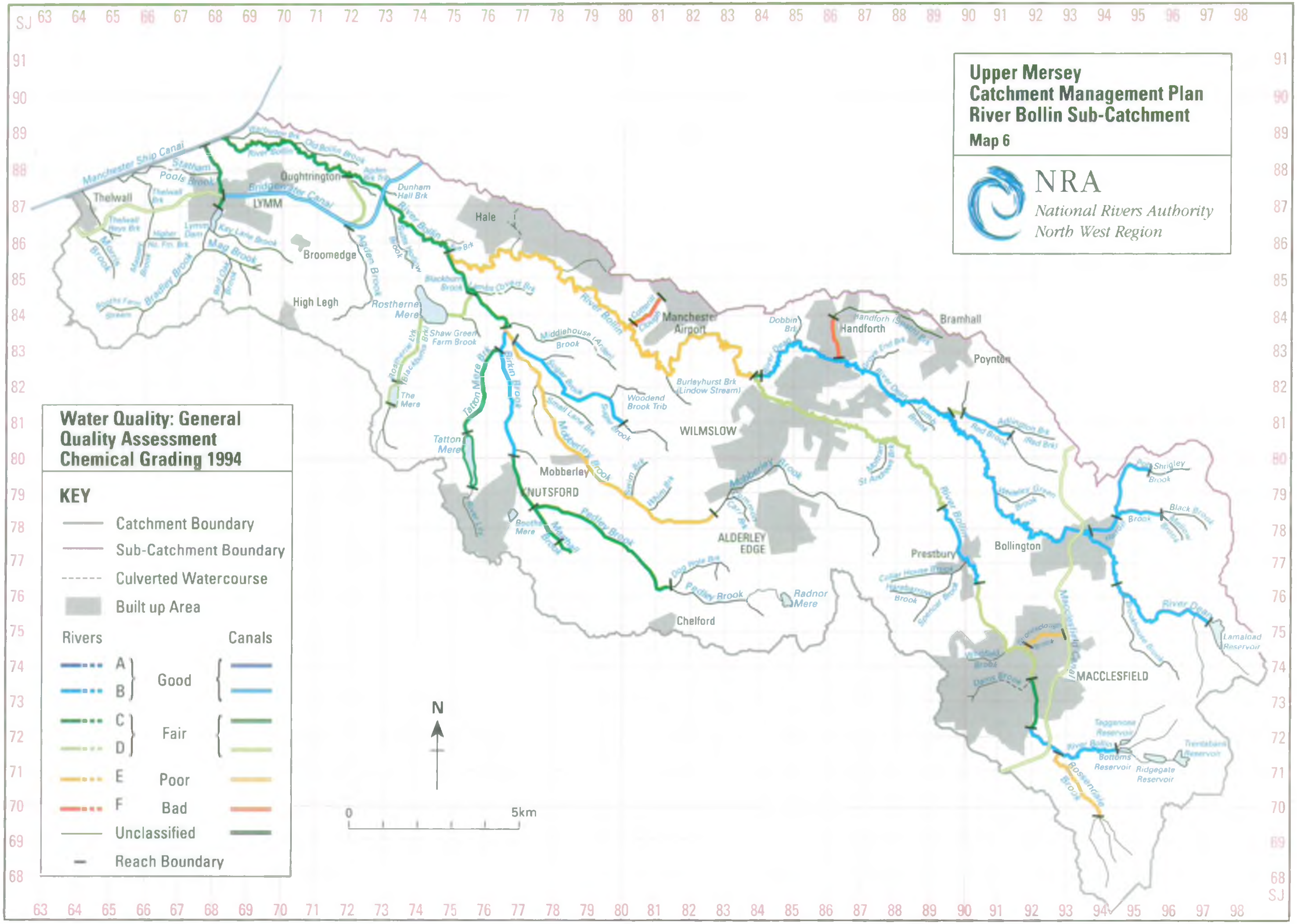
2.5 HYDROGEOLOGY

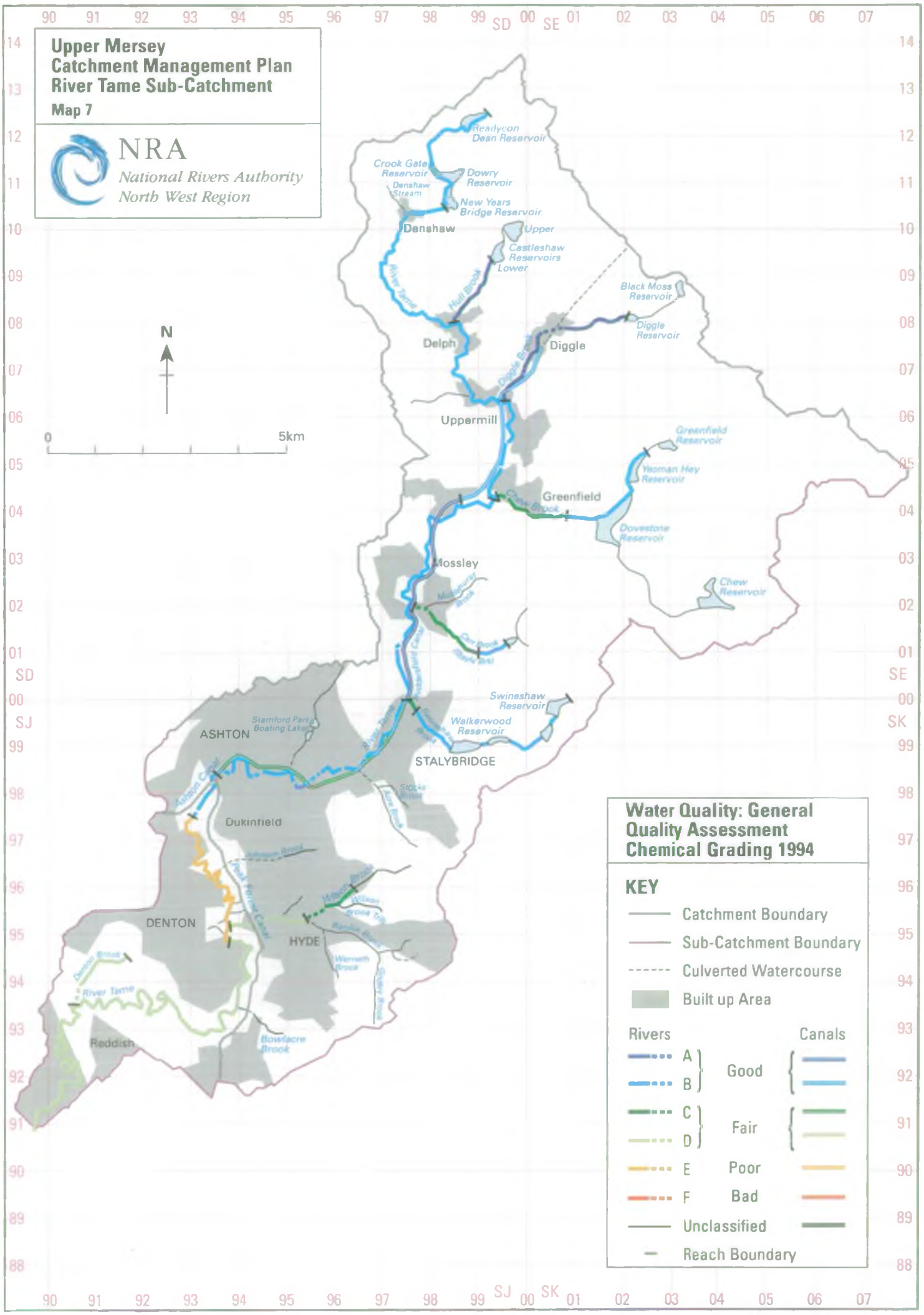
The Carboniferous sandstones tend to act as individual Minor Aquifers separated by the lower permeability shales/mudstones. They are capable of supporting small scale agricultural and domestic supplies and may be used for such in areas remote from the mains water system.

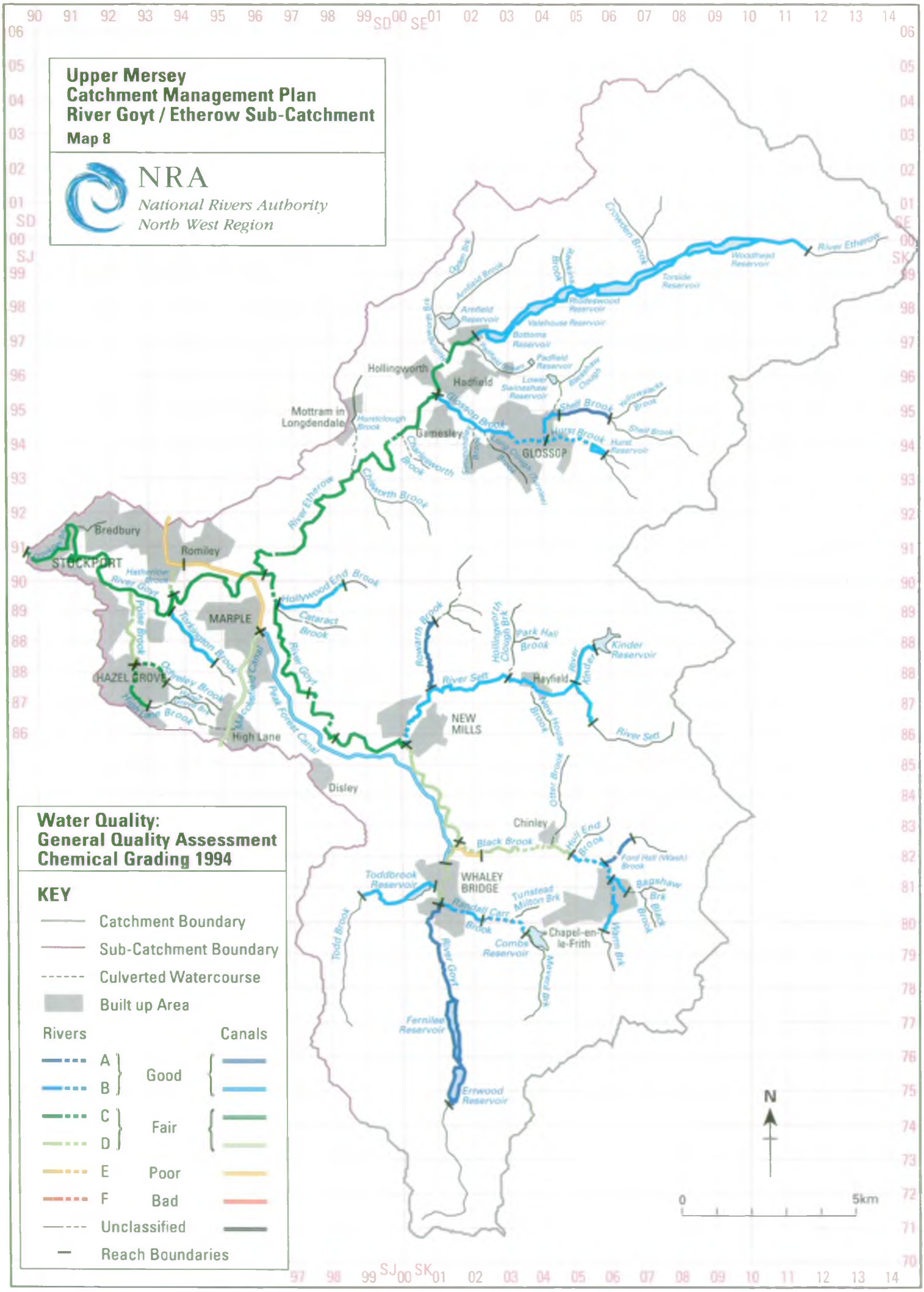
In contrast, the Sherwood Sandstone forms a Major Aquifer which extends from Macclesfield to Manchester and westwards across to Merseyside. It is exploited for industrial and commercial purposes within the catchment. The Mercia Mudstones are generally of low permeability and are classed as Non Aquifer. However, they may be capable of yielding limited quantities of groundwater.

Where present glacial clay will restrict rainfall recharge to any underlying aquifers. It will also provide some protection against pollution from surface activities. In contrast, the more permeable sands and gravel deposits can act as minor aquifers in their own right, as well as providing potential pathways for recharge and contamination. They may contribute baseflow to or allow leakage from watercourses which flow over them.


Upper Mersey
Catchment Management Plan
River Mersey Sub-Catchment
Map 5
NRA
National Rivers Authority
North West Region
Water Quality:
General Quality Assessment
Chemical Grading 1994
KEY
Catchment Boundary
Sub-Catchment Boundary
Culverted Watercourse
Built up Area
Rivers
Canals
A
B
Good
C
D
Fair
E
Poor
F
Bad
Unclassified
Reach Boundaries
N
0
5km
Droylsden
Rusholme
Levenshulme
Reddish
Withington
Didsbury
STRETFORD
URMSTON
Carrington
Partington
SALE
ALTRINCHAM
Warburton
STOCKPORT
Gatley
Cheadle
Cheadle Hulme
Newall Green
Wythenshawe
Heald Green
Bramhall
Poynton
Manchester Ship Canal
Red Brook
Sinderland Brook
Cadwell Brook
Bridgewater Canal
Overflow Channel
River Mersey
Stamford Brook
Carrington Moss Brook
Chorlton Brook
Fallowfield Brook
Black Brook
Mill Brook
Micker Brook / Lady Brook
Norbury Brook
Poynton Brook
Bollinhurst Reservoir
Horse Coppice Reservoir


Upper Mersey
Catchment Management Plan
River Bollin Sub-Catchment
Map 6
NRA
National Rivers Authority
North West Region
Water Quality: General Quality Assessment Chemical Grading 1994
KEY
Catchment Boundary
Sub-Catchment Boundary
Culverted Watercourse
Built up Area
Rivers
Canals
A
B
Good
C
D
Fair
E
Poor
F
Bad
Unclassified
Reach Boundary
N
0
5km
Manchester Ship Canal
Thelwall
LYMM
Oughtrington
Bridgewater Canal
Broomedge
High Legh
Hale
Rostherne Mere
The Mere
Tatton Mere
Tatton Mere Brook
Birkin Brook
KNUTSFORD
Mobberley
Mobberley Brook
Manchester Airport
River Bollin
WILMSLOW
Handforth
Bramhall
Poynton
ALDERLEY EDGE
Chelford
Radnor Mere
Pedley Brook
Prestbury
Bollington
River Dean
MACCLESFIELD
Macclesfield Canal
Lamaload Reservoir
Bottoms Reservoir
Ridgegate Reservoir
Rossendale Brook
Statham Pools Brook
Agden Brook
Dunham Hall Brk
Middlehouse (Arden) Brook
Sugar Brook
Burleyhurst Brk (Lindow Stream)
Woodend Brook Trib
Shrigley Brook
Black Brook
SJ


Upper Mersey
Catchment Management Plan
River Tame Sub-Catchment
Map 7
NRA
National Rivers Authority
North West Region
N
0
5km
Headycon Dean Reservoir
Crook Gate Reservoir
Dowry Reservoir
Denshaw Stream
New Years Bridge Reservoir
Denshaw
Upper
Castleshaw Reservoirs
Lower
River Tame
Hull Brook
Black Moss Reservoir
Diggle Reservoir
Delph
Diggle
Diggle Brook
Uppermill
Greenfield Reservoir
Yeoman Hey Reservoir
Greenfield
Chew Brook
Dovestone Reservoir
Mossley
Chew Reservoir
Swineshaw Reservoir
Walkerwood Reservoir
Stamford Park Boating Lake
ASHTON
STALYBRIDGE
Ashton Canal
Dukinfield
Peak Forest Canal
DENTON
HYDE
Denton Brook
River Tame
Reddish
Bowlacre Brook
Water Quality: General Quality Assessment Chemical Grading 1994
KEY
Catchment Boundary
Sub-Catchment Boundary
Culverted Watercourse
Built up Area
Rivers
Canals
A
B
Good
C
D
Fair
E
Poor
F
Bad
Unclassified
Reach Boundary


Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 8
NRA
National Rivers Authority
North West Region
Water Quality:
General Quality Assessment
Chemical Grading 1994
KEY
Catchment Boundary
Sub-Catchment Boundary
Culverted Watercourse
Built up Area
Rivers
Canals
A
B
Good
C
D
Fair
E
Poor
F
Bad
Unclassified
Reach Boundaries
N
0
5km
Hollingworth
Hadfield
Mottram in Longdendale
Gamesley
GLOSSOP
Bredbury
STOCKPORT
Romiley
MARPLE
HAZEL GROVE
High Lane
Disley
NEW MILLS
Hayfield
Chinley
WHALEY BRIDGE
Chapel-en-le-Frith
River Etherow
River Goyt
River Sett
Woodheat Reservoir
Torside Reservoir
Rhodeswood Reservoir
Valehouse Reservoir
Bottoms Reservoir
Arnfield Reservoir
Padfield Reservoir
Lower Swineshaw Reservoir
Hurst Reservoir
Kinder Reservoir
Toddbrook Reservoir
Combs Reservoir
Fernilee Reservoir
Errwood Reservoir
Hollywood End Brook
Cataract Brook
Torkington Brook
Peak Forest Canal
Macclesfield Canal
Black Brook
Todd Brook
Randlet Carr Brook
Tunstead Milton Brk
Bagshaw Brk
Warm Brk
Cotter Brook
Rowarth Brook
Hollingworth Clough Brk
Park Hall Brook
Dove House Brook
Chinley Brook
Hull End Brook
Ford Hall (Wash) Brook
Shell Brook
Yellowslacks Brook
Hurst Brook
Crowden Brook
Rowlands Brook
Arnfield Brook
Open Brk
Hassilough Brook
Charlesworth Brook
Chisworth Brook
Hathersage Brook
Roise Brook
Carrley Brook
Hollins Brook
Black Brook
Todd Brook
River Etherow
River Goyt
River Sett
River Kinder
Peak Forest Canal
Macclesfield Canal
90 91 92 93 94 95 96 97 98 99 SD 00 SE 01 02 03 04 05 06 07 08 09 10 11 12 13 14
06 05 04 03 02 01 SD 00 SJ 99 98 97 96 95 94 93 92 91 90 89 88 87 86
06 05 04 03 02 01 SE 00 SK 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70
97 98 99 SJ 00 SK 01 02 03 04 05 06 07 08 09 10 11 12 13 14

2.6 WATER QUALITY

Surveys of the chemical quality of the Upper Mersey catchment carried out in 1992-1994 indicated a variation in quality reflecting the variety of land use within the catchment. **(Maps 5, 6, 7, 8)**

Many headwaters show "good" quality. Some of the upland watercourses are however, periodically acidic due to acid rainfall and the drainage from peat land areas. Some exhibit the usually localised characteristic ochreous appearance which may relate to past mining activity.

A decline in quality to "fair", or in some cases "poor" or "bad", was recorded downstream of centres of population and for watercourses draining the southern part of the Greater Manchester conurbation. This results from primary discharges from sewage treatment works, overflows on associated sewerage networks and industrial effluent discharged direct to river. The effluent from the textile industry can be difficult to treat and can result in coloured rivers downstream of their discharges, for example the River Goyt downstream of New Mills. Land contaminated by industrial activity can also have an impact as can currently operational and closed industrial and domestic waste disposal sites. Even the surface water run-off from buildings and roads can have a marked influence. There can be localised effects where storm drains are contaminated with wrongly connected foul drainage.

In the more rural areas, particularly those on the edge of the Cheshire plain, agricultural activity can have an impact on water quality. A more localised impact can occur in such areas, from small sewage treatment facilities serving individual houses or small groups of houses.

Some of the sources of pollution affecting the catchment such as drainage from contaminated land and waste disposal sites and the run-off from agricultural land occur as non-discrete discharges and this can make their control more difficult.

3 CATCHMENT USES AND TARGETS

3.1 WATER QUALITY

Water quality plays a significant role in determining the variety of uses that a catchment can support. This section explains the criteria used to assess water quality within the catchment, before looking at the uses in detail.

3.1.2 NRA Monitoring Duties

The NRA has a duty to monitor the extent of pollution in controlled waters. Controlled waters include rivers, streams, ditches, lakes, groundwaters, estuaries and coastal waters. This is achieved by chemical, biological and microbiological sampling programmes. Water quality information is available to the public and held on the Water Resources Act Register, at the NRA North West Regional Office, Richard Fairclough House, Knutsford Road, Warrington.

3.1.3 Water Quality Targets

Targets relating to water quality can be categorised as relating to domestic UK classification schemes or arising from EC Directives.

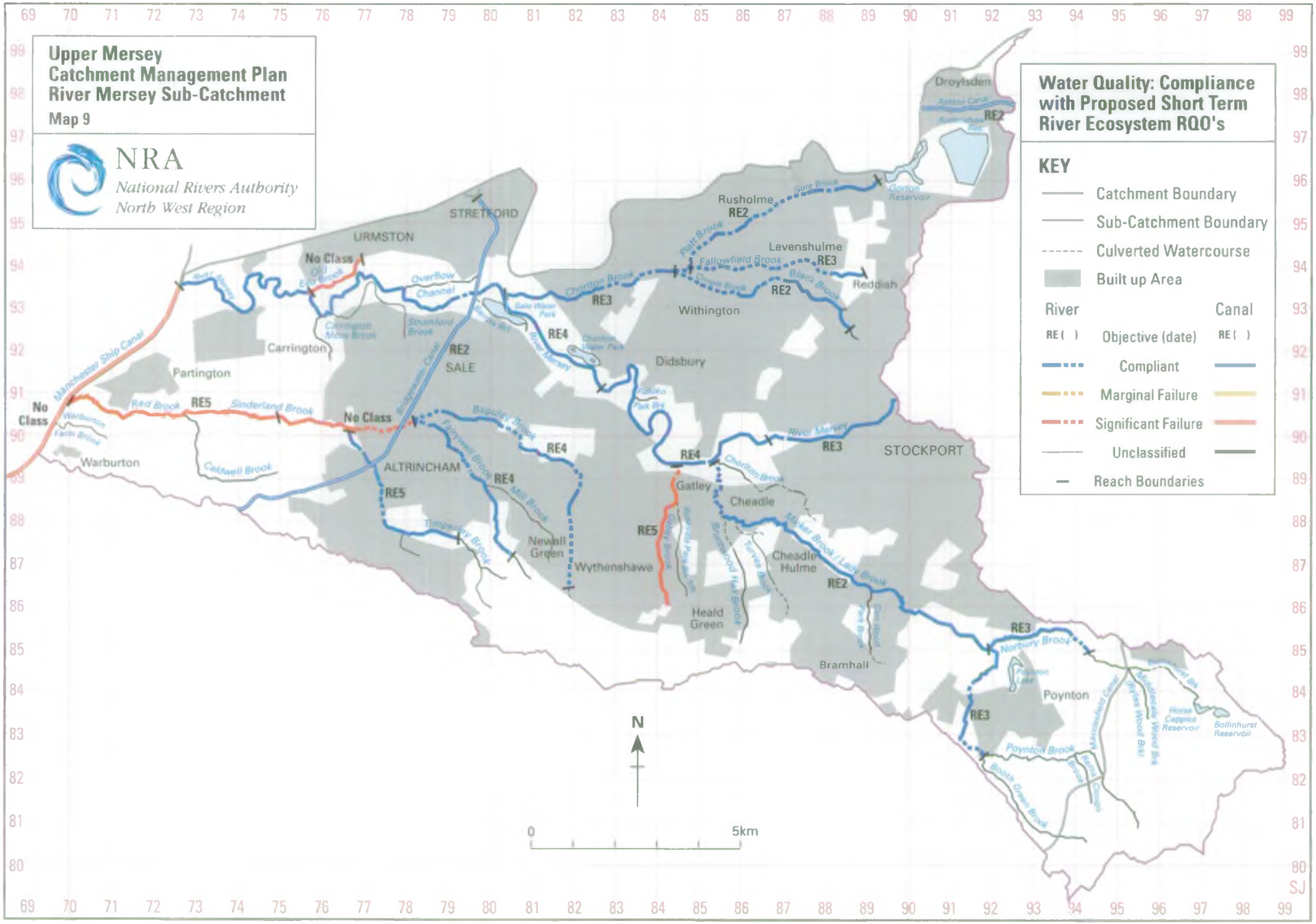
3.1.4 Water Quality Classification

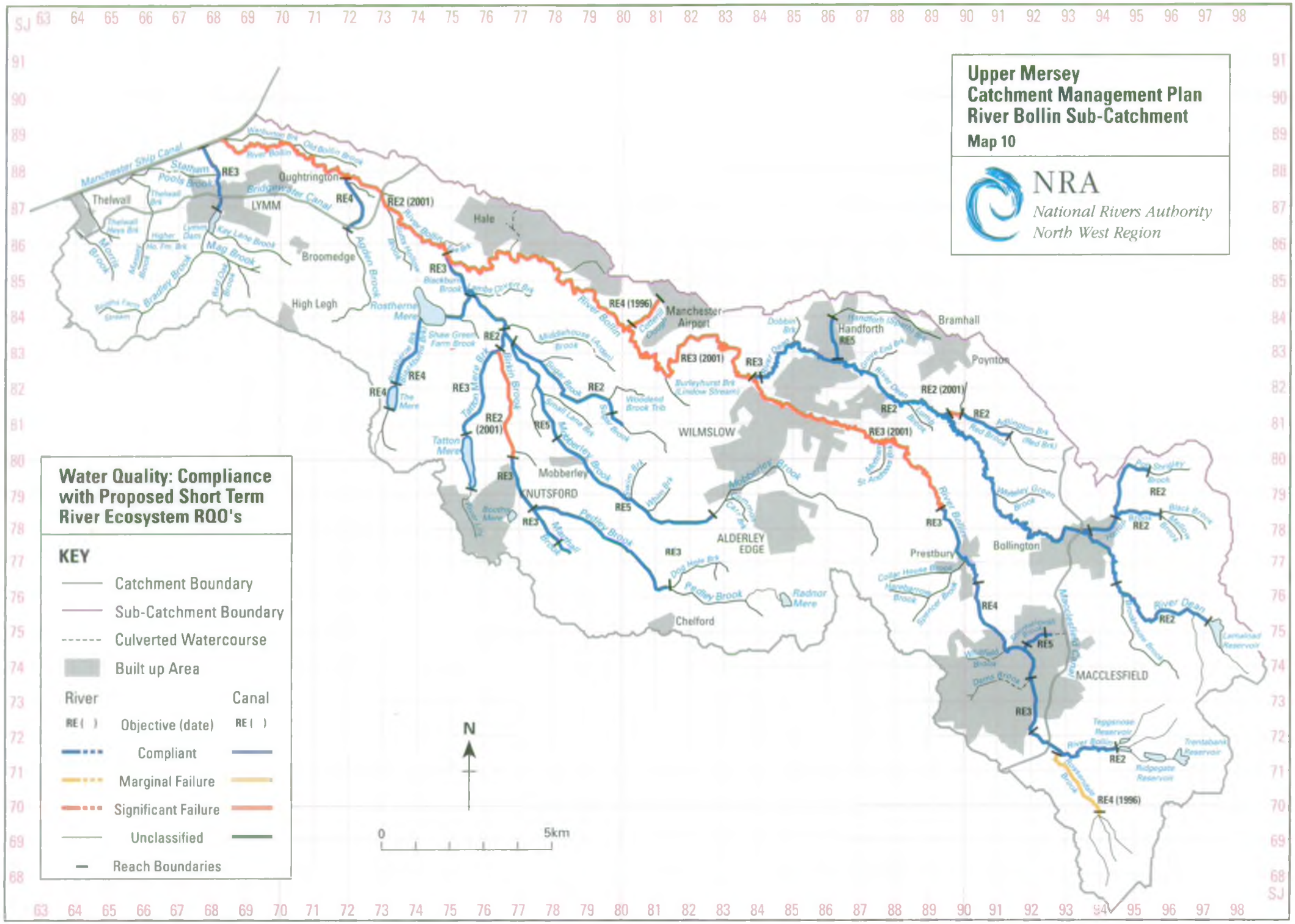
River Quality Objectives

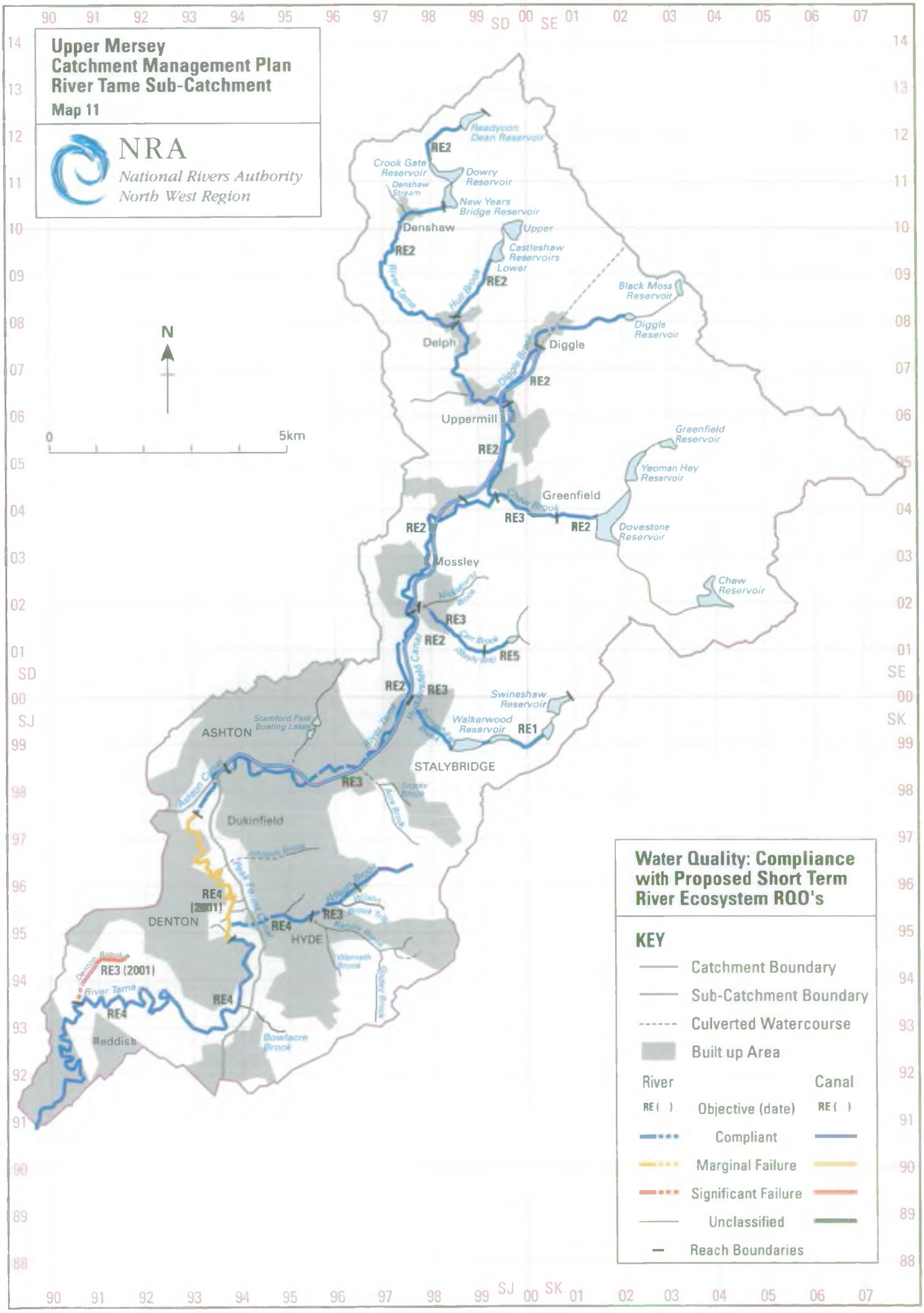
The NRA has strategic targets known as River Quality Objectives (RQOs) which provide a basis for water quality management decisions. In the past the National Water Council (NWC) classification scheme for water quality has been a fundamental element of RQOs. This is now being superseded by new classification schemes, prescribing standards for specific uses. The first set of standards to be developed, in the River Ecosystem scheme, relates to the chemical quality requirements of different types of aquatic ecosystem. Details of the standards applying are given in **Appendix 3**.

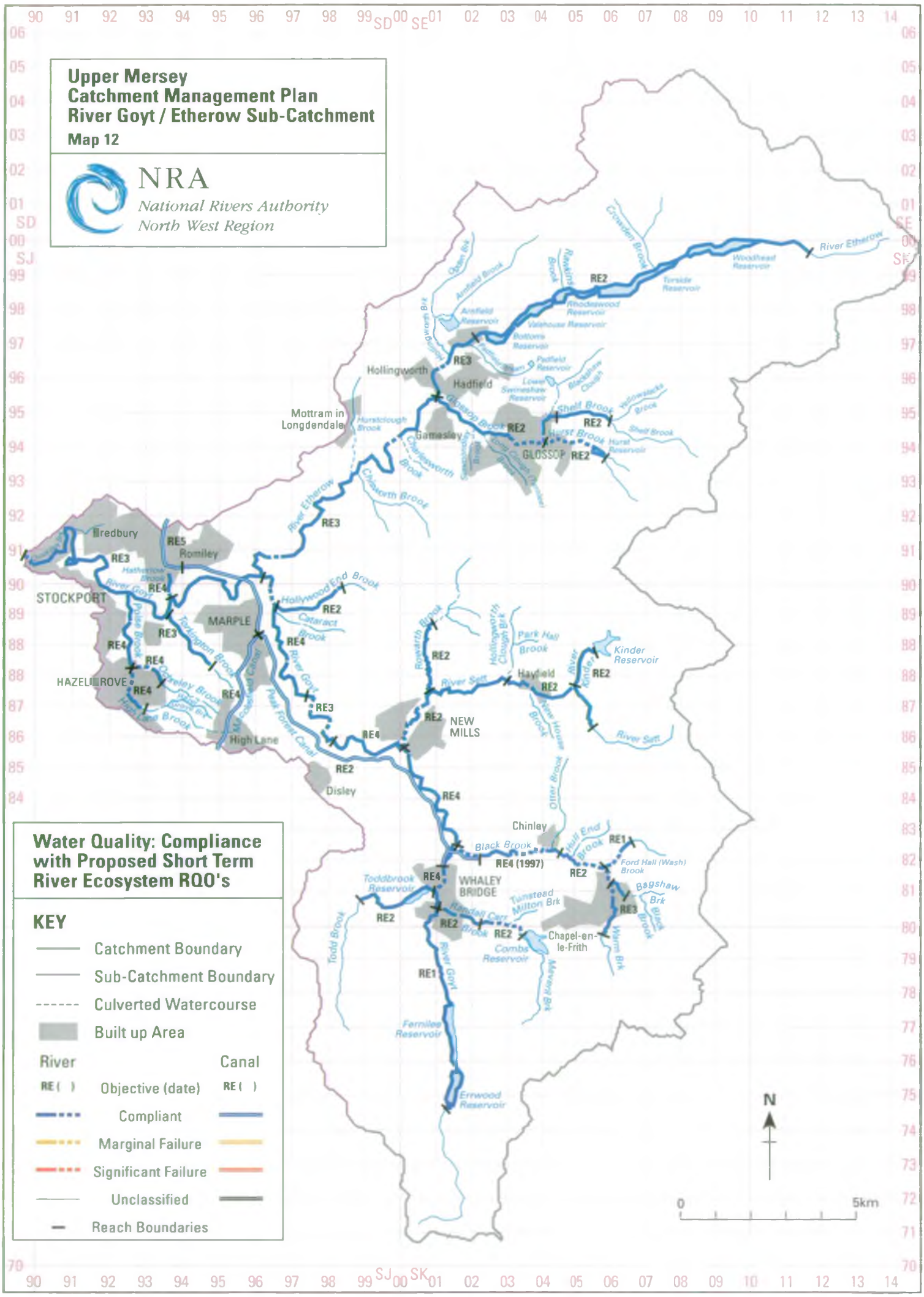
River Ecosystem RQOs, for the rivers and canals of this catchment, are proposed here for the first time. Objectives under this scheme will ultimately become statutory targets, when notices are served by the Secretary of State for the Environment, giving them legal status. Although a formal public consultation will take place before the objectives become statutory, **views on the proposals are sought at this stage.**

The lengths of river and canal to which the objectives have been applied are largely the same as previously used for the NWC system of classification and objectives.


Upper Mersey
Catchment Management Plan
River Mersey Sub-Catchment
Map 9
NRA
National Rivers Authority
North West Region
Water Quality: Compliance with Proposed Short Term River Ecosystem RQO's
KEY
Catchment Boundary
Sub-Catchment Boundary
Culverted Watercourse
Built up Area
River
Canal
RE ( )
Objective (date)
Compliant
Marginal Failure
Significant Failure
Unclassified
Reach Boundaries
Droylsden
Rusholme
Levenshulme
Reddish
Withington
Didsbury
STRETFORD
URMSTON
Carrington
Partington
SALE
ALTRINCHAM
Warburton
Gatley
Cheadle
Cheadle Hulme
STOCKPORT
Newall Green
Wythenshawe
Heald Green
Bramhall
Poynton
Manchester Ship Canal
Red Brook
Sinderland Brook
Bridgewater Canal
Baguley Brook
Fallowfield Brook
Mill Brook
Timperley Brook
Chorlton Brook
River Mersey
Micker Brook / Lady Brook
Norbury Brook
Poynton Brook
Bollinhurst Reservoir
House Coppice Reservoir
No Class
RE2
RE3
RE4
RE5
N
0
5km
SJ


Upper Mersey
Catchment Management Plan
River Bollin Sub-Catchment
Map 10
NRA
National Rivers Authority
North West Region
Water Quality: Compliance with Proposed Short Term River Ecosystem RQO's
KEY
Catchment Boundary
Sub-Catchment Boundary
Culverted Watercourse
Built up Area
River
Canal
RE( )
Objective (date)
Compliant
Marginal Failure
Significant Failure
Unclassified
Reach Boundaries
N
0
5km
Manchester Ship Canal
Bridgewater Canal
Thelwall
LYMM
Oughtrington
Broomedge
High Legh
Hale
Manchester Airport
Handforth
Bramhall
Poynton
WILMSLOW
Mobberley
KNUTSFORD
ALDERLEY EDGE
Prestbury
Bollington
MACCLESFIELD
Chelford
River Bollin
River Dean
RE3
RE4
RE2 (2001)
RE4 (1996)
RE3 (2001)
RE2
RE5


Upper Mersey
Catchment Management Plan
River Tame Sub-Catchment
Map 11
NRA
National Rivers Authority
North West Region
N
0
5km
Readycon Dean Reservoir
Crook Gate Reservoir
Dowry Reservoir
Denshaw Stream
New Years Bridge Reservoir
Denshaw
Upper
Castleshaw Reservoirs
Lower
Black Moss Reservoir
Diggle Reservoir
Delph
Diggle
Uppermill
Greenfield Reservoir
Yeoman Hey Reservoir
Greenfield
Dovestone Reservoir
Mossley
Chew Reservoir
Swineshaw Reservoir
Walkerwood Reservoir
Stamford Park Boating Lake
ASHTON
STALYBRIDGE
Dukinfield
DENTON
HYDE
Reddish
River Tame
Bowlacre Brook
RE1
RE2
RE3
RE4
RE5
RE4 (2001)
RE3 (2001)
Water Quality: Compliance with Proposed Short Term River Ecosystem RQO's
KEY
Catchment Boundary
Sub-Catchment Boundary
Culverted Watercourse
Built up Area
River
Canal
RE( )
Objective (date)
RE( )
Compliant
Marginal Failure
Significant Failure
Unclassified
Reach Boundaries


Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 12
NRA
National Rivers Authority
North West Region
Water Quality: Compliance with Proposed Short Term River Ecosystem RQO's
KEY
Catchment Boundary
Sub-Catchment Boundary
Culverted Watercourse
Built up Area
River
Canal
RE ( )
Objective (date)
Compliant
Marginal Failure
Significant Failure
Unclassified
Reach Boundaries
STOCKPORT
Bredbury
Romiley
MARPLE
HAZEL GROVE
High Lane
Disley
NEW MILLS
Hayfield
Chinley
WHALEY BRIDGE
Chapel-en-le-Frith
Hollingworth
Hadfield
Mottram in Longdendale
Gamesley
GLOSSOP
River Etherow
River Goyt
River Sett
Black Brook
Hollingworth Lake
Woodhead Reservoir
Torside Reservoir
Rhodeswood Reservoir
Valehouse Reservoir
Bottoms Reservoir
Padfield Reservoir
Lower Swineshaw Reservoir
Shelf Brook
Horst Reservoir
Kinder Reservoir
Ford Hall (Wash) Brook
Bagshaw Brk
Toddbrook Reservoir
Combs Reservoir
Fernilee Reservoir
Errwood Reservoir
Peak Forest Canal
Macclesfield Canal
Hollyhead End Brook
Cataract Brook
Chisworth Brook
Glossop Brook
Tunstead Milton Brk
Randan Cert Brook
Hull End Brook
Park Hall Brook
Rowarth Brook
Hollingworth Clough Brk
Otter Brook
Todd Brook
Warm Brk
Black Brook
Marsh Brk
Crowden Brook
Rawkins Brook
Arnfield Brook
Arnfield Reservoir
Otter Brk
Hollingworth Brk
Hatherlow Brook
Dovecot Brook
Carrley Brook
Hyde Brk
Hollins Brook
Tediington Brook
Sweet House Brook
RE1
RE2
RE3
RE4
RE5
RE4 (1997)
0
5km
N

It is also possible to relate the classes of the previous NWC objectives to the River Ecosystem scheme. This has been considered in the assessment of the proposed River Ecosystem objectives in addition to what the water quality is currently like and how this is predicted to change. Changes in water quality could arise, for example, due to improvements in consented discharges, improvements to farm drainage or changes in land use. Unless improvements are known to be in hand consented discharges are assumed to contain the maximum permitted pollutant load.

Objectives proposed for non-statutory RQOs and ultimately Statutory Water Quality Objectives (SWQOs) will be achievable within 10 years. The dates given for compliance will become part of the statutory obligation. In predicting improvements it has only been possible therefore, to consider expenditure which is firmly committed. The recent National document relating to water company expenditure, over the next five years, are of particular significance here.

It is envisaged that it will be possible to review statutory WQOs after 5 years.

For the purposes of this plan long-term, River Ecosystem RQOs have also been considered. These are the achievable aspirations for the catchment. Achievement of the proposed long-term RQOs for some stretches may take longer than 10 years, or require expenditure not available before then. No dates have been ascribed to these.

The proposed short-term and long-term River Ecosystem RQOs for the classified lengths of the rivers and canals of the catchment are shown in **Appendix 4**.

Maps 9, 10, 11, 12 show the current state of compliance with the proposed short term River Ecosystem RQOs.

The definition of the River Ecosystem classes, in chemical terms, can be equated with the following broad descriptions, with particular reference to the fish population that could be expected to be supported by the ecosystem.

Class RE1: Water of very good quality (suitable for all fish species)
Class RE2: Water of good quality (suitable for all fish species)
Class RE3: Water of fair quality (suitable for high class coarse fish populations)
Class RE4: Water of fair quality (suitable for coarse fish populations)
Class RE5: Water of poor quality (which is likely to limit coarse fish populations)
No Class: Water of bad quality (in which fish are unlikely to be present)

Biological Water Quality Classification

The input of biological data to the current catchment management process is essential to support the issues raised on the strength of chemical data and also to highlight those issues which may only be indicated by assessing the composition of the invertebrate community.

Biological reporting is seen as being a vital ingredient in the routine assessment of water quality problems across the catchment and as a useful tool when tracing specific pollution problems.

The biological water quality classification method used in this report depends on the identification of freshwater invertebrate specimens to family level. Each family has a biological score allocated to it, the value being related to the tolerance of the whole family to pollution. Pollution sensitive species receive the highest score, up to a maximum of ten for some stoneflies, and pollution tolerant species such as worms are given the lowest value of one. Abundances are also recorded to make an assessment of the dominant invertebrates in the sample.

A number of biological indices are applied to the invertebrate information collected for each length of river and one of five biological classes listed below is assigned.

Biological class B1 - Very Good Biological Quality

The fauna recorded is extremely diverse and dominated by a variety of stoneflies (Plecoptera) and mayflies (Ephemeroptera, not including the family Baetidae). Such groups require high levels of oxygen (>80%). The dominant invertebrates found are generally intolerant of pollution, particularly ammonia and organic pollution, preferring clean, well oxygenated streams. Some stonefly species are able to tolerate raised acidity levels, though most mayfly species are unable to tolerate this condition. Where such a diverse fauna is found, visible evidence of pollution is very rare.

Biological class B2 - Good Biological Quality

The indicative fauna is diverse and typically dominated by mayflies and caddis fly larvae (Tricoptera) with stoneflies in lower abundances than found in biological class B1. A few more pollution tolerant species such as shrimps are found, though the fauna still requires above average oxygen levels (>60%). The fauna will tolerate low ammonia levels and very mild organic pollution. Visible evidence of pollution is usually absent.

Caddis fly larvae tend to be less sensitive to organic pollution than stoneflies and mayflies. Shrimps (Gammaridae) are reasonably tolerant of mildly enriched conditions but will not tolerate conditions of increased acidity. Sometimes shrimps will form communities adapted to high levels of heavy metals.

Biological class B3 - Fair Biological Quality

The fauna is moderately diverse but typically dominated by more pollution tolerant families of mayflies (Baetidae), caddis fly larvae and shrimps. Pollution tolerant water hoglice (Asellidae) are frequently present, together with significant numbers of worms and midge larvae. Stoneflies are typically absent. Oxygen saturation (>40%) is typically sufficient to support pollution tolerant mayflies. Visible evidence of pollution may be present.

Biological class B4 - Poor Biological Quality

This class is indicated by a restricted fauna composed of pollution tolerant species. Water hoglice, worms and chironomids (midge larvae) are frequently present, whereas pollution sensitive stoneflies are absent. Water hoglice are fairly tolerant of high salinities, low pH and high metal concentrations. Shrimps and pollution tolerant mayfly species (Baetidae family) are only occasionally recorded. The fauna is able to tolerate low oxygen levels (>10%) and occasionally stagnant, anaerobic conditions, which may be associated with significant organic pollution or mild toxicity. Visible evidence of pollution is typically present.

Biological class B5 - Very Poor Biological Quality

This class is indicated by a very restricted fauna tolerant of severely polluted conditions. A macroinvertebrate fauna may in fact be absent altogether. Only species capable of utilising very low oxygen levels are found, for example, chironomids and worms. The fauna may be composed of very low abundances of a few species, indicating toxic conditions, or very high numbers of pollution tolerant species such as red midge larvae (bloodworms) or worms, indicative of gross organic pollution. Visible evidence of pollution is very common.

High numbers of red midge larvae (bloodworms) are particularly indicative of pollution by sewage or farm effluent. Worms are also tolerant of organic pollution.

The proposed Long-Term Objectives for Biological Water Quality for the classified lengths of the catchment are also listed in Appendix 4.

3.1.5 EC Directives

Four Directives issued by the EC have implications for water quality in the Upper Mersey catchment.

Directive on Dangerous Substances in Water

The Directive provides a framework for measures to control pollution, caused by discharges of certain dangerous substances sub-divided under List I and List II. Member States are required to take steps to eliminate pollution caused by List I substances and reduce pollution by List II substances.

In the UK standards have been established for concentrations of these substances in watercourses. Limits for discharges containing the substances have been set accordingly, with regard to the dilution available.

There are six river monitoring points for dangerous substances within the Upper Mersey catchment.

Directive on Urban Wastewater Treatment

The Directive specifies requirements for the collection and treatment of industrial and domestic wastewaters at sewage treatment works and for treatment of wastewater from certain sectors of industry prior to direct discharge to watercourse.

Most significant inland sewage treatment works already comply with the basic requirements relating to treatment.

However, the requirement that collecting systems (the sewerage system) shall be designed, constructed and maintained in accordance with best available technology not entailing excessive costs, specifically regarding the limitation of pollution of receiving waters due to storm (and emergency) overflows, presents very significant objectives to be met. Over 350 overflows have been identified within the Upper Mersey catchment.

With regard to direct discharges from the specified sectors of industry, standards for the appropriate level of treatment are being developed. It is unlikely that any of the direct discharges of industrial effluent, within the Upper Mersey catchment, will be affected by this requirement.

Directive on Water Quality for Freshwater Fish

The Directive sets Environmental Quality Standards (EQSs) for stretches of freshwater designated as suitable for either salmonids (salmon and trout species) or cyprinids (coarse fish species).

There are 27 designated river stretches within the Upper Mersey catchment. 17 are of salmonid designation. In addition there are five stretches of canal within the catchment area designated as cyprinid fisheries.

Directive on Abstraction of Surface Water for Drinking

Amongst other requirements this Directive specifies standards for the quality of water abstracted for use as drinking water.

16 abstractions have been identified in the Upper Mersey catchment for the purposes of this Directive.

3.1.6 Asset Management Plan 2 (AMP2)

The Asset Management Plan, of which this is the second, is essentially the Water Companies programme of expenditure and investment for the ten year period between 1995 and 2005.

The NRA is involved in setting priorities for work necessary for environmental improvements. The environmental related work for the first 5 years of the programme has essentially been confirmed. However, although schemes have been identified for the second 5 year period, between the years 2000 and 2005, they are still open to negotiation, and reprioritorisation, according to what are deemed to be the most environmentally beneficial projects.

AMP2 programme 1995 -2000

The following list of schemes are those encompassed within the first five years of the AMP2 process for which improvement works will be carried out, within the Upper Mersey catchment area:

1. Refurbishment of Macclesfield STW, and improved effluent discharges. These improvements should significantly improve the water quality of the river Bollin, with such improvements likely to be seen for over 26.6km of the river.

2. Unsatisfactory sewer overflows. The following unsatisfactory combined sewer overflows are to be improved to at least satisfactory quality within the first 5 years of the AMP2 process:

Catchment	NWW Reference	Stream	Grid reference	Location
Goyt/ Etherow	STK0100	Torkington Bk	SJ93718888	Dooley Lane, Marple
Mersey	TAM0037	Trib Dick Lane Bk	SJ91409750	Lumb Lane/Audenshaw Relief sewer
Mersey	MAN0210	Moss Brook	SJ90149721	Hobson Street/Manshaw Road
Mersey	TAM0058	Gore Brook	SJ90179727	Manchester Road/Fairfield
Tame	TAM0055	River Tame	SJ93139684	Shepley Ind.Est.
Tame	TAM0056	River Tame	SJ93049653	Broomstair Rd Nr Syphon
Tame	TAM0057	River Tame	SJ92899718	King George VI Fields (Footbridge)
Tame	TAM0062	Denton Brook	SJ91989486	Victoria St/Acre St
Tame	TAM0063	Trib.Denton Bk.	SJ91109481	Windmill Lane
Tame	TAM0064	Denton Brook	SJ91139473	Windmill Lane Nr.Gas Works
Tame	TAM0066	Denton Brook	SJ91119502	Foxhall Rd. Belmont Avenue

3. Sale Sewage Treatment Works. The controlling inlet overflow is to be improved to alleviate aesthetic problems resulting from excessive litter being discharged from the overflow into Stromford Brook.

AMP2 programme 2000 - 2005

The following list of schemes are those encompassed within the second five years of the AMP2 process for which improvement works will be carried out, within the Upper Mersey catchment area. As mentioned previously these schemes are still open to negotiation, and reprioritorisation:

1. Unsatisfactory sewer overflows. The following unsatisfactory combined sewer overflows are to be improved to at least satisfactory quality within the second 5 years of the AMP2 process:

Catchment	NWW Reference	Stream	Grid reference	Location
Mersey	STK0117	Black Brook	SJ87859318	Wellington Rd.Nth/Crossley Rd.
Mersey	STK0118	Black Brook	SJ87759327	Crossley Rd/Westholme Ave
Tame	TAM0065	Denton Brook	SJ90389430	Thornley Lane Nr.Farm
Tame	TAM0067	Denton Brook	SJ91929485	Town Lane/Circular Rd.
Tame	TAM0068	Denton Brook	SJ91929485	Shoecroft Garage Site, Off Town Lane
Tame	TAM0072	Denton Brook	SJ91649440	Ross Lave Lane
Tame	TAM0073	Denton Brook	SJ91589445	Rear of Kennedy Way
Tame	TAM0151	River Tame	SJ93359509	Off St.Lawrences Rd.
Tame	TAM0163	River Tame	SJ94069478	Off Mill Lane

2. Ashton, and Denton Sewage Treatment Works. The controlling inlet overflows are to be improved to reduce the organic loads discharged into the receiving watercourses.

3.2 EFFLUENT DISPOSAL

3.2.1 General

Domestic and industrial effluents may be discharged continuously or intermittently to the river system.

Continuous Effluents

Fully treated effluent from sewage treatment works and trade effluent treatment plants are typically continuous discharges.

The more significant sewage treatment works are almost exclusively operated by the Water Services Companies (WSCs). In the Upper Mersey catchment this is mainly North West Water Ltd. although a small area is covered by Severn Trent Water Ltd. Such sewage works may receive both domestic and industrial waste. Houses and other premises, remote from the established sewerage network, may use an individual sewage treatment plant with a discharge to a watercourse, as an alternative to septic tank or cess pit, as a means of disposal of foul drainage.

Industrial concerns may also opt to treat their trade waste at their own treatment facility with a discharge to a watercourse, rather than discharge to sewer.

The quality of such continuous effluents is controlled by consents.

Intermittent Effluents

The most significant category of intermittent effluent is that from storm overflows on the sewerage network. Sewage effluent may also be discharged intermittently from the sewerage network in the event of emergency at pumping stations. Both these types of discharge are the responsibility of the water companies and the circumstances in which they are permitted to occur are controlled in consents.

Unfortunately, significant amounts of sewage debris, can often be seen on the bed and banks, over substantial lengths of watercourse, throughout the catchment. Such debris is released from the sewers through overflows. Properly designed overflows can reduce this.

Another category of intermittent effluent arises as a consequence of numerous storm water drains in the catchment being contaminated with domestic foul water from sinks, washing machines etc. Often such appliances are incorrectly drained to the storm water drains, and not the foul sewer as they should be. Although the impact is localised it is widespread throughout the catchment and can be both difficult and time consuming to trace.

A further category of intermittent effluent is the surface water run-off from urban areas.

3.2.2 Local Perspective

Continuous Effluents

There are 34 North West Water Ltd sewage treatment works within the catchment. There is also one operated by Severn Trent Water Ltd.

There are also a number of small treatment plants operated by others.

There are currently 18 industrial discharges direct to river.

Intermittent Effluents

There are over 350 identified storm and emergency sewer overflows within the Upper Mersey catchment.

Surface run-off from the urban areas within the catchment is a significant intermittent effluent.

3.2.3 Environmental Objectives

- There is a need to control continuous and intermittent discharges to achieve water quality targets for the catchment.

3.2.4 Environmental Requirements

Water Quality

- There is a requirement for no deterioration in water quality upstream of discharges as this would increase their impact on the river.

Water Quantity

- There should be no significant reduction in flows upstream of discharges as this would increase their impact on the river.

3.3 WATER ABSTRACTION - SURFACE WATER/GROUNDWATER

3.3.1 Industrial

Within the catchment there are 98 licensed abstractions for industrial purposes. In the east of the catchment, the groundwater sources associated with the Permo-Triassic aquifer are heavily committed to existing users so it is unlikely that new licences would be granted. There are also many abstractions from surface sources in this area of the catchment.

In two locations issues have been raised regarding the effect of abstraction on low flows. Shelf Brook in Glossop has a high conservation value with known Sandpiper territories and rich wetland habitats and is also partly within the Peak District National Park. The River Dean upstream of Bollington is an important fishery and this part of the catchment is now considered to be fully licensed.

In the west of the catchment, the majority of the abstractions are groundwater sources, exploiting the Permo-Triassic sandstone aquifers. In this area, depending on the volume and exact location, it may be possible to consider additional groundwater abstractions.

3.3.2 General Agriculture

Throughout the catchment the minor aquifers, formed mainly by the sandstones of the Carboniferous age have been exploited to provide agricultural water supplies. The availability of supplies are very site specific, depending on the local hydrogeology and topography. The majority of these licensed sources are springs.

As a demand on the total resources of the catchment, agricultural abstractions are negligible and do not tend to cause any problems regarding a demand on the regional groundwater resources. However, in considering new licence applications for groundwater sources in the upland areas, the NRA needs to be satisfied that existing groundwater abstractors are not adversely affected.

The occasional complaint has been received from licence holders concerning the drying up of a spring or a well. These tend to be neighbourly disputes and most come about as a result of activities out of the control of the NRA and usually relate to common law. However, if problems occur as a result of an illegal abstraction, or over abstraction, then the NRA has its powers to help resolve the problem.

3.3.3 Spray Irrigation

There are 53 licensed abstractions for spray irrigation within the catchment. The majority of these are within the Lower Bollin/Mobberley Brook area. Several of the licences in the catchment are for golf course irrigation.

As a demand on the total resources of the catchment, spray irrigation abstractions are negligible, except in the Mobberley Brook catchment, where current resources are fully committed for this purpose. However the detrimental effect on local streams and rivers of spray irrigation during low flow periods can be considerable. Farmers are encouraged to provide ponds, filled by winter rainfall, to safeguard both their crops and the river environment.

3.3.4 Environmental Objectives

The overall aim of water resource management is to ensure an appropriate balance between the needs of the environment and protecting existing abstractors and the demand for additional sources of water supply. This is achieved through the abstraction licensing process and the routine monitoring of all sources.

3.4 GROUNDWATER PROTECTION

3.4.1 General

Groundwater is a vital natural resource and under particular threat from the effects of human activity. Once polluted, groundwater is often difficult and very expensive to clean up; consequently the prevention of groundwater contamination is a major objective of the NRA.

The Authority's "Policy and Practice for the Protection of Groundwater" classifies groundwater vulnerability according to the nature of the overlying soil cover, the presence and nature of any drift cover, the nature of the strata and the depth to the water table.

The policy uses the concept of protection zones around sources of supply (wells, springs and boreholes) based on either distance or time of travel. Protection zones have been established for 87 North West Water Limited public supply sources within the Region. Work is currently ongoing to cover the remaining major public supply boreholes and certain critical private supplies.

It emphasises the need to protect all groundwater, whether or not currently developed.

3.4.2 Local Perspective

There are ten groundwater sources used for public water supply within the Mersey catchment, eight from the Sherwood Sandstone, all of which have had protection zones defined, and two from the Carboniferous. Abstraction for brewing which takes place in Stockport will be covered in the next batch of zones. In addition there are many small private sources, both licensed and unlicensed, which are used for potable purposes. These are mostly in areas remote from the mains water distribution system and associated with the 'minor' Carboniferous sandstone aquifers. Although there are no plans for zones to be defined for these sources on a proactive basis, they still require protection.

Source protection zone maps for the catchment will be available by the end of 1996 and will be held at the NRA Regional Office, Richard Fairclough House, Knutsford Road, Warrington. Groundwater vulnerability maps, intended to provide a simplified interpretation of the vulnerability across the catchment area and which take account of known hydrogeological conditions and variations are currently being produced. The western half of the Catchment is covered by Sheet 16, available from Her Majesty's Stationary Office (HMSO). The map, including the eastern half, is due to be published in October, 1996.

The underlying Authority's philosophy for groundwater protection is "Prevention is Better than Cure".

3.5 CATCHMENT DRAINAGE - FLOODING AND FLOOD ALLEVIATION

3.5.1 General

There is a clear requirement for the provision of effective defence for people and property against flooding from rivers and the sea. Normally flooding is a result of extreme weather conditions, such as high winds or very heavy rainfall.

It is clear that different types of land use, for example, urban areas and pasture land, require different levels of protection.

Flood Plain

The flood plain is an important part of the overall river system, in relation to flood flows. In a major flood event, water is "stored" temporarily in the flood plain, thereby decreasing peak flows downstream. Normally the wider the flood plain the more important it is in reducing flood levels. Within the catchment the local planning authorities control development activity in the flood plain. They seek the NRA's advice and take this into account when deciding on planning consent for proposals within the flood plain. Development in a flood plain may be itself subject to flooding but can also lead to increased risk of flooding elsewhere in the catchment.

Urban Flooding

The Industrial Revolution placed great development pressure on land adjacent to watercourses. This land was perceived to be relatively flat and close to a source of water. Many communities have, therefore, grown up adjacent to watercourses. Consequently there are many areas at flood risk. Nowadays, with a scarcity of suitable building land, there is again pressure to develop the flood plains of watercourses in urban areas and there is a reliance on planning controls to avoid these unsuitable locations.

Rural Flooding

For many years, the improvement of drainage to increase agricultural production has been a major component of the work of predecessor authorities to the NRA. Both construction works and major maintenance programmes have been carried out to ensure reduced water levels and to minimise flood losses. Nowadays however, the priority is to protect urban areas from flooding.

3.5.2 Local Perspective

The rain falling on the hills of the Peak District runs off into several steep watercourses, which combine to form the River Goyt and its major tributary, the River Etherow. Many of these watercourses react quickly to rainfall and extensive property damage in villages and towns, beside the watercourses, has often occurred due to flooding.

The flow from the River Goyt and the River Tame, which originates from the moors of the Pennines, join in Stockport to form the River Mersey. The Mersey itself is also prone to flooding. However, it reacts much more slowly to rainfall and flood events are not frequent, due to the flood protection provided to the River Mersey flood plain, from Heaton Mersey to Ashton-on-Mersey, which has been protected by extensive flood banks for several hundred years.

In order to further alleviate flooding on the River Mersey, the NRA also operate two Flood Storage Reservoirs (FSRs). Construction was completed of the Sale Ees FSR in 1962 and of the Didsbury FSR in 1978. For most of the time, these are used for recreation as Sale Water Park and by Withington Golf Club respectively. However, when high water levels in the River Mersey threaten adjacent property, controlled flooding of these areas can take place to store 2,360 Ml of water.

Historically, large floods are known to have occurred on the River Mersey in 1799, 1828 and 1948. The NRA has monitoring points in the catchment where high water levels are recorded. In recent years, of particular note was July 1973, which produced the highest recorded water levels throughout the catchment. Since then, significant events have also occurred in 1983, 1986 and 1991 each time in December, during which both FSRs on the River Mersey operated to prevent property flooding.

The predominantly rural nature of the River Bollin catchment makes it less prone to serious flooding of property, however, flood banks are present along large stretches of the Bollin itself, which do offer protection to both property and agricultural land.

Flood alleviation schemes have been constructed at various locations in the catchment, in response to flood events. Flood defence works are currently being constructed on Glossop Brook in Glossop and Chorlton Brook in Fallowfield. Improvements to the standard of flood protection on the River Etherow in Woolley Bridge and Black Brook in Chapel-en-le-Frith are programmed to commence within the next three years. Nevertheless, some urban areas are still at risk from severe flood events. The NRA will continue to promote and construct flood alleviation schemes, where they can be proved to be economically viable. Whilst schemes for the protection of property can be devised, there is always the possibility of an event more severe than the design standard, which would cause some flooding to property. Thus, although the risk of flooding can be reduced, it can never be completely avoided.

3.5.3 Land Drainage Consents

For certain works which might affect the Regions flood defences, the consent of the NRA may be required.

On designated Main Rivers an NRA consent must be obtained for carrying out any work in, on, under or over watercourses or their banks and within certain distances from the riverside. The NRA will use these powers to control works affecting drainage interests in order to maintain adequate flood protection. In advising and issuing consents the NRA

takes into account the potential impact of a proposal on the natural environment. A proposal which has a negative impact on the environment for example, extensive culverting, are unlikely to obtain consent. Local authorities are also required to seek the consent of the NRA before carrying out any works to a non Main River watercourse.

3.5.4 Development Control

In addition to exercising control through consenting procedures, the NRA also attempts to control proposed works through its planning consultation with local authorities. The advice given is important in attempting to control works, which could create additional flood risks or make existing flooding problems worse.

3.5.5 Flood Warning

One of the NRA aims is to provide an efficient flood warning service to inform people at risk about the severity of possible flooding. This is achieved by monitoring weather forecasts, weather radar, rainfall, river and tidal levels on a continuous 24 hour basis to forecast and detect possible flooding incidents.

In the Upper Mersey catchment, specific flood warning procedures are in place for the River Mersey from Didsbury to Flixton and the River Etherow at Woolley Bridge.

The NRA also undertakes its own emergency operations for the clearing of debris screens, the operation of pumping stations and flood storage basins. Flood warnings are issued by the NRA to police, public bodies and other outside organisations. From September 1996, the Environment Agency will become the lead authority for issuing warnings to residents and commercial properties.

3.5.6 Operational Maintenance

The responsibility for river maintenance and the structural integrity of embankments of any watercourse, within their ownership, principally rests with the riverside landowner, whose ownership as a general rule extends to the centre line of any such river.

Planned Maintenance

An annual programme of planned maintenance is undertaken. This includes hand maintenance on smaller watercourses, such as weed and grass cutting. Mechanical maintenance of flood banks by flailing takes place several times a year. Where silt and shoals accumulate, their removal is generally programmed to take place every few years. Larger individual items of work, such as repairs to flood banks are termed as heavy maintenance and are added to the programme when the need arises.

Consultation, internally and externally, to assess the potential impact of these proposals on the aquatic environment, is an important part of this work. The NRA has an annual conservation liaison meeting, with external conservation bodies, to discuss some issues in advance of planned works.

3.5.7 Operational Problems

Access

In the urban areas of the catchment, access is often restricted, which makes maintenance of the channel difficult to undertake. A programme of installation of urban channel access ramps is being progressed. Already a ramp at Tiviot Dale on the River Tame and five ramps in Macclesfield on the River Bollin have been constructed.

Crumbling Walls

In some places, particularly adjacent to the River Tame, the Industrial Revolution has resulted in many old mills being situated on the banks. Many of the bank walls are now in a dilapidated state, resulting in maintenance work to clear debris from the channel.

Culverts and Screens

The integrity of river structures is generally the responsibility of the riverside owner, however, the NRA clears 28 debris screens in the catchment on a "best endeavours" basis. These screens are usually urban trash screens protecting large culverts. The use of screens prevents large debris from becoming trapped in culverts and subsequently causing structural and flooding problems. Reactive maintenance can also include the removal of stolen vehicles, tyres and other illegally dumped material.

Litter and Debris

In residential areas, maintenance of watercourses is often complicated by garden fences backing onto brooks, leaving little space to efficiently maintain the watercourses. Further problems can be caused by residents dumping garden rubbish over the fences and onto the river banks. This rubbish can get washed downstream and can cause blockages at culverts and consequently exacerbate existing flooding problems.

3.5.8 Standards of Service

A system has been developed by the NRA to determine the present standard of service being achieved for flood defence maintenance and all future manned maintenance programmes will be promoted against this background.

The system determines whether present levels of river maintenance have produced a level of protection within target standard, above standard or below. The river system is divided into reaches between 4 - 7 km in length. An assessment is made of the "land use" by

considering for each reach the agricultural or urban content within the flood plain and for each element (e.g. road, house, intensive grazing) a score is given. The score is measured by a single unit called a "House Equivalent" and by the score achieved, the reach is placed into one of several land use bands, which determines the cost beneficial level of maintenance to be applied.

3.5.9 Capital Investment

The prioritisation, feasibility studies, design and construction of capital investment projects will be carried out against a background of detailed project appraisal, to achieve cost effective flood defences for the protection of people and property, against flooding, from the rivers and the sea, to a standard appropriate to land use.

The assessment criteria are set by the Ministry of Agricultural, Fisheries and Food (MAFF) who grant aid flood defence capital investment. The target defence standards, are those set out in the table below.

CURRENT LAND USE	INDICATIVE STANDARD OF PROTECTION (return period in years)
High density urban containing significant amount of both residential and non-residential property	1:100
Medium density urban. Lower density than above, may also include some agricultural land.	1:75
Low density or rural communities with limited number of properties at risk. Highly productive agriculture land.	1:25
Generally arable farming with isolated properties. Medium productivity agricultural land.	1:10
Predominantly extensive grass with very few properties at risk. Low productivity agricultural land.	1:1

The indicative standards of protection do not represent an entitlement to protection at a certain level, but are intended as guidelines. In particular, indicative standards should not be regarded as synonymous with scheme objectives nor as a constraint on the generation of scheme options. It is a pre-requisite that capital investment schemes demonstrate a favourable benefit to cost ratio. This means that the value of the benefits arising from the avoidance of loss and damage due to flooding exceeds the cost of undertaking the works. For all schemes, a full range of options must be considered, including the "do nothing" option, the provision of flood warning schemes and varying levels of investment.

It is expected that under most circumstances, the option with the greatest average benefit to cost ratio will represent the final choice.

Close collaboration between flood defence and other staff throughout scheme of development allows the early identification of potential impacts in order that proposals can be amended and/or mitigation provided.

Benefits that are readily quantified (often called tangible benefits) include:-

- Damage to physical (including agricultural) stock.
- Loss of industrial production.
- Loss of land and agricultural production.

It is accepted that not all flood defence costs and benefits have market prices. The benefits in such cases are often referred to as the intangible benefits. This is a very complex area and includes for example:-

- Recreational impacts.
- Health and related impact. For example, the rental of temporary accommodation while a house is uninhabited and the use of de-humidifiers to minimise domestic disruption.
- Environmental gains and losses.

3.5.10 Environmental Objectives

The NRA has a duty to protect and enhance the environment, which in carrying out its Flood Defence powers often means a balance has to be stuck between the need to protect people and property from flooding and the environmental effects of in river works. This balance is agreed with both internal conservation experts and all major local and national environmental organisations prior to commencement.

3.6 WASTE DISPOSAL

3.6.1 General

The majority of the waste generated within the UK is disposed of via landfill sites. The wastes that pose the most threat to the water environment are those that degrade or produce water soluble products. All rivers and groundwaters can be placed at risk from landfill sites. However groundwater tends to be the most vulnerable, due largely to the practice of infilling mineral extractions below ground level.

A Waste Management Licence (WML) is required from the Waste Regulation Authority (WRA) for the storage, treatment, or disposal of controlled waste on land.

The disposal of waste onto land is regulated under Part II of the Environmental Protection Act 1990. The relevant provisions for licensing of waste activities were implemented on 1 May 1994. Before this date, licensing of waste operations was required under Part I of the Control of Pollution Act 1974, which was implemented through Regulations in 1976. Prior to this date, controls over waste activities were indirect and included the planning and Public Health powers exercised by the local authorities. Hence, disposal of waste was largely uncontrolled and therefore, knowledge of what has been disposed and where, is incomplete.

A WML sets out the requirements for the detailed operation of the site and includes measures to be taken, by the operator, to safeguard and protect the environment. For a non-inert landfill such measures may include, an engineered liner to contain any leachates which may be produced within a landfill and measures for collecting and disposing of these leachates. Licence holders are generally required to monitor groundwaters, surface waters and leachate to ensure that landfill sites are operating to the expected standards.

It should be noted that many waste management operations, other than landfill, also require a WML. These activities include transfer stations, incinerators, metal recycling facilities, and waste storage and treatment facilities. For such sites, licences may require impermeable surfacing, bunding of tanks and the appropriate disposal of contaminated surface water run-off.

For currently licensed sites, the WRA can continue to require the environmental management and monitoring of the site until it considers the site is no longer likely to cause any pollution of the environment, and the licence can be surrendered.

3.6.2 Local Perspective

There are many current waste management operations within this catchment. The number of each activity is listed below:

Inert Landfill	15
Non Inert Landfill	2
Waste Transfer Station	19
Scrapyard	5
Storage Facility	4
Civic Amenity (Household Waste Disposal Sites)	13
Waste Treatment	3
Incinerator	1

The NRA has close links with the WRAs once the licence has been issued and the site is operational. They will also be involved in discussions regarding the surrender of a licence and the necessary issue of a Certificate of Completion, for any sites within this catchment.

A WML sets out the requirements for the operation of the site and includes measures to be taken by the operator, to safeguard and protect the environment for example lining and capping requirements, bunding of storage tanks.

3.6.3 Environmental Objectives

- To ensure waste management activities do not compromise water quality or water resources,.and that they are undertaken in accordance with advice given in the NRA's Policy and Practice for the Protection of Groundwater document.

3.6.4 Environmental Requirements

Water Quality

- All sites should comply with EC Directives on dangerous substances discharged to surface and groundwaters.
- The NRA Groundwater Protection Policy should be implemented.
- No sites should cause pollution of the water environment.

Water Quantity

- No reduction in the availability of water resources
- Minimise the loss of recharge to aquifers.

Physical Features

- Restore all sites to an acceptable environmental standard, taking into account, or consideration, the opportunities for conservation recreation and amenity.

- Features of the water environment which are of ecological or landscape value should be safeguarded.

- Ensure that any necessary flood defence works should be carried out in an environmentally sensitive manner.

- The integrity of the river channel adjacent to the landfill sites should be maintained.

3.7 CONTAMINATED LAND

3.7.1 General

In most areas of industrial development, sites of contaminated land are found. The North West Region in particular has suffered in this respect, due to its significant role in the Industrial Revolution. Due to the expansion of industry within the towns and cities, many rural areas were also utilised, at that time, for the disposal of the waste products.

Significant areas of land have been contaminated as a result of:

Chemical Works
Tanneries
Gas Works
Oil Processing
Engineering Works
Metal Refining Works
Mining/Mines
Closed Landfill Sites
Textile Industry

Historically, poor site management, housekeeping and operation, frequently resulted in land becoming contaminated. In recent times, the awareness of potential environmental impact of activities has improved this situation.

The NRA is a consultee of the Planning Authorities under the Town and Country Planning Acts. The NRA will advise developers of common land sites on the vulnerability and sensitivity of the site in relation to groundwaters and surface waters. The implications of the contamination present will be considered and any required remediation highlighted. The NRA encourages consultation on site reclamation and redevelopment at an early stage.

Where a site is known to be causing an impact on the water environment, the NRA will seek improvement measures from the landowners or occupiers in order to alleviate the situation.

A significant concern is that the full extent of contaminated land sites both locally and nationally has not been identified. This will be a major challenge for the future. The Environment Act 1995 sets out provisions and duties for contaminated land which will be carried out by the Agency and the local authorities. The Environment Act 1995 also provided for guidance to be issued to define what constitutes contaminated land. Risk of water pollution will be included as a factor in the guidance on the identification of contaminated land.

The Act gives to local authorities a new duty, to identify contaminated sites and empowers them to serve remediation notices. The Environment Agency will provide

guidance and will deal with 'Special Sites' of particular complexity or difficulty.

Remediation of contaminated land, in general, costs very substantial sums of money. Although polluters or landowners may be found liable and made to pay, overall progress is likely to be influenced by government policy, and in particular by the availability of funding. Many contaminated sites are in public ownership as a result of abandonment. Often the feasibility of remediation is influenced by the added value conferred on land by remediation and redevelopment. Where a site is not suitable for a high value after use the economics and securing of funding become more difficult.

Whilst acknowledging the economic issues, the NRA will seek to achieve the improvements necessary to prevent unacceptable risks of water pollution from contaminated land.

3.7.2 Local Perspective

Historically, the industries associated with this catchment have predominantly been the textile industry, with some paper mills, chemical works and dye manufacturers.

3.7.3 Objectives

- The risk of land becoming contaminated from current and future activities should be minimised.
- Advise on re-development of sites and promotion of a reduction in the risk of pollution to controlled waters should be undertaken.
- There should be no detrimental impact through re-development.

3.7.4 Environmental Requirements

Water Quality

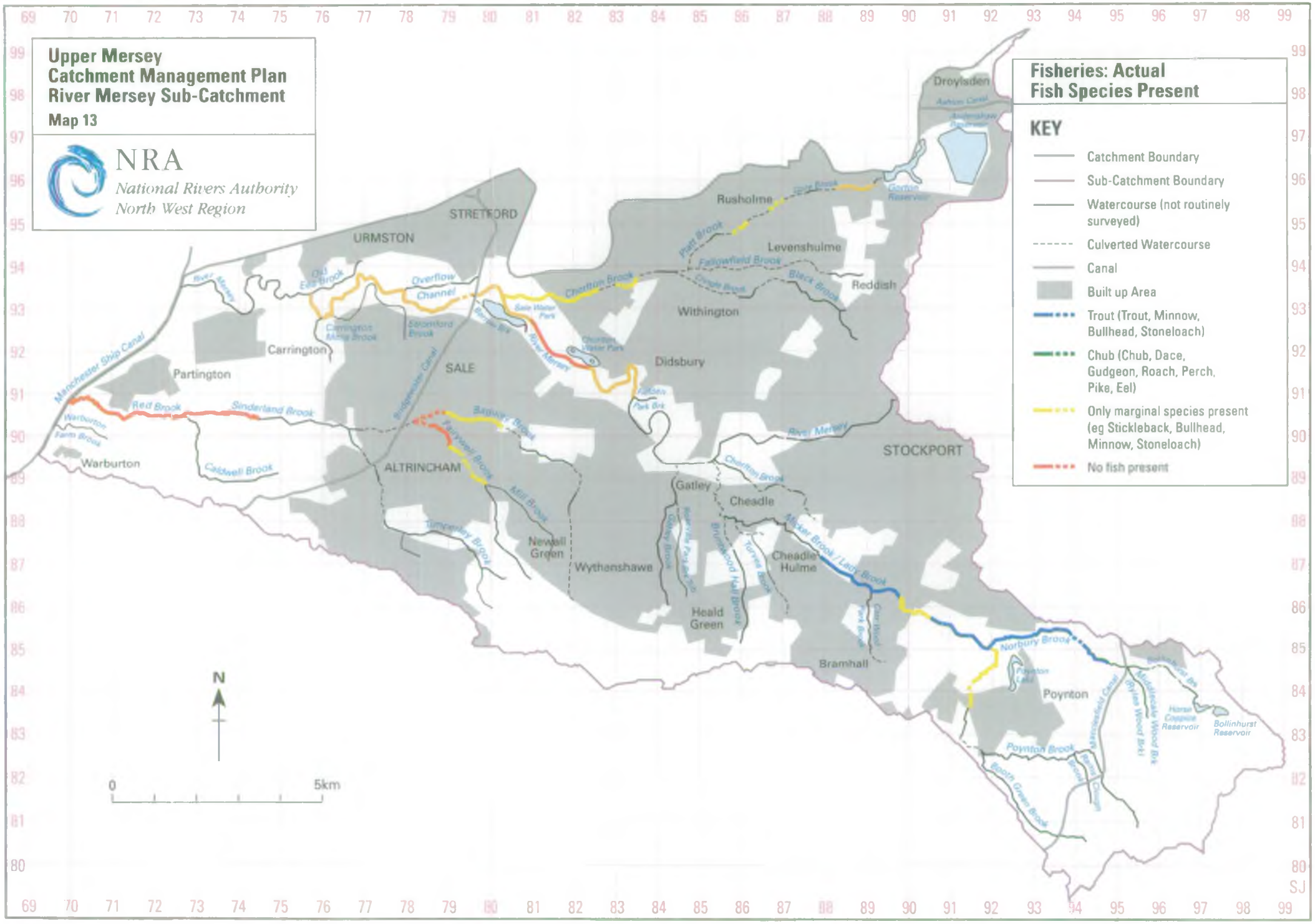
- All sites should comply with EC Directives on dangerous substances discharged to surface and groundwaters.
- The NRA Groundwater Protection Policy should be implemented.
- No sites should cause pollution of the water environment.

Water Quantity

- No reduction in the availability of water resources.

Physical Features

- All sites should be reclaimed to an acceptable environmental standard, taking into account the opportunities for conservation, recreation and amenity.


Upper Mersey
Catchment Management Plan
River Mersey Sub-Catchment
Map 13
NRA
National Rivers Authority
North West Region
Fisheries: Actual
Fish Species Present
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse (not routinely surveyed)
Culverted Watercourse
Canal
Built up Area
Trout (Trout, Minnow, Bullhead, Stoneloach)
Chub (Chub, Dace, Gudgeon, Roach, Perch, Pike, Eel)
Only marginal species present (eg Stickleback, Bullhead, Minnow, Stoneloach)
No fish present
Droylsden
Rusholme
Levenshulme
Reddish
Withington
Didsbury
STRETFORD
URMSTON
Carrington
Partington
SALE
Warburton
ALTRINCHAM
Gatley
Cheadle
STOCKPORT
Newall Green
Wythenshawe
Cheadle Hulme
Heald Green
Bramhall
Poynton
Manchester Ship Canal
River Mersey
Red Brook
Sinderland Brook
Bridgewater Canal
Bowdon Park Lake
Norbury Brook
Poynton Brook
Bollinhurst Reservoir
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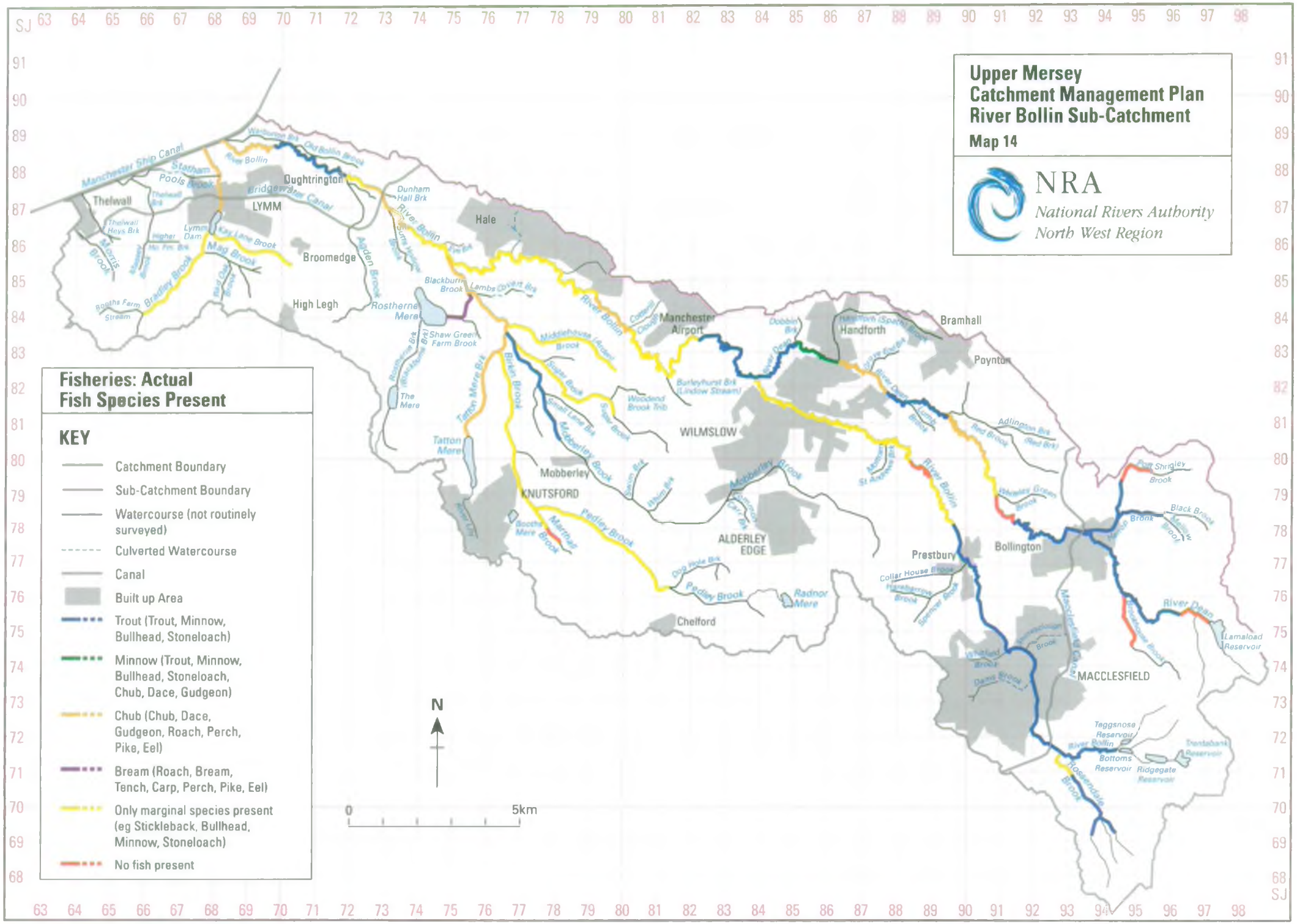
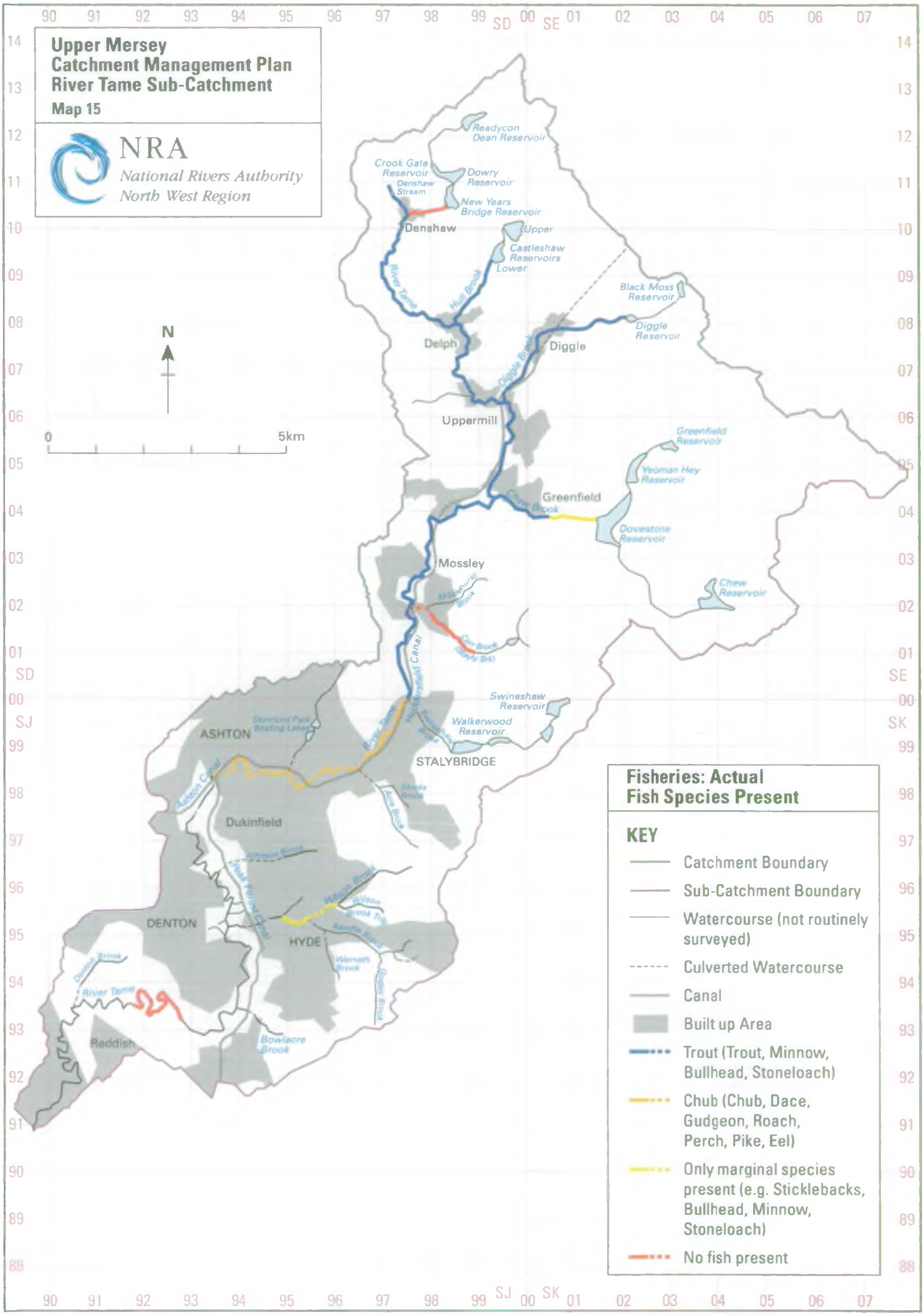
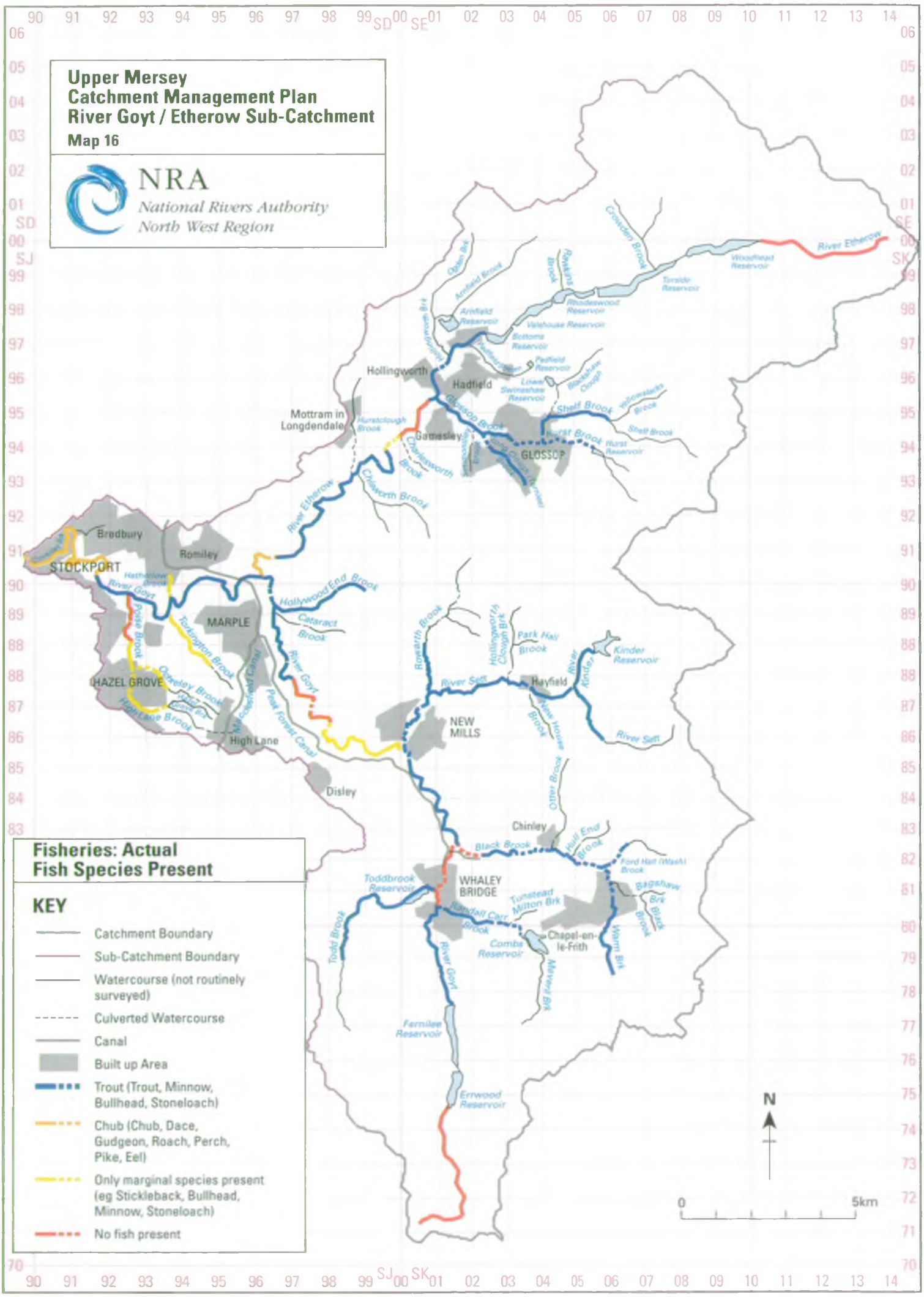

Upper Mersey
Catchment Management Plan
River Bollin Sub-Catchment
Map 14
NRA
National Rivers Authority
North West Region
Fisheries: Actual
Fish Species Present
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse (not routinely surveyed)
Culverted Watercourse
Canal
Built up Area
Trout (Trout, Minnow, Bullhead, Stoneloach)
Minnow (Trout, Minnow, Bullhead, Stoneloach, Chub, Dace, Gudgeon)
Chub (Chub, Dace, Gudgeon, Roach, Perch, Pike, Eel)
Bream (Roach, Bream, Tench, Carp, Perch, Pike, Eel)
Only marginal species present (eg Stickleback, Bullhead, Minnow, Stoneloach)
No fish present
N
0
5km
Manchester Ship Canal
Bridgewater Canal
Thelwall
Statham
Pools Brook
Dughtrington
LYMM
Broomedge
High Legh
Hale
Rostherne Mere
Tatton Mere
Manchester Airport
Handforth
Bramhall
Poynton
WILMSLOW
Mobberley
KNUTSFORD
ALDERLEY EDGE
Chelford
Prestbury
Bollington
MACCLESFIELD
Lamaload Reservoir
Teggsnose Reservoir
Bottoms Reservoir
Ridgegate Reservoir
River Bollin
River Dean
Mad Brook
Bradley Brook
Alder Brook
Birkin Brook
Mobberley Brook
Pedley Brook
Radnor Mere
Macclesfield Canal


Upper Mersey
Catchment Management Plan
River Tame Sub-Catchment
Map 15
NRA
National Rivers Authority
North West Region
N
0
5km
Readycon Dean Reservoir
Crook Gate Reservoir
Dowry Reservoir
Denshaw Stream
New Years Bridge Reservoir
Denshaw
Upper
Castleshaw Reservoirs
Lower
River Tame
Hull Brook
Black Moss Reservoir
Diggle Reservoir
Delph
Diggle
Diggle Brook
Uppermill
Greenfield Reservoir
Yeoman Hey Reservoir
Greenfield
Chew Brook
Dovestone Reservoir
Mossley
Chew Reservoir
Swineshaw Reservoir
Walkerwood Reservoir
ASHTON
STALYBRIDGE
Dukinfield
DENTON
HYDE
Reddish
Bowlacre Brook
River Tame
Fisheries: Actual
Fish Species Present
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse (not routinely surveyed)
Culverted Watercourse
Canal
Built up Area
Trout (Trout, Minnow, Bullhead, Stoneloach)
Chub (Chub, Dace, Gudgeon, Roach, Perch, Pike, Eel)
Only marginal species present (e.g. Sticklebacks, Bullhead, Minnow, Stoneloach)
No fish present


Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 16
NRA
National Rivers Authority
North West Region
Fisheries: Actual
Fish Species Present
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse (not routinely surveyed)
Culverted Watercourse
Canal
Built up Area
Trout (Trout, Minnow, Bullhead, Stoneloach)
Chub (Chub, Dace, Gudgeon, Roach, Perch, Pike, Eel)
Only marginal species present (eg Stickleback, Bullhead, Minnow, Stoneloach)
No fish present
N
0
5km
Hollingworth
Hadfield
Mottram in Longdendale
Gamesley
GLOSSOP
Bredbury
Romiley
STOCKPORT
MARPLE
HAZEL GROVE
High Lane
NEW MILLS
Hayfield
Disley
Chinley
WHALEY BRIDGE
Chapel-en-le-Frith
River Etherow
River Goyt
River Sett
Hollingworth End Brook
Cataract Brook
Chadworth Brook
Shelf Brook
Glossop Brook
Hurst Brook
Rowarth Brook
Hollingworth Clough Brk
Park Hair Brook
Kinder Reservoir
Peak Forest Canal
Macclesfield Canal
Toddbrook Reservoir
Combs Reservoir
Fernilee Reservoir
Ernwood Reservoir
Woodhead Reservoir
Torside Reservoir
Rhodeswood Reservoir
Valehouse Reservoir
Bottoms Reservoir
Padfield Reservoir
Lower Swineshaw Reservoir
Hurst Reservoir
Arnfield Reservoir
Crowden Brook
Black Brook
Tunstead Milton Brk
Randall Carr Brook
Warm Brk
Todd Brook
Otter Brook
Reve House Brook
Hall End Brook
Ford Hall (Wash) Brook
Bagshaw Brk
Black Brook
Mixed Brk
Poise Brook
Torkington Brook
Oakeley Brook
High Lane Brook
Hathersage Brook
Yellowslacks Brook
Blackshaw Clough
Arnfield Brook
Ogden Brk
Rowlands Brook
Hollingworth Brk

3.8 FISHERIES

3.8.1 General

This use covers game and coarse fisheries, that is, the development and maintenance of breeding populations of all freshwater fish species.

The NRA has duties to maintain, improve and develop fisheries and to further the conservation of rare fish species. Fish populations are affected by the quality and quantity of water as well as by the availability of suitable habitat. Fish are, therefore, important indicators of the overall health of the river.

3.8.2 Local perspective

The NRA undertake fish population surveys on all rivers within a three year rolling programme. The results of these surveys, are summarised on the fisheries maps (**Maps 13, 14, 15, 16**). Access can be a problem in urbanised areas making it impossible to survey some stretches of the water course.

The watercourses in this catchment management plan, provide habitats suitable for freshwater fish. Brown trout populations are to be found in the upper reaches of the Tame, Goyt and Bollin and their tributaries. Coarse fish populations can be found throughout the remaining catchment area.

Populations are limited in places by water quality. Above Errwood reservoir on the Goyt and on the Etherow, above Woodhead Reservoir, no fish populations are to be found, despite there being suitable habitats. This is thought to be the result of the prevailing acid conditions. In other areas of the catchment, water quality is reduced by various polluting discharges, and these result in low, or even a total lack, of fish populations. The aeration effects of features, such as the weir at Quarry Bank Mill on the Bollin, improve the water quality and may result in localised populations.

Stocking of some of the rivers within the catchment has occurred. Brown trout have been introduced to the Tame, Goyt and Etherow, by the NRA, and local angling clubs have stocked Brown trout into the Bollin. Chub and Dace from the NRA's hatchery at Leyland have been introduced to the Goyt, Etherow and Mersey.

The River Bollin catchment is recognised as having the greatest potential for supporting game fish in the South of the region. Once the major physical obstacles have been overcome and the water quality is maintained at a suitable level throughout the river's length. This should be possible within the foreseeable future.

On the Mersey, fish passes have been included in the plans to renovate the weirs at Northenden and Sale Ees. This will enable the upstream migration of the fish present to help their distribution, their spawning success and help the security of the populations.

3.8.3 Environmental Objectives

The overall objective is to develop conditions that will support and sustain a natural fish population appropriate to the catchment.

3.8.4 Environmental Requirements

Water Quality:

- River stretches suitable for brown trout should be maintained within the limits for pollutants as specified in the EC Fisheries Directive (78/659/EC) for salmonid fish, or by non-statutory RQOs and future SWQOs whichever are appropriate.

- The remaining designated river stretches are to be maintained within the limits of pollutants as specified in the same EC Directive but for coarse fish species, or by non-statutory RQOs and future SWQOs, whichever is appropriate.

Water Quantity:

- A flow pattern is required where the monthly average reflects the established or natural flow conditions in the river.

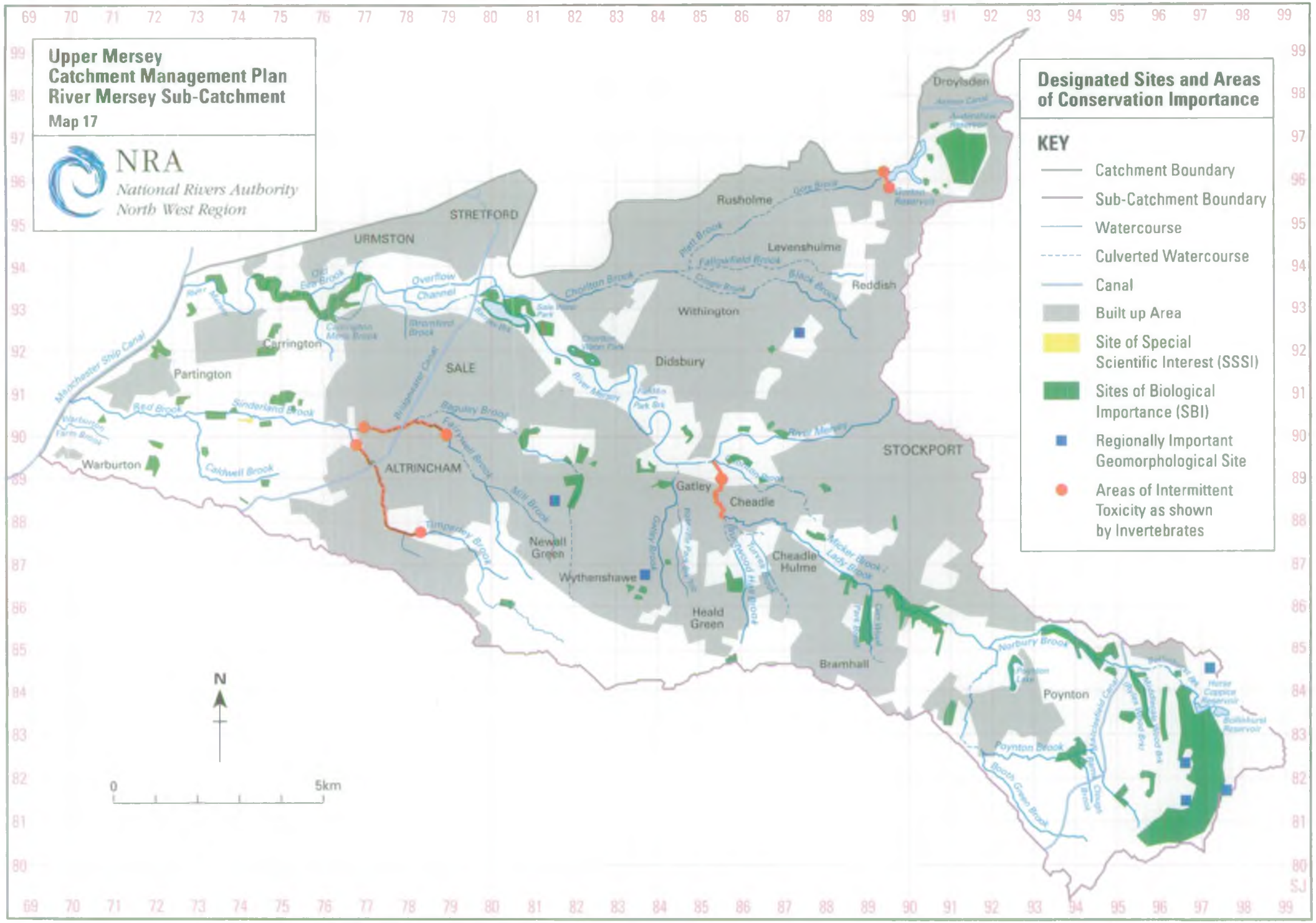
Physical features:

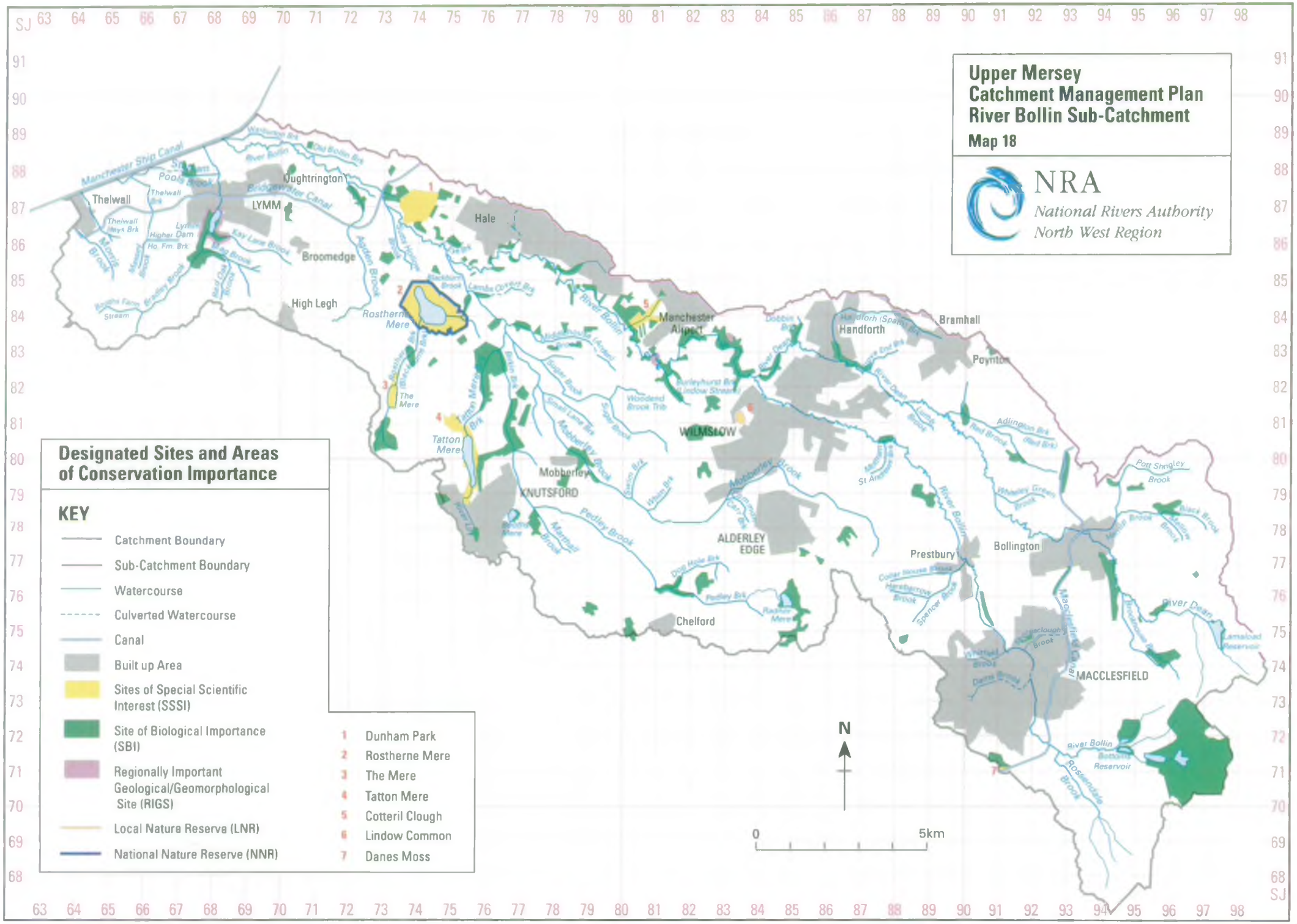
- A diversity of natural river features are required for example, riffle/pool sequences, weed beds for feeding and spawning. It is necessary to ensure that a suitable variety of habitats are provided, to allow the maximum production and long term security of the resident fish populations.

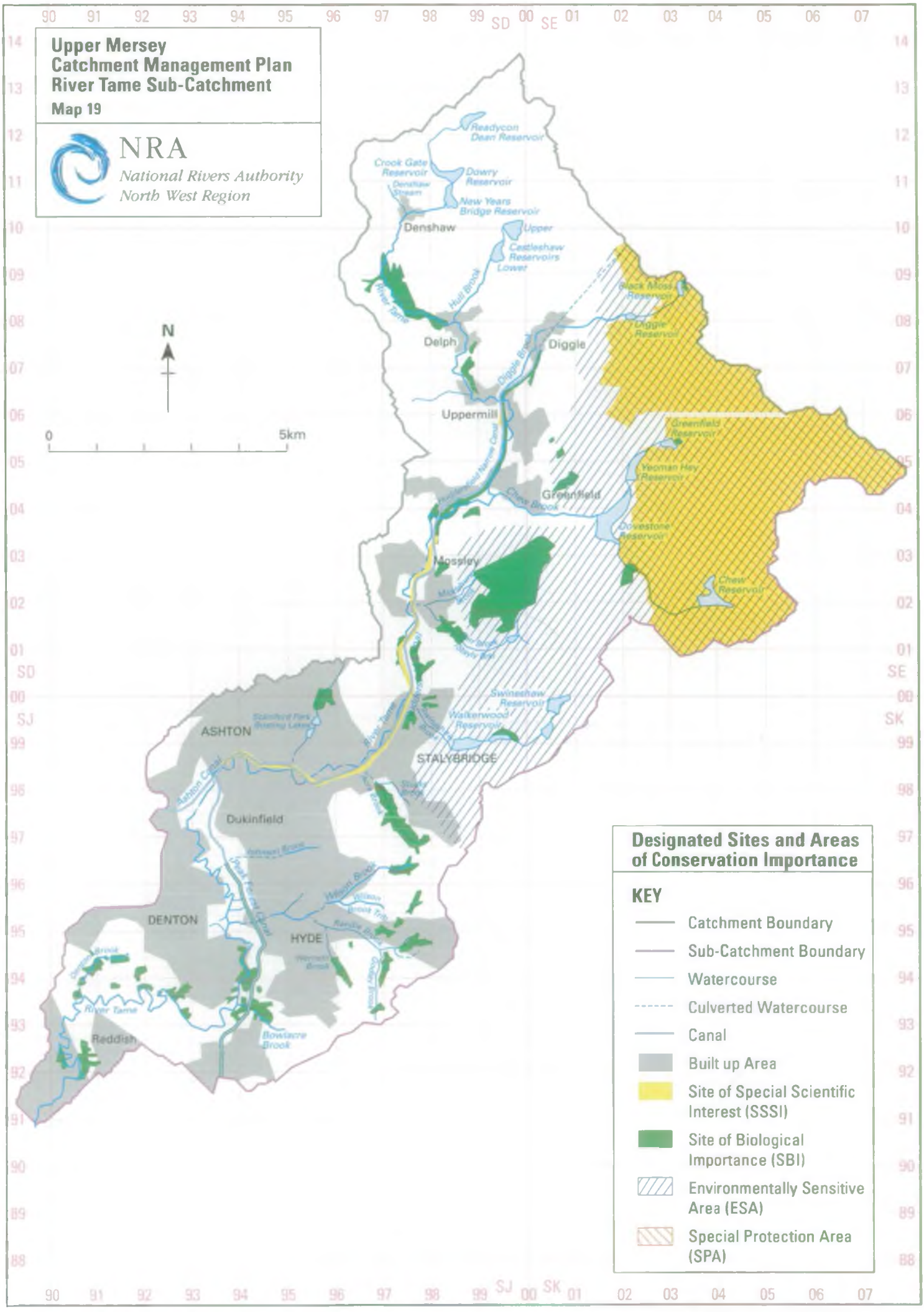
- The presence of bankside vegetation is required to provide adequate shade, cover and refuge.

- River maintenance operations must have a minimal impact on fish populations and enhance river habitat diversity where practical.

- Access by fish to all sections of river is necessary to sustain a viable population. The passage over or through obstructions is required.


Upper Mersey
Catchment Management Plan
River Mersey Sub-Catchment
Map 17
NRA
National Rivers Authority
North West Region
Designated Sites and Areas of Conservation Importance
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse
Culverted Watercourse
Canal
Built up Area
Site of Special Scientific Interest (SSSI)
Sites of Biological Importance (SBI)
Regionally Important Geomorphological Site
Areas of Intermittent Toxicity as shown by Invertebrates
N
0
5km
Droylsden
Rusholme
Levenshulme
Reddish
Withington
Didsbury
STRETFORD
URMSTON
Carrington
Partington
SALE
ALTRINCHAM
Warburton
Gatley
Cheadle
STOCKPORT
Newall Green
Wythenshawe
Cheadle Hulme
Heald Green
Bramhall
Poynton
Manchester Ship Canal
Bridgewater Canal
Macclesfield Canal
Overflow Channel
Chorlton Brook
Fallowfield Brook
Baguley Brook
Mill Brook
Timperley Brook
Sinderland Brook
Red Brook
Cadishead Brook
Norbury Brook
Poynton Brook
Booth Green Brook
Micker Brook
Lady Brook
River Mersey

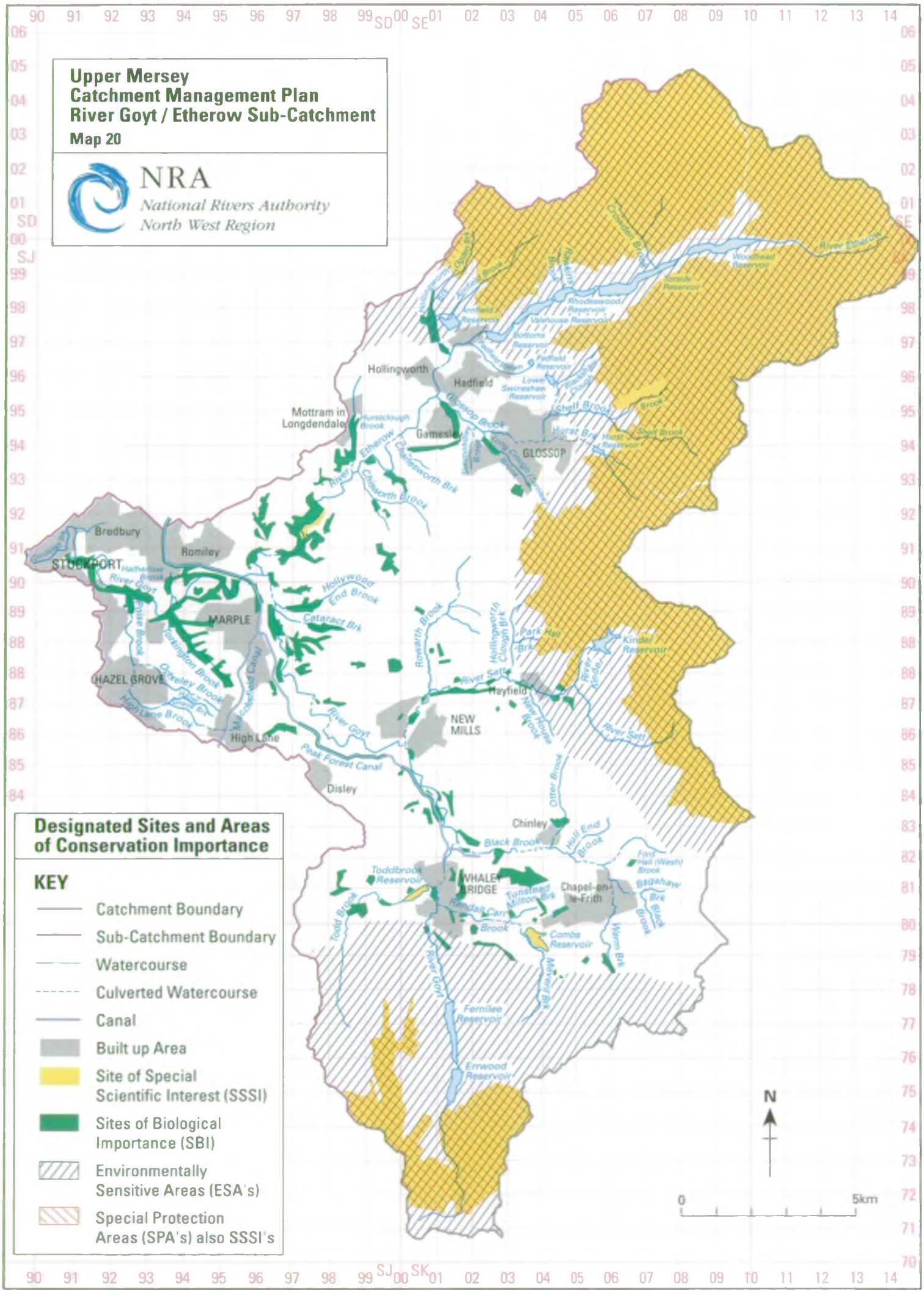

Upper Mersey
Catchment Management Plan
River Bollin Sub-Catchment
Map 18
NRA
National Rivers Authority
North West Region
Designated Sites and Areas of Conservation Importance
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse
Culverted Watercourse
Canal
Built up Area
Sites of Special Scientific Interest (SSSI)
Site of Biological Importance (SBI)
Regionally Important Geological/Geomorphological Site (RIGS)
Local Nature Reserve (LNR)
National Nature Reserve (NNR)
1 Dunham Park
2 Rostherne Mere
3 The Mere
4 Tatton Mere
5 Cotteril Clough
6 Lindow Common
7 Danes Moss
N
0
5km
Thelwall
Lymm
Oughtrington
Broomedge
High Legh
Hale
Manchester Airport
Handforth
Bramhall
Poynton
WILMSLOW
Mobberley
KNUTSFORD
ALDERLEY EDGE
Chelford
Prestbury
Bollington
MACCLESFIELD
Manchester Ship Canal
Bridgewater Canal
River Bollin
River Dean
Rostherne Mere
Tatton Mere
Lamaload Reservoir
Bosiley Reservoir



Designated Sites and Areas of Conservation Importance

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- Culverted Watercourse
- Canal
- Built up Area
- Site of Special Scientific Interest (SSSI)
- Site of Biological Importance (SBI)
- Environmentally Sensitive Area (ESA)
- Special Protection Area (SPA)


Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 20
NRA
National Rivers Authority
North West Region
Designated Sites and Areas of Conservation Importance
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse
Culverted Watercourse
Canal
Built up Area
Site of Special Scientific Interest (SSSI)
Sites of Biological Importance (SBI)
Environmentally Sensitive Areas (ESA's)
Special Protection Areas (SPA's) also SSSI's
Hollingworth
Hadfield
Mottram in Longdendale
Gamesley
GLOSSOP
Bredbury
Romiley
STOCKPORT
MARPLE
HAZEL GROVE
High Lane
NEW MILLS
Hayfield
Disley
Chinley
WHALEY BRIDGE
Chapel-en-le-Frith
River Etherow
River Goyt
River Sett
Peak Forest Canal
Hollywood End Brook
Cataract Brk
Rowarth Brook
Hollingworth Clough Brk
Park Hall Brk
Kinder Reservoir
Otter Brook
Black Brook
Hull End Brook
Toddbrook Reservoir
Todd Brook
Combs Reservoir
Fernilee Reservoir
Errwood Reservoir
Woodhead Reservoir
Torside Reservoir
Rhodeswood Reservoir
Valehouse Reservoir
Bottoms Reservoir
Pethfield Reservoir
Lower Swineshaw Reservoir
Shell Brook
Hurst Brk
Hurst Reservoir
Gibson Brook
Chisworth Brook
Charlesworth Brk
Hurdsclough Brook
Hatherlow Brook
Mersey Brook
Torkington Brook
Otterley Brook
High Lane Brook
Mill Cottage Canal
Bagshaw Brk
Warm Brk
Ford Hall (Wash) Brook
N
0
5km

3.9 CONSERVATION

3.9.1 General

This section relates to the conservation and enhancement of wildlife, wildlife habitats, natural beauty and geomorphological features in the river corridors. Conservation covers both designated sites and the wider countryside, associated with rivers and the water environment.

3.9.2 Local Perspective

The catchments of the Tame, Goyt, Etherow, Bollin and Mersey contain a wide variety of natural riverine habitats for wildlife. Land uses within the catchments are also widely varied and include, moorland often utilised for sheep grazing, semi-improved or improved grasslands often interspersed with areas of mixed woodlands and industrial and urban areas. A notable feature of the catchment is the large number of lodges, ponds and large reservoirs, which are valuable conservation, amenity and historic resources. Their retention and positive management is sought by the NRA.

There are 18 Sites of Special Scientific Interest (SSSIs) and over 300 Sites of Biological Importance (SBIs) covering a wide range of important habitats, throughout the Upper Mersey catchment (**Maps 17, 18, 19, 20**). The NRA maintains a database of such sites. Isolated reports of otters have been recently recorded in the Goyt catchment and it is an objective of this CMP that they will return to their old haunts, particularly in the Bollin, Goyt and Etherow catchments, as conditions for their survival improve. A feature of the catchment is the presence of large colonies of sandmartins, particularly in the Bollin and Mersey catchments. Native crayfish were found in the River Dean in 1995.

Sandmartins and kingfishers use eroding banks as nesting sites. These sites need to be identified, retained and protected, wherever possible, from development and/or proposals to stabilise the banks. Increased knowledge of the species distributions and nesting sites within the catchment is also desirable.

Countryside Warden Services manage a number of areas within the river valleys and are involved in habitat protection, enhancement, creation and reclamation schemes. There has been extensive treeplanting, both native and non-native species, and more recently woodland management schemes.

The rivers themselves fall into two main character types. The Tame, upper Bollin, Goyt, Etherow and their tributaries, are upland watercourses, with steep gradients over a predominantly stony substrate; most of the Bollin, the Mersey and their tributaries are more lowland in character, with slacker gradients and a mainly sand/silt substrate.

The protection and enhancement of wildlife habitats, natural and geomorphological features is an important issue within the catchment. Threats to wildlife and habitats can arise from development encroaching into river corridors and natural floodplains, river engineering works, alterations to water levels/flow regulation, changes in agricultural practice and the infilling of lodges, ponds and reservoirs. Parts of the catchment are degraded by urban development and there are many opportunities for restoration and enhancement should resources be available. Timperley Brook Flood Storage Basin in Altrincham is a good example of conservation enhancement as part of an NRA flood defence scheme with a pond, wetland area and associated habitats created within the FSR

The River Tame catchment rises in an area of acid moorland which is used for livestock farming. Some of the moorland has been degraded and erosion is occurring. To combat this, MAFF designated the North Peak (located to the north-east of the Tame catchment) an Environmentally Sensitive Area (ESA). Traditional farming methods within the Tame catchment have helped to form a distinctive landscape and wildlife. The ESA designation encourages the continuation of such management practices, together with the integration of conservation plans to enhance the environment and preserve existing habitats.

The Huddersfield Narrow Canal SSSI and the Peak Forest Canal SBI run adjacent to the Tame for much of their lengths and are important conservation features, supporting rare plants and animals.

The River Tame is of high conservation value between Hyde and Stockport where it is actively meandering in places with eroding soft earth cliffs, which are utilised by kingfishers and large numbers of sandmartins. The river corridor is of less conservation value in the areas of Ashton and Stalybridge and some areas upstream of Greenfield. Old industrial developments and houses encroach to the bank top, the channel is walled and there is evidence of channel straightening.

The tributaries of the Tame are often associated with areas of high conservation interest and SBIs. They are upland in character like the Tame but are often constrained by bankside development and some are extensively culverted eg Wilson and Swineshaw Brooks.

The upper reaches of both the Goyt and Etherow lie within ESAs designated by MAFF because of "high landscape, wildlife and historical value".

Within the ESAs there are two areas designated as Special Protection Areas (SPAs) under the EC Directive on the Conservation of Wild Birds. These SPAs are also designated as SSSIs. There are a further two SSSIs on the Goyt catchment (Toddbrook and Coombs Reservoirs) and three sites on the Etherow (Compstall Nature Reserve, Etherow Country Park and Roach Wood). There are also many SBIs within the catchment, which include river corridors, tributaries, ponds, lodges and wetland features.

The influence of man is surprisingly common, even on the upper reaches of the Goyt and Etherow, with many of the watercourses being channelised within stone walls. However, these are generally dry stone walls, which often blend in with and are a feature of the local landscape. Often these stone walls are set to provide an over wide channel which still allows sinuosity with the formation of shoals and point bars. These features provide important habitats, for riverine birds, notably dipper, grey wagtail, sandpiper and kingfisher.

The Bollin catchment is a contrast, between the upland fast flowing streams, to the east and the meandering nature of the river, through more low-lying agricultural areas, to the west. The area is of high conservation and amenity value supporting a range of natural habitats for wildlife.

There are a large number of designated conservation areas in the Bollin catchment. Three meres, Rostherne, Tatton and The Mere, have been designated as SSSI's and are important wetland features in the lower area of the catchment. Rostherne Mere is also a National Nature Reserve and is an internationally important Ramsar site.

Geomorphological processes in the Bollin valley have given rise to a considerable variety of physical features, which are very important in terms of conservation value. Remnant features include river terraces, meander scars and oxbow lakes. Erosional and depositional features of the river occur throughout the extensive, actively meandering stretches of the Bollin, notably from downstream of Wilmslow to Dunham Massey and also throughout the River Dean. As the river actively erodes, soft earth cliffs are exposed which are utilised in a number of places by nesting sandmartins. In Macclesfield, the river is largely constrained within a walled channel whereas, downstream of Dunham, it is constrained by flood embankments.

The Mersey Valley is a large, fairly flat corridor with open spaces linked by woodland and scrub. The conservation value of the River Mersey and its tributaries have been diminished, to a large extent, by pressure for urban development and associated road schemes. Much of the low-lying land adjacent to the Mersey, is protected by substantial flood banks of fairly uniform appearance. The banks and associated berms have only sparse tree and shrub cover and little marginal habitat. Where the river has not been channelised, notably downstream of Ashton weir, the geomorphological and ecological interest is greatly increased. A large part of this stretch has been designated as an SBI for this reason.

The tributaries of the Mersey vary in their conservation interest. Poynton and Norbury Brooks in the south east of the catchment are of high conservation value, retaining their wooded corridors. Downstream, where they form Micker Brook, bank works have altered the flow regime and conservation interest is reduced. Of less conservation interest is the Chorlton Brook system, to the north-east of the catchment, which has been extensively culverted.

To the west of the Mersey catchment are Baguley Brook, Fairywell Brook and Timperley Brook which feed into Sinderland Brook. All are generally uniform in character and extensively channelised, as they pass through heavily developed areas. There are some scattered open spaces and semi-rural areas where the river corridors are more natural. Brookheys Covert SSSI, lies adjacent to Sinderland Brook and is the only SSSI in this part of the Mersey catchment.

Pest species are an ever increasing problem throughout the Upper Mersey catchment. These include Japanese Knotweed, Himalayan Balsam and Giant Hogweed. The latter is a particular problem at Ashton-on-Mersey on the River Mersey and in the lower reaches of the River Bollin. Signal crayfish were found on the Etherow catchment in 1995. The NRA has begun a systematic treatment programme for the control of Giant Hogweed in the Region, and tries to ensure that its activities do not encourage the spread of non-native pest species. Mink, which is a non-native species, are particularly common in the Mersey Valley and in the Bollin catchment.

Common Alder trees are threatened nationally by a disease (Phytophthora Root Disease) and there have been reports of affected trees in the Goyt catchment. The disease and its distribution is the subject of research by the Forestry Authority and the NRA. Symptoms of the disease are abnormally small, yellow and sparse leaves which frequently fall prematurely. Areas of dead bark marked by the production of a tar like or rusty substance are also symptoms. Alder stems showing these symptoms will either die or suffer severe dieback.

Development, including industrial activity, has altered the nature of a number of tributaries in the Upper Mersey catchment, resulting in some tributaries being extensively culverted. Such culverts have fragmented the riverine environment and lead to a loss of open water and river valley habitats. Re-development of a site containing a culvert, may present a good opportunity for opening up a watercourse and, to create an attractive water feature. This would remove a potential barrier to fish and wildlife and restore continuity of the river corridor.

Natural features are often limited, in the vicinity of the large number of sewage treatment works, in areas of intensive urban development and where main transport routes cross the rivers within the catchment. Banks have in some places been reinforced using environmentally unsympathetic materials, such as concrete, sheet steel piling and gabions. Opportunities for enhancement exist, for example, through development control and incentive schemes, such as Countryside Stewardship, to provide buffer zones of natural habitat along the watercourses and their corridors.

Lengths of watercourses in the catchment have been surveyed for their ecological interest, with River Corridor Surveys carried out prior to flood defence river maintenance and capital schemes. However, there are gaps in this survey information which the NRA

would like to complete over time. The NRA is also keen to promote surveys of threatened riverine species such as otters, bats and water voles. In 1995 the NRA funded a baseline survey, by Cheshire Wildlife Trust, of six major rivers and it is hoped to continue with Phase 2 of this survey in 1996/97.

3.9.3 Environmental Objectives

The overall objective is to retain or recreate natural rivers within open, continuous river corridors, which are as wide as possible with a diverse range of habitats and physical features for people and wildlife.

This is to be achieved by:

- The retention of existing features of conservation interest.
- Actively promoting the enhancement and restoration of the river corridor, wherever possible/desirable.
- Seeking effective mitigation for any loss of conservation features.
- Safeguarding the special conservation interest for which sites have been designated.

3.9.4 Environmental Requirements

Water Quality:

- Water quality should not deteriorate to a level such that sites of high local conservation value lose their general aquatic interest.
- Water quality improvement at some sites would enhance the existing conservation value.

Water Quantity:

- A variable flow pattern is required, where the monthly average flow reflects the established or natural flow conditions in the river.
- Provide hydraulic continuity between the river and its flood plain is required where appropriate. The water is to be maintained at a high level where possible but particularly where wetlands occur. Spate flows should be allowed to inundate certain wetlands.
- Spate flows to be allowed to naturally cleanse the river channel.

Physical Features:

- The conservation and enhancement of the diversity of natural river features, such as meanders, earth cliffs, areas of erosion/deposition, pool/riffle sequences and the presence of aquatic vegetation and marginal (water's edge) vegetation is essential.

- It is necessary to protect and enhance a diversity of river corridor habitats, including marsh, ponds, fringe/overhanging vegetation, bankside trees and hedges, old channels, flood plain habitats, species rich bank vegetation, uncultivated buffer strips, grassland and woodland. Also, the conservation of the features which give rise to, or contribute towards the specific features of the designated conservation areas should be protected.

- The channel cross section needs to be appropriate for the river flow pattern.

- Assistance with the promotion of less intensive farming in river corridors through incentives such as Countryside Stewardship scheme needs to be provided.

3.10 RECREATION, AMENITY AND ANGLING

3.10.1 General

The NRA encourages water based recreation.

This section deals with those sports, such as boating and canoeing, where direct contact with the water occurs, also general waterside recreation such as walking and angling.

3.10.2 Local Perspective

There are numerous sites within the catchment which provide facilities for water sports, such as water-skiing, sailing, windsurfing, canoeing, jet skiing, rowing, fishing, power boat racing and sub-aqua. These sites include Sale Water Park, Chorlton Water Park, Bottoms Reservoir, Debdale Sailing Centre, Dovestone Reservoir and many more of the large still waters within the catchment. Canoeing takes place on the Mersey in Trafford, on the Tame below Uppermill where there is potential to develop further canoe circuits, the Goyt in the Marple area and on the canals within the catchment.

The recreational use of watercourses and still waters can lead to conflict between different types of user. The commonest example being between anglers and canoeists. The NRA will act as mediators, to try and resolve any conflict between different recreational users both on waters under its control and on private waters.

Much of the recreation and amenity within the Upper Mersey catchment is managed by Countryside Wardens and Rangers, who improve and enhance countryside recreation, wildlife conservation and valuable landscape features with the assistance of volunteers. Their work includes laying down and signposting new footpaths and bridleways, providing fencing, stiles and benches, erecting picnic tables, constructing car parks and managing the numerous country parks and visitor centres. There are also many activities and events organised for the public by local groups and the Warden Services.

The area is well served both by local and long distance footpaths, these include the Cheshire Ring Walk, the Goyt Valley Way footpath and the Bollin Valley Way. Many of these paths follow the water courses within the catchment.

Trout fishing takes place on some of the rivers and tributaries of the catchment. These locations are mainly in upper sections of the Goyt, Etherow and Tame and their tributaries and on Norbury Brook which is a tributary of the Mersey.

Coarse fishing on the rivers of the catchment is wide spread. In many places the fishing is controlled by local angling clubs although there are still locations where angling is not club controlled. As the fisheries within the catchment improve, angling activity is taking place in areas where it was previously unheard of.

Throughout the Upper Mersey catchment there are numerous, large and small, stillwater

coarse fisheries. Most of these fisheries are controlled by local clubs, some by the local councils and some are fished on an informal basis. There are a number of stocked trout fisheries within the area, some of which are run on North West Water Ltd owned reservoirs.

The canals within the catchment are good coarse fisheries and the angling is mostly controlled by local angling clubs and British Waterways.

The Huddersfield Narrow canal, which for most of its length runs adjacent to the River Tame, is undergoing restoration in order that it can be utilised once again for boat traffic. To complete this restoration, a section of the River Tame is to be dredged and locks provided. This will be used as a link between the Huddersfield Narrow canal and the Ashton canal in Stalybridge.

The other canals within the Upper Mersey catchment are all used for pleasure boats and general recreation. Some lengths are used to make up links in canoe circular routes.

3.10.3 Environmental Objectives

To obtain suitable water quality, water quantity, flow characteristics and physical river conditions, so as to provide a suitable environment for the different types of recreational and amenity pursuits, required by the local population and visitors to the catchment.

3.10.4 Environmental Requirements

Water Quality:

- The minimum requirements are the protection of the amenity value of the watercourse.
- The water should be free from surface films and unnatural floating material, litter and unpleasant odour.

Water Quantity:

- A flow pattern which provides suitable conditions for recreation amenity and angling.
- A monthly flow pattern which does not fall below the established natural low flow conditions.

Physical Features

- Sufficient access points for recreational and angling activities should be available.
- A mixture of open water, different flow rates and, instream and bankside vegetation should be available.
- Facilities are required where in river obstructions occur, for river users to be able to pass, for example, launch and retrieval points at weirs.
- Improvements, where required, in riverside recreational facilities especially in urban areas.

3.11 LANDSCAPE AND HERITAGE

3.11.1 General

The NRA has a statutory duty to promote the conservation and enhancement of natural beauty. Inland and coastal waters, for land associated with such waters and to have regard to the desirability for protecting and conserving buildings, sites and objects of archaeological architectural or historic interest.

This duty covers nationally important areas and sites, for example, Areas of Outstanding Natural Beauty, National Parks and Scheduled Ancient Monuments, as well as locally valuable areas and sites.

Opportunities for enhancement of natural beauty are achieved through the activities of third parties (through negotiations with local authorities and developers) and as part of the NRA's activities.

3.11.2 Local Perspective

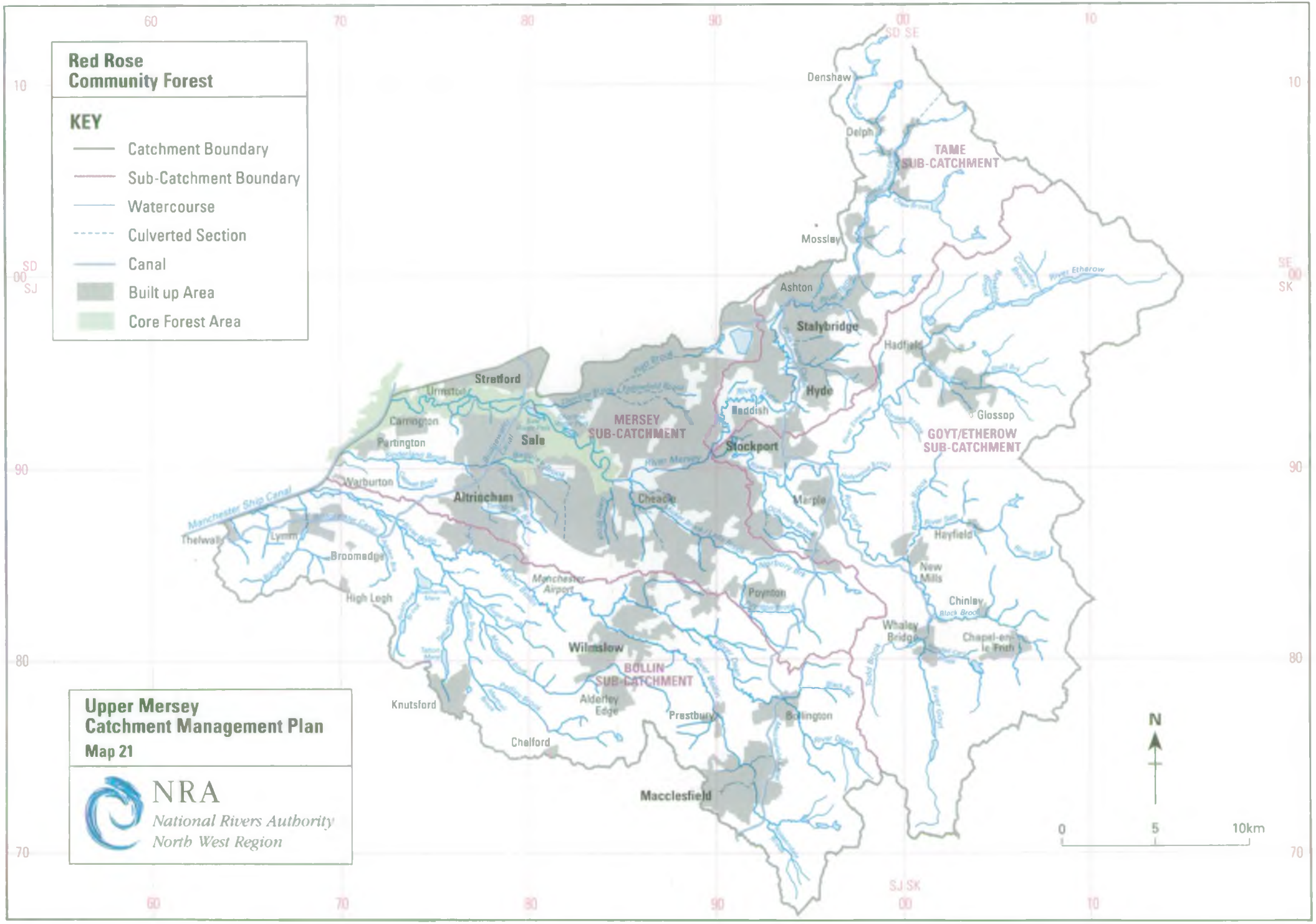
The Upper Mersey catchment contains rivers of varying landscape character: from the wooded valleys and industrial heritage of the Goyt, Etherow and Tame; the wooded parkland estates of the Bollin; to the 20th century land uses and flood banks along the Mersey.

Past and existing land uses have influenced many of the river valley landscapes in the catchment for example, through tipping, industrial use, and intensive farming practices on the mosslands. Although many sections have been straightened and restrained within stone walls to provide water power and supply for industrial use, this has left a rich industrial heritage of stone bridges, mills and mill ponds, a feature of many upper and middle river reaches. To ensure the conservation of historic landscapes and archaeological features, the county archaeologist is consulted for all NRA capital and maintenance schemes to review known sites and assess the potential for new sites.

The landscape quality of the catchment, with the exception of the Mersey, is generally high, stemming from a mix of natural and man-made features. Opportunities for improvement relate to localised degraded areas, often urban or urban-fringe areas. The landscape quality is reflected in the designation of County Level Landscapes covering most of the upper and middle catchment.

The canal complex tends to follow the river valleys and forms an important local resource. There are several schemes to improve the heritage value of sections of the canal especially within the Tameside area.

The Mersey sub-catchment is generally of lower landscape quality, stemming from its position as a mainly urban-urban fringe river with localised areas of more natural high quality character. The river valley suffers from heavy industrial use, vandalism, bank


Red Rose
Community Forest
KEY
Catchment Boundary
Sub-Catchment Boundary
Watercourse
Culverted Section
Canal
Built up Area
Core Forest Area
Upper Mersey
Catchment Management Plan
Map 21
NRA
National Rivers Authority
North West Region
Denshaw
Delph
TAME
SUB-CATCHMENT
Mossley
Ashton
Stalybridge
Hadfield
Hyde
Glossop
GOYT/ETHEROW
SUB-CATCHMENT
Stretford
Urmston
Carrington
Partington
Sale
MERSEY
SUB-CATCHMENT
Reddish
Stockport
Warburton
Altrincham
Cheadle
Marple
Manchester Ship Canal
Thelwall
Lymm
Broomedge
Hayfield
New
Mills
Manchester
Airport
Poynton
High Legh
Chinley
Whaley
Bridge
Chapel-en-
le Frith
Wilmslow
BOLLIN
SUB-CATCHMENT
Knutsford
Alderley
Edge
Prestbury
Bollington
Chelford
Macclesfield
N
0
5
10km
SD SE
SJ SK
SD
SJ
SE
SK

tipping and intrusion from roads and pylon routes. The river corridor has been straightened with high flood banks and there are few bankside trees. The landscape quality of the tributaries has been influenced in a similar way but on a smaller scale. There is a good network of public open space within which opportunities for creating a more visually diverse river corridor with interpretation for the public should be explored.

A range of initiatives now exist to improve the landscape quality within the catchment. Many improvements have been achieved through planning policies, changing management practices, and enhancement projects, often aiding to create a countryside character particularly along linear corridors, including rivers. For example, an increase in tree cover within the catchment is being promoted by the Red Rose Community Forest (**Map 21**), and the Mersey Community Forest, which covers part of the Bollin sub-catchment.

The NRA aim is to work in partnership with the public and voluntary sectors to promote attractive rivers within continuous, open corridors linking urban areas to the countryside.

3.11.3 Environmental Objectives

The overall objective is to conserve and enhance the natural beauty of rivers and to conserve their heritage value.

This is to be achieved by:

- the retention of existing landscape character and features;
- seeking effective mitigation for any loss of landscape quality;
- the liaison with Local Planning Authorities and the Countryside Commission to discuss assessment and enhancement of river landscape quality;
- the liaison with Local Planning Authorities to ensure that high quality river landscapes are adequately protected across planning authority boundaries;
- promote and support initiatives to conserve heritage features and landscapes;
- the liaison with the County Archaeological Unit for all NRA capital and maintenance schemes.

3.11.4 Environmental Requirements

Water Quality:

- To be aesthetically acceptable, that is the water should be free from surface films, unnatural floating material, litter, discolouration and unpleasant odours.

- Should not deteriorate to a level such that sensitive heritage sites lose their interest.

Water Quantity:

- A flow pattern is required which reflects the natural or established flow conditions in the river.

- The water table should be maintained so as not to damage sensitive heritage sites.

Physical Features:

- In general to conserve and promote a diversity of natural features within the river valley and along the river corridor which are in keeping with the local landscape character.

3.12 DEVELOPMENT

The NRA has a pro-active role in the land-use planning system, advising Local Planning Authorities (LPAs) and developers, on matters concerning the water environment. The aim is to ensure future development is sustainable and land use change is guided and implemented in accordance with NRA policy and considerations contained within this Catchment Management Plan.

Past development has had a major influence on shaping the Catchment. New development must be carefully considered, to recognise both the potential adverse effects and the benefits, change can have on the water environment.

The NRA seeks to pursue its aims and policy objectives, in relation to new development, through the planning consultation process. The final determination of decisions on planning matters rests with the LPAs, however, national government guidelines have advised on the need to consider NRA concerns when formulating a decision. Catchment Management Plans are an important part of the on-going dialogue with LPAs to help identify where water related problems and potentials can be most actively pursued.

Whilst the NRA has statutory powers and responsibilities to protect the water environment, these powers are complemented by and sometimes more appropriately carried out, especially where new buildings are proposed, by planning legislation. The NRA is a statutory consultee under planning legislation, for both development plan preparation and certain types of planning application. Our advisory role in the planning process, provides LPAs with information to assess how development will impact on the water environment. It also highlights to developers any NRA licences or consents which may be necessary, independent of any planning approval.

Large scale developments may have significant effects on the water quality, quantity and visual amenity. These can take the form of increased run-off, damage to natural and heritage features, contamination of groundwater and the damage to river corridor features. Within the Mersey catchment, proposed large scale developments include, the second runway at Manchester Airport, the M63 widening and the proposed mineral extraction in Poynton. As a statutory consultee the NRA will seek to ensure that NRA and Department of Environment (DoE) protection policies are enforced within these developments. It may also be necessary for the NRA to create project teams, to assume a proactive role, in order to protect the water environment from large scale developments.

Future development is allocated and guided in LPA development plans. These are produced with respect to government guidance at national and regional levels. The NRA has produced Guidance Notes for LPAs on the methods of protecting the water environment through development plans. The NRA assesses development plan policies and allocation against these guidance statements, and makes comment as appropriate.

The NRA has promoted the incorporation of the sentiments of our guidance statement into development plan policy. The tables in **Appendix 5** indicate the current position of development plan preparation within the Catchment, noting the LPA policy references, where the intentions of our guidance statements have so far been included.

The Catchment in planning terms is administered wholly or in part by a number of LPAs. These are:-

Cheshire County Council (CC)
Derbyshire CC
Peak District National Park
Oldham Metropolitan Borough Council (MBC)
Tameside MBC
Stockport MBC
Trafford MBC
Manchester City Council (MCC)
Macclesfield Borough Council (BC)
Warrington BC
High Peak BC

Development plans for the Counties contain policies which provide the broad strategic planning framework and these are known as structure plans. The more detailed and site specific proposals, using the above framework to guide development in the Boroughs and National Park, are set out in the local plans. In the case of the Metropolitan areas, LPAs prepare Unitary Development Plans (UDP) which are a combination of these structure plan and local plan policies.

In future it is hoped that the LPAs will work closely with the NRA, so that the information and actions arising in this Catchment Management Plan can be integrated into their respective development plans. The close integration of water management and land use planning is considered an essential element of Agenda 21, the blueprint for sustainable development, that was launched at the world summit held in Rio de Janeiro in June 1992. Many LPAs are now preparing Local Agenda 21 documents and Environmental Audits and the NRA will assist, where appropriate, to try and ensure decisions made in the planning field will not deny future generations of the best of today's environment.

A major development proposal, which affects the area covered by this Catchment Management Plan, is that of the proposed second runway at Manchester Airport. This proposed development has been to a public inquiry, the outcome from which is expected in 1996. The NRA objected to the proposal at the Public Inquiry. However detailed discussions have been held in order to mitigate any effects of the proposal on the Bollin and Sugar Brook, should it gain Minister's approval. The aims of the NRA are to protect the environment and minimise the effect this development may have. If the development goes ahead the NRA will seek to minimise the impact on the environment in terms of, loss and disturbance of the geomorphological river flood plain, reduction in visual amenity, severance of the river valley, impact on aquatic ecology of the watercourse, loss and

disturbance of river corridor habitats and the potential effect on fisheries. This will be achieved through planning legislation and a coordinated development plan involving the NRA, the developer and other outside bodies involved in the protection of the environment.

The NRA will seek to ensure the following policy objectives will be translated into land-use planning policy which will be considered when planning applications are assessed.

3.12.1 Development Policy Objectives and Requirements

Flood Defence

To discourage new buildings and land raising, in areas at risk from flooding or where development could cause flooding elsewhere:

- by ensuring new development is not at risk from flooding and does not put other areas at risk
- by encouraging continuous unobstructed areas adjacent to watercourses to ensure access for essential maintenance or flood flows.

Water Quality

To protect and improve the quality of surface water and groundwater:

- by ensuring new development complies with the NRA's Policy and Practice for the Protection of Groundwater document
- by ensuring new development is served by satisfactory arrangements for the disposal of foul sewage, trade effluent and contaminated surface water
- by encouraging, where there are sewage treatment capacity problems, new development to be phased to coincide with improved infrastructure
- by ensuring appropriate development complies with the Control of Pollution (Silage, Slurry, Agricultural Fuel Oil) Regulations 1991
- by ensuring leachate and drainage is controlled and monitored from contaminated land sites.

Water Resources

To protect surface water and groundwater resources:

- by ensuring development can be or will be served by an adequate means of water supply which will not derogate existing users.

Conservation, Fisheries and Recreation and Enhancement of the Water Environment

To protect, conserve and enhance aquatic areas of value and other important elements of the water environment:

- by highlighting the areas of the water environment including river corridors which are, or have the potential to be, of value

- by discouraging development which would have an adverse impact on the nature conservation, landscape, heritage, fisheries, recreation or amenity value of watercourses, ponds, wetlands and the land which is physically and visually linked to them.

3.13 HYDROPOWER

Whilst the headwaters of the Upper Mersey catchment may provide suitable sites for the hydropower initiative the NRA is not aware of any such proposals within this area of the catchment. However, there is a Hydropower licence on the Lower Bollin, at Quarry Bank Mill, which requires protection when granting a new licence or varying quantities of the existing licence is considered.

Concerning the licence at Quarry Bank Mill, a recent enquiry was made to the NRA regarding the possibility of increasing the licence quantity to generate electricity through the water wheel. The NRA will ensure that the applicant complies fully with the guidelines in the recently issued "Hydropower Developments and the National Rivers Authority".

4 ISSUES AND OPTIONS

The catchment management planning process allows the differences between a vision of the catchment and an assessment of its current status, to be identified. These differences, or shortfalls in achieving this vision, become issues within the plan. Options are generated to address these issues and through the catchment management planning process an action plan will be drawn up, to achieve the vision of the catchment within a planned timescale.

In this report, we have identified the current and potential future uses of the catchment and targets have been outlined which aim to ensure that these uses can be sustained. We have described the current status of the catchment and identified a number of issues. These issues require consideration by all those interested in the future of the catchment's natural environment. The options represent a range of alternative courses of action and are generally not mutually exclusive. Some options may be more appropriate in one part of the catchment than others. The final action plan, which will be drawn up following extensive consultation, may include a combination of the options shown or further options identified during the consultation period.

Each issue is presented in the following manner:

1 A short description of the issue.

2 An attempt to determine the options to address the issue.

3 Identification of those responsible for action.

4 An assessment of the advantages and disadvantages associated with a particular option.

4.1 ISSUES

4.1.1 Difficulty in undertaking maintenance activities, improvement works, recreational and amenity due to lack of access.

Maintenance of the watercourses in residential areas is often complicated by difficulty in access, due to garden maintenance. These developments were prior to the watercourses being designated as Main River and therefore, at the time of construction, did not come under Byelaw control. This is a particular problem on Baguley Brook, Timperley Brook, Fairywell Brook and Micker Brook.

Furthermore, access restrictions to watercourses also have a negative impact on landscape, conservation and amenity interests, with a lack of access for linear open space along rivers.

OPTIONS		Responsibility	Advantages	Disadvantages
1.	Enforce flood defence byelaws and ensure working areas alongside main rivers are not prejudiced in future.	NRA	Maintains and improves access to river corridors.	Difficulty in "policing" all main rivers.
2.	Encourage Local Authorities to adopt a similar stance on ordinary watercourses.	NRA, Local Authorities.	As above.	Difficulty in "policing" ordinary watercourses. Local Authorities often unaware of legislative powers.
3.	Improve access to the channel through development control when the opportunity arises.	NRA, Local Authorities, Landowners.	Improves the access at no capital lost to the NRA.	NRA staff resources are required. Cost to developers.
4.	Purchase of specialised maintenance equipment.	NRA.	May enable work to be more efficient.	Cost
5.	Selectively improve public access to watercourse and encourage extending linear parks whilst ensuring there is no reduction in conservation interest or recreational use.	NRA, Local Authorities, Landowners, Ramblers Associations, Warden Services.	Improve the public perception of the value of the water environment. Allow more people to enjoy rivers and their corridors.	Land take. Maintenance. Security of riverside properties.
6.	Do nothing		No extra cost.	Existing problem remains

4.1.2 Prevention of the passage of fish and recreational users due to river structures such as weirs and culverts.

Many culverts and weirs are impassable for the upstream migration of fish. The NRA will endeavour to facilitate the provision of fish passes over weirs, and bed modifications in culverts. This will allow free migration of fish throughout the catchment, improving their range, exposure to spawning areas previously inaccessible and security of the population. Provision of passage for recreational users, either over or around obstructions, will enhance the recreational use of the river corridor.

OPTIONS		Responsibility	Advantages	Disadvantages
1.	Provision of fish passes over weirs and similar structures.	Riparian landowners, NRA, Local Authorities.	Free migration of fish throughout the catchment. Migration to spawning grounds not normally accessible. Improved fish stocks.	Cost.
2.	Improve flows within culverts to allow fish passage e.g. by modification of bed within culvert.	NRA, Local Authorities.	Free movement of fish up and downstream.	Cost. Possible reduction of flood defence standard.
3.	Re-stock with fish.	NRA.	Improve fish distribution.	Cost. Against NRA policy.
4.	Provision of access over or round weirs and obstructions for the users.	NRA, Riparian landowners, Local Authorities.	Increased recreational use.	
5.	Leave as obstacles.		No cost.	Restriction of fish movements and recreational use. Loss of potential stock improvements. Impact on aquatic invertebrate communities for certain structures.

4.1.3 Poor water quality caused by inadequate or lack of rural sewerage and sewage treatment facilities.

In the rural areas of the catchment it is often impractical for individual households to make mains connections to the sewerage system. Under such circumstances private sewage treatment facilities are often installed to treat the household wastes. Unfortunately many such sewage treatment plants and septic tanks are in need of improvement or regular maintenance schedules, and their performance can result in poor quality discharges. Improvements in such facilities and maintenance programme should lead to improved water quality and improved river habitats in such rural areas.

The NRA is seeking to promote good practice in the provision and maintenance of the private sewage treatment facilities, in order to ensure consistent, and good quality effluent discharges, which will not cause water quality impacts.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Improve facilities and maintenance of septic tanks and treatment plants.	Individual, householders.	Assist toward achievement of RQOs. Improvement of aquatic habitat.	Difficulty in enforcing legal responsibilities.
2. Introduce new facilities.	Local Authorities, Developers, NWW Ltd.	Improvement to aesthetic appearance.	Cost to responsible parties.

4.1.4 Adequacy of compensation waters to meet the environment's needs.

The adequacy of all the reservoir compensation flows throughout the catchment are to be evaluated to meet environmental needs.

There are 11 Water Abstraction Licences authorising water to be abstracted for Public Water supply within the catchment, which are subject to statutory compensation water requirements.

The largest of these is from the Longdendale system, where Woodhead and Torside Reservoirs act as the first two collecting reservoirs within the system and water is drawn off from Rhodeswood and Arnfield Reservoirs for supply purposes. Within this system, Bottoms and Valehouse Reservoirs act as compensation reservoirs. The other 10 licences cover Kinder Hurst Reservoir. Fernilee and Errwood Reservoir, Swineshaw Reservoir, Torside Goyt Reservoir, Hurst Reservoir, the Walkerwood and Doverstone Reservoir groups, Castleshaw Reservoirs, New Year's Bridge Reservoir group, the Langley Reservoir System and Lamaload Reservoir.

OPTIONS		Responsibility	Advantages	Disadvantages
1.	Increase compensation flows from reservoirs.	NWW Ltd., NRA	Improvements to aquatic environment.	Possible cost to NRA in buyout compensation. Possible supply shortages.
2.	Reduce compensation flows.	NWW Ltd., NRA	Increase water supply.	Reduction in environmental quality within river. Potential degregation of abstractors.
3.	Do nothing.	NWW Ltd., NRA	Current water supply capacities maintained.	No improvement in river conditions.

4.1.5 Increasing numbers of properties at risk from flooding, due to the development of the flood plain.

Early in this century, the Manchester Corporation Act was passed, which prohibited development in certain areas of the Mersey flood plain. Nowadays, there is pressure for development of the flood plain of the River Mersey. Also, many existing homes are thought to be protected, because they are behind flood banks. However, they are still within the flood plain and vulnerable to flooding. This leads to extensions to properties and further development, both on the flood plain and behind flood banks, putting more property at risk.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Continue to object to flood plain development, even if the development is protected by flood banks.	NRA, Local Planning Authorities.	Further property is not put at risk from flooding.	Restricts land available for development.
2. Ensure that policies related to flood plain protection are incorporated into relevant Local Plans and/or UDP are enforced.	NRA, Local Planning Authorities.	No increase in property at risk from flooding. Protection of river corridor habitats and features. Retention of Mersey Valley as important landscape, conservation and amenity feature. Protection and retention of Mersey Valley SBI.	Possible conflict with economic development of land. Limited powers to ensure policy carried out especially if planning permission is granted.
3. Continue development and produce warning schemes.	NRA, Local Authorities.	Allows development of available land.	Flood risk remains. Warnings do not fully remove damage and stress caused by flooding cost to NRA and local authorities in producing warning service.
4. Continue development and provide flood defence schemes.	NRA, Local Authorities.	Allows development of available land.	Schemes only possible if cost beneficial. Cost to NRA and Local Authorities through Flood defence levy. Limited funds for development of protection to existing properties.
5. Do nothing			More property put at risk from flooding

4.1.6 Possible adverse impact of Metrolink line on water environment.

Greater Manchester Passenger Transport Executive (GMPTE) have put forward proposals to extend the Metrolink in the Mersey Catchment. The proposed route will cross a number of watercourses, listed below. The greatest impact on the river environment will be on the Mersey Valley around Jacksons Boat/Hardy Lane area. The river crossing here will be extensive and will either take the form of a viaduct or a bridge with an embankment. Both will have a significant visual impact on the Mersey Valley landscape, with the embankment potentially acting as a barrier across the valley.

The NRA, together with other bodies, is involved in detailed discussions with the developers and their consultants to try to ensure that the environmental impacts of all river and stream crossings will be minimised wherever possible.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Mersey Crossing using viaduct and other watercourse crossings.	GMPTE/Mott MacDonald.	Transport Link between Manchester City Centre and Manchester International Airport.	Potential visual and landscape impact on River Mersey, Chorlton Brook, Fairywell Brook and Baguley Brook, Mill Brook and Barrow Brook.
2. Crossing area on an embankment.	GMPE/Mott MacDonald.	As above.	Impact on landscape, recreation and amenity.
3. No development.		No impact on river valleys.	No transport link.

GMPTE - Greater Manchester Passenger Transport Executive

4.1.7 Lack of interpretative material along public footpaths on the River Mersey.

There is scope to provide a comprehensive system of signs and interpretation boards along public rights of way to point out features of interest, to link the network to other long distance paths, and to improve the surface of footpaths and provide seating. In addition, scope for creating a more visually diverse river corridor should be explored. This is an opportunity for a partnership project between the Mersey Valley local authorities and the NRA.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Identify suitable locations for interpretation boards and signs.	NRA, Local Authorities.	Education and amenity benefits.	Cost and maintenance implication.
2. Create leaflet to accompany Mersey Valley Walking Guide series.	NRA, Local Authorities.	Education and amenity benefits.	Cost.
3. Development partnership with local authorities and community groups.	NRA.	Education and amenity benefits.	Cost.

4.1.8 Bank stability threatened by tree growth in bank walls.

Much of the River Goyt, flows in stone walled channels. Bankside trees have, in places, grown through these walls causing potential stability problems.

Maintenance problems occur with trees and bushes growing through river bank walls. Not only do these damage the integrity of the walls themselves, which eventually collapse causing debris problems, but also during high flows, they are often swept downstream causing blockage problems and have been known to cause damage to the flood banks on the River Mersey. A maintenance programme to remove problem trees is necessary.

At the same time trees are a valuable part of the river corridor providing habitat for invertebrates, birds and mammals. Any removal of trees would result in a reduction in bank diversity and potential habitats.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Remove problem trees from bank walls and repair damage to walls. As this may be the only natural feature of the river, tree planting beside channel should be implemented, where appropriate.	Riparian Owner, NRA.	Trees and resulting debris from collapsing walls is prevented from entering the channel.	Cost of programme for removal. Difficult to get the riparian owners to undertake the works. Reduction in bank diversity and potential habitat.
2. Rebuild wall around trees where channel capacity allows.		Retains trees and bank diversity.	More cost than removal.
3. Do nothing.	Riparian Owner, NRA.	No additional cost to programme of removal.	Walls will eventually collapse resulting in higher cost to remove debris and rebuild walls. Visual impact when walls collapse. Potential loss of trees.

4.1.9 Lack of channel capacity caused by shoal formation in the bed of the river.

Shoals are deposits in the channel bed, which are usually formed by the natural sediment transport processes of the river. They may be shingle or a combination of shingle with vegetated areas. Blockages may occur when debris catches on shoals and associated vegetation. Shoals provide important habitat for invertebrates, which in turn encourage other wildlife especially birds e.g. dippers and wagtails. Careful management of shoals, where they are causing problems is vital to prevent flooding, but total removal of these areas would be an unnecessary loss of habitat.

In the lower reaches of the River Goyt in Stockport, maintenance is undertaken to remove shoaling and debris. Elsewhere in the Goyt sub-catchment, limited maintenance of the channel to remove debris and shoaling is undertaken. Consequently extensive shoals, can develop, which are colonised by trees and bushes. In flood flows, they collect debris causing blockages, and therefore reduce the standard of flood protection. Furthermore, the vegetation on the shoals add to the regular problems of debris being swept downstream. A programme of removal of shoals would improve the situation. However, the cost of maintenance works to remove them may exceed the benefits, and there may be environmental implications.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Manage shoals, where appropriate.	NRA.	Reduces blockage potential. Reduces the amount of debris carried downstream.	Works cost may be greater than the benefits. Loss of channel habitat diversity and potential feeding and nesting sites. Disturbance to natural riverbed.
2. Leave shoals in.		Retain natural riverine habitat.	Potential flooding due to blockages. Aesthetic appearance of deposited sewage litter.

4.1.10 Inaccurate flood forecasting, due to lack of information on snow melt.

In winter, precipitation in the upland areas of the catchment often falls as snow. Snow melt can, therefore, make a significant contribution to flows in the watercourses. At present, there is no mechanism for the measurement the quantity of snow melt.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Instigate research and development study.	NRA.	Improved level of understanding. Improves forecasting of flows.	Resource implications.
2. Do nothing.			Poor forecasts

4.1.11 Flood risk and urban decay caused by dilapidated walls and channel dereliction.

Maintenance of the channel to remove debris and shoaling is undertaken throughout the catchment. However, in some areas of the catchment, particularly on the River Tame, there is a problem, due to many old mill buildings being situated on the banks. These buildings date from the Industrial Revolution and consequently, many of these bank walls are now in a dilapidated state. This results in extensive maintenance work clearing debris from the channel, when these walls collapse.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Persuade owners to repair decaying structures. Repair structures where debris could be transported into culverts and cause blockages. Negotiate improvements with developers. Liaise with Local Authorities on plans for specific sites.	NRA, Local Authorities, Developers, Riparian Owners.	Ensures that dilapidated structures do not pose a flood risk. Ensures maximum flood defence benefit and amenity.	Difficulty in tracing land-owners and enforcing legal responsibilities. Maintenance and/or scheme costs.
2. Support riverside regeneration initiatives including renovation of significant historic buildings. Support initiatives promoting sympathetic enhancement works such as riverside walkways.	Local Authorities Voluntary Sector, Mersey Basin Campaign, NRA.	Increases value of river as focal point. Attractive setting promotes positive economic regeneration and respect for riverine environment.	Cost implications. Difficult to get consensus of opinion on way forward with different interests being considered.
3. Promote the use of appropriate materials which respect the landscape setting for the repair and construction of river walls, bridges and other structures associated with the river.	NRA, Local Authorities, Developers, Land Owners.	Maintains and improves the aesthetic appearance of rivers.	Cost implications.

4.1.12 Poor water quality and aesthetic appearance of unclassified and culverted tributaries.

In built up parts of the catchment particularly the older industrialised and residential areas, a number of small watercourses are covered over, culverted, or restricted. Often open watercourses have a poor appearance due to the water quality and the presence of litter and rubbish. Pollution can be from the sewerage or surface water drainage systems that discharge contaminated surface water or sewage litter into the watercourse.

Some developments have separate drainage systems, one for uncontaminated surface water run-off and the other for foul water (sewerage). The surface water drainage is piped and discharged to local watercourses and the foul to a wastewater treatment works. Problems occur when foul drainage is incorrectly plumbed into the surface water pipes and when contaminated liquids are poured down surface water drains. These problems are known as Contaminated Surface Waters (CSWs).

In many areas foul drainage and uncontaminated surface water drainage are conveyed together in combined sewers to wastewater treatment works. Located on the sewerage network are overflows either on sewers or at pumping stations. These overflows are designed to prevent foul flooding by relieving the system during storm conditions and to only operate when adequate dilution is available in the receiving watercourse.

The increase in residential and commercial development over recent years has consequently led to greater flows going to sewer. In areas with older combined sewerage systems there may be inadequate sewer capacity for the increased flow. This can result in more frequent operations of storm overflows, or even overflows occurring during non storm conditions.

OPTIONS		Responsibility	Advantages	Disadvantages
1.	Reduction in impact of contamination of surface waters from industrial units.	NRA to continue site inspections to minimise risks from spillages and identify sources of contamination.	Improvement to aesthetic and amenity value. Improvement in water quality.	Cost to industrial unit owners.
2.	Reduction in organic and debris load from combined sewer overflows.	NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance NWW Ltd. to undertake capital works.	As above.	Cost to NWW Ltd. and possibly customers.

4.1.13 Sewage debris caught on the beds of watercourses and in bankside trees

This aesthetic problem affects many stretches of watercourse in the Upper Mersey catchment. A number of these are in areas with good public access.

The debris enters rivers mainly from storm overflows on the sewerage system. Properly designed overflows will release relatively little debris. In the past overflows have been constructed that would not meet modern design standards. The performance of other overflows has become unsatisfactory as flows in the sewers increases with development. Satisfactory operation of overflows is a requirement of the EC Urban Wastewater Treatment Directive. Unsatisfactory overflows throughout the North West region have been prioritised for inclusion in the Asset Management Plan 2 (AMP2) of the water company, North West Water Ltd.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in debris load released from unsatisfactory sewer overflows.	NRA/NWW Ltd to agree improvements required to achieve satisfactory performance. NWW Ltd to undertake capital works.	Improvements to aesthetic and amenity value.	Cost to NWW Ltd. and customers.

4.1.14 The impact of nutrient enrichment on aquatic communities.

There are many lakes and ponds in the Bollin Catchment which are thought to be suffering from enrichment problems causing eutrophication which in turn is leading to high productivity. It is generally believed that eutrophication is a normal feature of lakes as they gradually silt up, but the addition of nutrients of human origin speed up this process causing serious problems for the plants and animals in the water bodies.

Algal blooms are a common feature of eutrophic lakes and may reach nuisance proportions.

It is important that eutrophic conditions are monitored to assess the full impact of nutrients on the waters. In addition, steps should be taken to prevent an increase in nutrient loads to lakes, ponds and flowing waters.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Continue chemical monitoring programme of selected Cheshire Meres as part of a still water strategy.	NRA.	Data collection to assess the impact of nutrients on still waters.	Resource implications.
2. Monitor and report on freshwater macrophytes and presence of blue-green algae as appropriate.	NRA, EN.	Data collection to indicate the effect of eutrophication on plant communities.	Cost. Guidelines on assessment of results are still evolving.
3. Reduction of nutrient loads to still and flowing waters.	Possibly NWW Ltd. (As a requirement of the EC Urban Wastewater Treatment Directive). Farmers. Landowners.	Maintain diversity of aquatic plant species. Reduce incidence of development of blue-green algal blooms which affect water quality and aesthetic and amenity value. Compliance with EC Urban Waste Water Treatment Directive. Good agricultural practice.	Cost.

EN - English Nature

4.2 SUB-CATCHMENT SITE SPECIFIC ISSUES

The following are site specific issues, on each separate sub-catchment.

RIVER BOLLIN

Issue BSS1 Ridgegate Reservoir

Failure to comply with the standards laid down in the Directive on Abstraction of Surface Water for Drinking Water.

Issue BSS2 River Bollin - Macclesfield Reservoirs and downstream of Langley Bottoms Reservoir

Low river flows increase the pollutant concentration and lower the water quality.

Issue BSS3 Rossendale Brook - Quality Survey Limit at Lowerhouse to the River Bollin

Failure to achieve the proposed River Ecosystem RQO for the reach.

Issue BSS4 River Bollin - Macclesfield Town Centre

Enhancement Opportunity for river corridor.

Issue BSS5 River Bollin - Macclesfield

Flooding problems in the town centre.

Issue BSS6 River Bollin - Macclesfield

Lack of hydrometric data for the river in this area.

Issue BSS7 Sandstone Aquifer - Macclesfield area

The Sherwood Sandstone aquifer around the Macclesfield area is fully committed for abstractions.

Issue BSS8 Dams, Shoresclough and Whitefield Brooks - Macclesfield

Possible land drainage and culverting problems. Development pressure to culvert open sections. Non Main River.

Issue BSS9 **River Bollin - Macclesfield Riverside Park**

Enhancement opportunity for river corridor.

Issue BSS10 **River Bollin - Prestbury to Warburton**

Pressure to stabilise naturally eroding cliffs and cut-off meanders to preserve agricultural land and riverside footpaths.

Issue BSS11 **River Bollin - Macclesfield STW to the River Dean**

Failure to achieve the proposed River Ecosystem RQO for the reach.

Issue BSS12 **River Bollin - Macclesfield STW to Wilmslow**

Enhancement Opportunity for river corridor.

Issue BSS13 **River Dean - Abstraction of Surface water for drinking water**

Failure of Lamaload reservoir to comply with the standards laid down in the directive on abstraction of surface water for drinking water.

Issue BSS14 **River Dean - Clough Pool**

Dilapidated flume does not allow accurate measurement of the compensation water flow.

Issue BSS15 **River Dean - Bollington**

Flooding of property due to a low capacity channel, a restrictive footbridge and other structures.

Issue BSS16 **River Dean - Bollington**

The water resource is fully committed to existing industrial abstractors.

Issue BSS17 **River Dean - Lower House Mill, Bollington to Wilmslow STW**

Failure to comply with the standards laid down in the Directive on Water Quality for Freshwater Fish.

Issue BSS18 **Red Brook - Red Brook Bridge to the River Dean**

Failure to comply with the standards laid down in the Directive on Water Quality for Freshwater Fish and failure to achieve the proposed River Ecosystem RQO and biological long term objective.

Issue BSS19 River Dean - Woodford Aerodrome environment

Enhancement Opportunity.

Issue BSS20 River Bollin Tributaries - downstream of River Dean

The water resource is fully committed for spray irrigation.

Issue BSS21 River Bollin - River Dean to Birkin Brook

Failure to achieve the proposed River Ecosystem RQO for the reach.

Issue BSS22 River Bollin - Quarry Bank, Styal

Lack of hydrometric data for the river in this area.

Issue BSS23 River Bollin - Quarry Bank Mill, Styal

Proposed Hydro Power Scheme may adversely affect the River Environment.

Issue BSS24 River Bollin - Manchester Airport

Proposals for a second runway if approved will effect the Bollin Valley and Sugar Brook.

Issue BSS25 River Bollin - Cotteril Clough - Quality Survey Limit to River Bollin

Failure to achieve the proposed River Ecosystem RQO and the proposed biological long term objective for the reach.

Issue BSS26 Hale Golf Course to Bollin Point

Invasion by the non-native, invasive pest species, Giant Hogweed.

Issue BSS27 Eye Brook - Hale

Increased flow in this non - river" brook will cause erosion problems.

Issue BSS28 Mobberley Brook - A34 at Whitehall Bridge

Pipe crossings restrict the flow. A high silt load in the brook exacerbates the problem.

Issue BSS29 Birkin Brook - Knutsford STW to Tatton Mere Stream

Failure to achieve the proposed River Ecosystem RQO, and the proposed biological long term objective for the reach.

Issue BSS30 River Lily - Knutsford

Possible flooding to a road and gardens. Non Main River.

Issue BSS31 Birkin Brook to the Manchester Ship Canal

Failure to achieve the proposed River Ecosystem RQO and the proposed biological long term objective.

Issue BSS32 River Bollin - Dunham Park

Enhancement Opportunity for river corridor.

Issue BSS33 River Bollin - Dunham Massey

Existing gauging station provides poor quality hydrometric data.

Issue BSS34 River Bollin - Heatley Mill to Manchester Ship Canal

Enhancement Opportunity for river corridor.

Issue BSS35 River Bollin - Heatley to Manchester Ship Canal

Flooding to agricultural land and properties at Heatley and Little Bollington.

Issue BSS36 River Bollin - Review of perceived flooding problems

A review of these problems to prioritise schemes is required. The following sites will be included: Collar House Brook at Prestbury, Pott Shrigley Brook at Pott Shrigley, Sow Brook at Lymm, Rossendale Brook at Sutton Lane Ends, Handforth Brook at Handforth.

Issue BSS37 Spencer Brook, Prestbury

Potential flooding problem to inadequate road culvert.

Issue BSS38 Bradley Brook and Tributary - Stretton Airfield

High run-off from developments pose an erosion threat to the brook downstream.

Issue BSS39 Thelwall Brook - Thelwall Eyes

Works by Manchester Ship Canal Company to construct a new cut at Thelwall Eyes will affect the outfall of the Brook.

Issue BSS40 Thelwall Brook - Thelwall

Enhancement Opportunity for river corridor.

Issue BSS41 Morris Brook - Grappenhall

Enhancement Opportunity for river corridor.

Issue BSS42 Morris Brook - downstream of the A50

Flooding due to the erosion of poorly constructed banks, which fall into the channel.

RIVER BOLLIN WATER QUALITY - LONG TERM ISSUES

Issue BSS43 Shoreclough Brook - Quality Survey Limit to the River Bollin

Failure to achieve the proposed long term River Ecosystem RQO and biological long term objective.

Issue BSS44 River Bollin - Weir at SJ903 760 to Macclesfield STW

Failure to achieve the proposed long term River Ecosystem RQO for the reach.

Issue BSS45 River Dean - Rainow STW to Wilmslow STW

Failure to achieve the proposed biological long term objective for the reach.

Issue BSS46 Spath Brook - Quality Survey Limit (Stanley Green) to the River Dean

Failure to achieve the proposed long term River Ecosystem RQO and proposed biological long term objective for the reach.

Issue BSS47 River Dean - Wilmslow STW to the River Bollin

Failure to achieve the proposed long term River Ecosystem RQO and biological long term objective.

Issue BSS48 Mobberley Brook - Quality Survey Limit at Alderley Edge STW to Mobberley STW

Failure to achieve the proposed long term River Ecosystem RQO for the reach.

Issue BSS49 Mobberley Brook - Mobberley STW to Birkin Brook

Failure to achieve the proposed long term River Ecosystem RQO for the reach.

Issue BSS50 Sugar Brook - quality Survey Limit at Hargreaves Bridge to Mobberley Brook

Failure to achieve the proposed biological long term objective for the reach.

Issue BSS51 Pedley Brook - Peckmill to Marthall Brook

Failure to achieve the proposed long term River Ecosystem RQO and the proposed biological long term objective for the reach.

Issue BSS52 Marthall Brook - Quality Survey Limit Marthall Lane to Pedley Brook

Failure to achieve the proposed long term River Ecosystem RQO and a proposed biological long term objective for the reach.

Issue BSS53 Birkin Brook - Marthall Brook to Knutsford STW

Failure to achieve the proposed long term River Ecosystem RQO and the proposed biological long term objective for the reach.

Issue BSS54 Tatton Mere Stream - Quality Survey Limit to Birkin Brook

Failure to achieve the proposed long term River Ecosystem RQO for the reach.

Issue BSS55 Birkin Brook - Tatton Mere Stream to Mobberley Brook

Failure to achieve the proposed biological long term objective.

Issue BSS56 Birkin Brook - Mobberley Brook to the River Bollin

Failure to achieve the proposed long term River Ecosystem RQO and the proposed biological long term objective for the reach.

Issue BSS57 River Bollin - The Mere

Failure to achieve the proposed long term River Ecosystem RQO.

Issue BSS58 Rostherne Brook - The Mere outlet to Birkin Brook

Failure to achieve the proposed long term River Ecosystem RQO for the reach.

Issue BSS59 Agden Brook - Quality Survey Limit at A56 to the River Bollin

Failure to achieve the proposed long term River Ecosystem RQO for the reach.

RIVER MERSEY

Issue MSS1(a) Poynton Park Brook - Poynton

Several culverts on this Ordinary Watercourse are prone to blockage and the resulting flooding affects residential properties.

Issue MSS1(b)River Mersey - Review of Perceived Flooding Problems

A review of these problems to prioritise schemes is required. The following sites will be included: River Mersey at Waterside Hotel, Sinderland Brook at Woodhouses Sale, Booth Green Brook at Hope Green, Norbury Brook at Brookside Garden Centre.

Issue MSS2 Norbury Brook at Poynton

A proposal to undertake open cast mining may result in low flows in a section of Norbury Brook.

Issue MSS3 River Mersey at Brinksway

There is no bed control and therefore is not suitable for accurate hydrometric measurement.

Issue MSS4 Micker Brook Catchment

There is a lack of hydrometric data for Micker Brook.

Issue MSS5 Micker Brook - Bramhall/Cheadle

Inadequate channel capacity and bridges cause flooding.

Issue MSS6 Lumb Brook - Bramhall

Intermittent pollution of the watercourse.

Issue MSS7 Carrwood Park Brook - Robins Lane, Bramhall

Risk of flooding due to several capacity inadequate culverts.

Issue MSS8 Bruntwood Hall Brook - Cheadle

An inadequate capacity culvert is prone to blockage problems.

Issue MSS9 Bruntwood Hall Brook - Cheadle

Dumping of garden cuttings on the banks in the area of Daylesford Avenue.

Issue MSS10 Chorlton Brook - Cheadle

Properties are at risk due to culverts of inadequate capacity.

Issue MSS11 River Mersey - Cheadle Bridge

Protection of a large sandmartin colony.

Issue MSS12 Gatley Brook - Gatley

Road and properties at risk of flooding due to inadequate culverts and channel.

Issue MSS13 Gore Brook - Audenshaw

Aesthetic deterioration due to intermittent pollution.

Issue MSS14 Chorlton Brook - Fallowfield

Flooding problems affecting residential properties.

Issue MSS15 River Mersey - Banks rehabilitation

Risk of uncontrolled flooding to flood plain due to degeneration of existing flood banks from Brinkway to Ashton Weir.

Issue MSS16 River Mersey - Northenden Weirs and Sale Ees

Deterioration of the weirs leading to erosion of the banks.

Issue MSS17 River Mersey - Sales Ees

The mechanism by which the side weir operates and the capacity of the channel are unknown.

Issue MSS18 River Mersey - Ashton on Mersey

Large stand of Giant Hogweed.

Issue MSSI9 River Mersey - Ashton Weir

The weir crest at this important gauging station is in a poor state of repair.

Issue MSS20 Stromford Brook - Sale STW to River Mersey

Poor aesthetic appearance and water quality.

Issue MSS21 River Mersey - Flixton

An inadequate capacity road bridge causes flooding to a road and agricultural land.

Issue MSS22 River Mersey - Ashton on Mersey to Carrington

Impact on Mersey SBI by tipping/bank stabilisation

Issue MSS23 River Mersey - Irlam Weir

The large weir can often trap trees, removal of which can be hazardous.

Issue MSS24 Fairywell Brook

The aquatic invertebrate community fails to reach the diversity consistent with the river habitat.

Issue MSS25 Fairywell Brook - Altrincham

Inadequate channel and culverts capacity can cause flooding.

Issue MSS26 Baguley Brook - Altrincham

Inadequate channel capacity causes flooding.

Issue MSS27 River Mersey at Broad Ees Dole and Timperley Brook Flood Storage Reservoir

Presence of the alien pest species, Crassula (alien invasive water weed).

Issue MSS28 Timperley Brook - Altrincham

Properties at risk due to inadequate culvert and channel capacity.

Issue MSS29 Timperley Brook

Aesthetic deterioration of Brook and failure to achieve proposed long term biological water quality objective.

RIVER MERSEY WATER QUALITY - LONG TERM ISSUES

Issue MSS30 Poynton Brook - Poynton Bridge to Micker Brook

Failure to achieve chemical and biological water quality objectives.

Issue MSS31 Norbury Brook - Norbury Hollow to Poynton Brook

Failure to achieve proposed long term River Ecosystem RQO and biological water quality objectives.

Issue MSS32 Carrwood Park Brook, Bramhall

Aesthetic deterioration of Brook.

Issue MSS33 Rose Vale Park Tributary of Gatley Brook

Localised gross pollution of Rosevale Park Brook.

Issue MSS34 Gatley Brook, Gatley

Failure to achieve proposed long term River Ecosystem and Biological objectives.

Issue MSS35 Fallowfield Brook - Chorlton Brook to Reddish

Aesthetic deterioration of brook and failure to achieve proposed Biological objective.

Issue MSS36 Old Eea Brook, Urmston

Failure to achieve proposed long term River Ecosystem and Biological objectives.

Issue MSS37 Mill Brook, Round Thorn

Periodic aesthetic deterioration of the Brook.

Issue MSS38 Fairywell Brook - Whitecarr Lane to Baguley Brook

Failure to achieve proposed biological objective.

Issue MSS39 Sinderland Brook - Fairywell Brook to Altrincham STW

Failure to achieve proposed long term River Ecosystem and Biological objectives.

Issue MSS40 Sinderland Brook - Altrincham STW to Manchester Ship Canal

Failure to achieve proposed long term River Ecosystem and Biological objectives.

Issue MSS41 Manchester Ship Canal - Carrington to Woolston New Cut

Failure to achieve proposed long term River Ecosystem and Biological objectives.

RIVER TAME

Issue TSS1 River Tame - Review of Perceived Flooding Problems

A review of these problems to prioritise schemes is required. The following sites will be included : River Tame at Diggle Brook and Uppermill, and Hillbrook at Delph.

Issue TSS2 River Tame - Upstream of Chew Brook

Lack of hydrometric data for the River Tame in this area.

Issue TSS3 **Chew Brook - Yeoman Hey Reservoir to Robert Fletcher (Greenfield) Ltd.**

Failure to achieve water quality objective.

Issue TSS4 **Chew Brook - downstream of Dovestones Reservoir**

Watercourse has very low flows due to an industrial abstractor.

Issue TSS5 **River Tame - Upstream of Wellihole Bridge - Shaw Hall**

Walled channel stands out in long distance views up and down the Tame Valley.

Issue TSS6 **Carr Brook - Reservoir to Buckton Vale**

Failure to achieve water quality objective.

Issue TSS7 **River Tame, Stalybridge**

Proposed canalisation of a section of the Tame, to restore continuity of Huddersfield Narrow Canal.

Issue TSS8 **Huddersfield Canal**

The protection and enhancement of the ecological value of this site.

Issue TSS9 **Wilson Brook - Hyde**

Over abstraction causes very low flows in dry weather.

Issue TSS10 **Godley (Wilson) Brook - Hyde**

Culvert blockage problem. Non Main River.

Issue TSS11 **River Tame - Hyde STW to River Mersey**

Poor aesthetic appearance and invertebrate diversity.

Issue TSS12 **Denton Brook**

Failure to achieve proposed water quality objective.

Issue TSS13 River Tame - Dereliction of Non-Main Watercourses

Including: Johnson, Micklehurst, Carr (Staly) and Wallhill Brooks.

Issue TSS14 River Tame - Ashton STW to Hyde STW

Failure to achieve the water quality objective.

RIVER TAME WATER QUALITY - LONG TERM ISSUES

Issue TSS15 Huddersfield Canal

Failure to achieve water quality objective.

Issue TSS16 Wilson Brook

Poor aesthetic appearance and variable water quality from intermittent pollution.

Issue TSS17 Chew Brook - Robert Fletcher (Greenfield) Ltd. to River Take

Poor aesthetic appearance of brook.

Issue TSS18 Carr Brook Buckton Vale to River Tame

Failure to achieve water quality objective.

Issue TSS19 Swineshaw Brook - Section from Canal Water Take-off to River Tame

Poor aesthetic appearance and sparse ecosystem.

RIVER GOYT

Issue GSS1(a)River Goyt - Whaley Bridge

Flooding problems affect residential properties.

Issue GSS1(b) River Goyt - Review of Perceived Flooding Problems

A review of these problems to prioritise schemes is required. The following sites will be included: River Goyt at Furness Vale, Hague Bridge; Roman Bridge Lake, and Pear New Mill, Tunstead Milton Brook at Tunstead Milton, Randall Car Brook at Horwich End, and the confluence with River Goyt, Warm Brook at Chapel-en-le-frith and Hayfield Road, Ford Hall Brook at Wash, New House Brook at Hayfield,

Park Hall Brook at Clough Mill, Hollingworth Clough Brook at Hayfield, Cataract Brook at Mellor, Ochreley Brook at the confluence with Poise Brook, Hurst Brook at Glossop, Long Clough Brook at Charlestown, Hurst Clough Brook at Hodgfold and River Etherow at the confluence with River Goyt.

Issue GSS2 **Black Brook, Chapel-en-le-Frith**

A scheme is being designed to alleviate the flood risk to residential and industrial properties.

Issue GSS3 **Black Brook - Bowden Lane, Chapel-en-le-Frith to Whitehough**

Exceedences of the Environmental Quality Standards (EQSs) for Total Ammonium and Non-Ionised Ammonia for the EC designated salmonid fishery.

Issue GSS4 **River Goyt - downstream of Whaley Bridge STW**

Aesthetic deterioration due to colour and foam.

Issue GSS5 **River Sett - Upstream of New Mills and the village of Hayfield**

An investigation into flooding problems is being undertaken.

Issue GSS6 **River Goyt and Tributaries, upstream of Marple Bridge**

Lack of hydrometric data, particularly upper reaches of the Goyt, River Sett and Black Brook.

Issue GSS7 **Hollywood End Brook**

American Signal Crayfish reported.

Issue GSS8 **Rhodeswood Reservoir**

Exceedence of the Environmental Quality Standard (EQS) for Polycyclic Aromatic Hydrocarbons and for Dissolved and Emulsified Hydrocarbons under the EC Surface Water Abstraction Directive.

Issue GSS9 **Arnfield Reservoir**

Exceedence of the Environmental Quality Standard (EQS) for Dissolved and Emulsified Hydrocarbons under the EC Surface Water Abstraction Directive.

Issue GSS10 River Etherow - Woolley Bridge

A feasibility study is being undertaken into Flood Defence works.

Issue GSS11 Swineshaw Lower Reservoir

Exceedence of the Environmental Quality Standard (EQS) for Dissolved and Emulsified Hydrocarbons under the EC Surface Water Abstraction Directive.

Issue GSS12 Shelf Brook - upstream of Glossop

Over abstraction causes very low flows in dry weather.

Issue GSS13 Simmondly, Coombes and Charlesworth Brooks

These brooks have stretches in a state of dereliction. Non Main River.

Issue GSS14 River Etherow - downstream of Glossop Brook confluence

Lack of fishery.

Issue GSS15 Padfield Stream - Padfield - Pear Tree Brook - Whalley Cataract Brook - Moorend

Potential flooding problem on ordinary watercourses, due to inadequate capacity culverts.

Issue GSS16 Torkington Brook - QSL at Hazelbank to confluence with River Goyt

Failure to achieve the proposed Long-Term Objective for the Biological Water Quality of B2 and limited fishery.

Issue GSS17 Torkington Brook, upstream of A626

An erosion problem exists on the steep valley sides, which deposit eroded material in the brook.

Issue GSS18 Poise Brook and tributaries

Release of water from the Macclesfield Canal can cause erosion and flooding problems in the brooks.

Issue GSS19 Poise Brook and Hazel Grove Brook

A scheme is being designed to alleviate the flooding risk to residential property.

Issue GSS20 River Goyt - Stockport

Problems caused by debris and shopping trolleys dumped in the river.

RIVER GOYT LONG TERM ISSUES

Issue GSS21 Todd Brook - QSL at Browside Clough to confluence with River Goyt

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE1 and failure to achieve the proposed Long-Term Objective for the Biological Water Quality of B1.

Issue GSS22 River Goyt - Edward Hall site to Black Brook confluence

Marginal failure to achieve the proposed Long-Term River Ecosystem RQ0 of RE3 and lack of fishery.

Issue GSS23 Black Brook - QSL at A625 to Chapel-en-le-Frith STW

Failure to achieve the proposed Long-Term Objective for the Biological Water Quality of B2.

Issue GSS24 Peak Forest Canal (Buxworth Branch) - QSL at Buxworth to junction with Peak Forest Canal

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE4.

Issue GSS25 Black Brook - Chapel-en-le-Frith STW to confluence with River Goyt

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE3 and lack of fishery.

Issue GSS26 River Goyt - Black Brook confluence to River Sett confluence

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE3.

Issue GSS27 River Kinder - QSL at Kinder Reservoir to confluence with River Sett

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE1

Issue GSS28 River Sett - Thornsett

Aesthetic deterioration due to ochre.

Issue GSS29 River Goyt - River Sett confluence to Strines Textiles site

Limited Fishery.

Issue GSS30 River Etherow - QSL near Black Clough to Outlet of Bottoms Reservoir

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE1 and failure to achieve the proposed Long-Term Objective for Biological Water Quality of B1.

Issue GSS31 River Etherow - Outlet of Bottoms Reservoir to Glossop Brook confluence

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE2 and failure to achieve the proposed Long-Term Objective for Biological Water Quality of B2.

Issue GSS32 Glossop (Shelf) Brook - Old Glossop to confluence with River Etherow

Failure to achieve the proposed Long-Term Objective for the Biological Water Quality of B2.

Issue GSS33 Hatherlow Brook - QSL at Romiley to confluence with River Goyt

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE3 and limited fishery.

Issue GSS34 Poise Brook - QSL upstream of Torkington Park to Ochreley Brook confluence

Restricted fish population.

Issue GSS35 **Poise Brook - Ochreley Brook confluence to confluence with River Goyt**

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE3; failure to achieve the proposed Long-Term Objective for Biological Water Quality of B3 and the absence of fish.

Issue GSS36 **Ochreley Brook - QSL at Torkington Road to confluence with Poise Brook**

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE3 and limited fishery.

Issue GSS3 **Peak Forest Canal - Junction with Macclesfield Canal to Junction with Ashton Canal**

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE4.

APPENDICES

GLOSSARY

ABSTRACTION LICENCE

A licence to abstract water issued by the NRA. The maximum annual, daily, and hourly abstraction rates are normally set within the terms of the licence.

AQUIFER

A layer of underground porous rock which contains water and allows water to flow through it.

BED

The bottom of a river.

BED CONTROL

Stable river bed which limits the movement of bed materials.

BERM

A shelf at the base of a bank at normal flows which gives extra channel width in high flows.

CARR

Wet woodland composed of trees such as willow and alder, which is a successional stage between open water and dry woodland.

CHANNEL

A cutting in land along which a river flows.

CONFLUENCE

Point where two, or more, rivers meet.

CLOUGH

A small steep sided river valley.

COMPENSATION WATER

Water released from a reservoir to maintain the flow required in the river.

CULVERT

A man-made structure, for example a pipe, carrying a watercourse underground.

CYPRINIDS

The carp family of fish comprising some 200 freshwater species.

DEPOSITION

Where a river flows more slowly it may deposit gravel, sand and silt in its channel - often on the inside edge of bends or meanders.

DIFFERENT UNITS FOR FLOW MEASUREMENT

m^3/s	Cubic metres per second (cumec)
l/s	Litres per second
Mld	Megalitres per day
mgd	Millions of gallons per day

Conversion Table

m^3/s	Mld	mgd
0.012	1	0.224
0.06	5	1.12
0.12	10	2.24
0.24	20	4.48
0.6	50	11.2
1.2	100	22.4

DRIFT

Superficial deposits covering solid rock. Often deposited by rivers or by former glaciation in the form of boulder clay, peat or sands and gravels.

DRY WEATHER FLOW

It is a selected flow that is not exceeded for ten successive days which is also referred to as a Q95 flow.

FAUNA

Animal life.

FLUVIAL

Adjective of rivers.

FRESHWATER FISH

For the purpose of the Salmon and Freshwater Fisheries Act 1975, fish other than salmon, brown trout, sea trout, rainbow trout and char.

GEOMORPHOLOGICAL FEATURES

Physical features of a river, which include meandering (winding) channel, gravel beds and shoals, ox-bows, earth cliffs and river terraces.

HYDRAULIC CONTINUITY

The relationship between groundwater and surface water flow.

INVERTEBRATE

Animal without a backbone for example insects.

LEACHATE

Liquid containing material in solution, draining from the ground.

LOAD

A measure of the material carried by a river either in suspension or as dissolved material.

MAIN RIVER

Some, but not all, watercourses are designated as Main River. Main River status of a watercourse must first be approved by MAFF. The NRA has the power to carry out works to improve drainage or protect land and property against flooding on watercourses desginated as Main River.

MAJOR AQUIFER

Water bearing rocks which are capable of yielding significant volumes of groundwater due to its high permeability and porosity.

MARGINAL

At the water's edge

MINOR AQUIFER

Water bearing rock of limited extent, capable of supporting medium/small abstractions.

NON AQUIFER

Rock of low permeability containing little or no groundwater (may support very limited abstractions).

OCHRE

Iron based orange discolouration.

PASTURE

Semi-improved and improved grazed grassland.

POOL

A deep slowing flowing section of a river or stream.

PRECIPITATION

The total amount of water which falls as rain, hail, or snow expressed as mm or inches of rainfall over a specified period.

RETURN PERIOD

The frequency within which, on average, an event of a certain severity may be expected to return (expressed in years).

RIFFLE

A shallow, but fast flowing part of a river or stream.

RIPARIAN

Of, or on, the banks of a river.

RIPARIAN OWNER

Owner of land abutting a river or lake. Normally riparian owners own the bed of river to the mid point of the channel.

RIVER CORRIDOR

Stretch of river including its banks and the land close by.

SALMONIDS

Fish classified as belonging to the Salmon family, such as Salmon, Trout and Char.

SHOAL

A sand and/or gravel deposit at the edge of or within river channel.

STRATA

Layer of rock.

SPATE

Very high flows, usually associated with rain storms and often cause flooding. Spate flows naturally cleanse the river channel.

TERRACE

A raised flat area cut out of a hillside by the action of the river.

TOPOGRAPHY

Physical features of a geographical area.

TRANSFER STATION (Waste Disposal)

A licensed depot where controlled waste is stored and sorted for disposal or recycling.

WATER TABLE

The surface of a body of groundwater within the underground strata. The water table will fluctuate as a result of natural or artificial causes.

APPENDIX 2

ABBREVIATIONS

AOD	-	Above ordnance datum
CSO	-	Combined Sewer Overflow
DOE	-	Department of the Environment
EC	-	European Community
ESA	-	Environmentally Sensitive Area
EQS	-	Environmental Quality Standard
GMPTE	-	Greater Manchester Passenger Transport Executive
HMIP	-	Her Majesty's Inspectorate of Pollution
IPC	-	Integrated Pollution Control
LPA	-	Local Planning Authority
MAFF	-	Ministry of Agriculture Fisheries and Food
MBC	-	Metropolitan Borough Council
MCC	-	Manchester City Council
NNR	-	National Nature Reserve
NWC	-	National Water Council
NWW Ltd	-	North West Water Limited
QSL	-	Quality Survey Limit
RE	-	River Ecosystem
RQO	-	River Quality Objective

SBI	-	Site of Biological Importance
SPA	-	Special Protection Areas
SSSI	-	Site of Special Scientific Interest
STW	-	Sewage Treatment Works (also referred to as Waste Water Treatment Works)
SWQO	-	Statutory Water Quality Objectives
UDP	-	Unitary Development Plan
WML	-	Waste Management Licence
WRA	-	Water Resources Act

RIVER ECOSYSTEM CLASSIFICATION

The Surface Waters (River Ecosystem) (Classification) Regulations 1994, SI 1994 No. 1057, prescribe a system for classifying the quality of rivers and canals, to provide the basis for setting statutory water quality objectives (WQOs) under Section 83 of the Water Resources Act 1991 in respect of individual stretches of water.

The River Ecosystem Classification comprises five hierarchial classes, in order to decreasing quality: RE1, RE2, RE3, RE4 and RE5. The criteria which samples of water are required to satisfy are set out, for ease of reference, in the Table below.

Class	Dissolved Oxygen % saturation 10 percentile	BOD (ATU) mg/l 90 percentile	Total Ammonia mg N/l 90 percentile	Un-ionised Ammonia mg N/l 95 percentile	pH Lower limit as 5 percentile; upper limit as 95 percentile	Hardness mg/l Ca Co_3	Dissolved Copper ug/l 95 percentile	Total Zinc ug/l 95 percentile
RE1	80	2.5	0.25	0.021	6.0 - 9.0	≤ 10 >10 and ≤ 50 > 50 and ≤ 100 >100	5 22 40 112	30 200 300 500
RE2	70	4.0	0.6	0.021	6.0 - 9.0	≤ 10 >10 and ≤ 50 > 50 and ≤ 100 >100	5 22 40 112	30 200 300 500
RE3	60	6.0	1.3	0.021	6.0 - 9.0	≤ 10 >10 and ≤ 50 > 50 and ≤ 100 >100	5 22 40 112	300 700 1000 2000
RE4	50	8.0	2.5	-	6.0 - 9.0	≤ 10 >10 and ≤ 50 > 50 and ≤ 100 >100	5 22 40 112	300 700 1000 2000
RE5	20	15.0	9.0	-	-	-	-	-

APPENDIX 4

PROPOSED RIVER ECOSYSTEM (RE) RIVER QUALITY OBJECTIVES (RQOs) AND LONG TERM OBJECTIVES FOR BIOLOGICAL WATER QUALITY

Watercourse	Reach	Proposed Short-Term RE RQO	Proposed Long-Term RE RQO	Proposed Long-Term Objective for Biological Water Quality
Goyt	QSL Errwood Reservoir to Edward Hall site	RE1 (1995)	RE1	B1
Goyt	Edward Hall site to Black Brook confluence	RE4 (1995)	RE3	B3
Goyt	Black Brook confluence to River Sett confluence	RE4 (1995)	RE3	B3
Goyt	River Sett confluence to Kruger Tissue site	RE4 (1995)	RE3	B3
Goyt	Kruger Tissue site to Strines Textiles site	RE3 (1995)	RE3	B3
Goyt	Strines Textiles to River Etherow confluence	RE4 (1995)	RE3	B3
Goyt	River Etherow to confluence with River Tame	RE3 (1995)	RE3	B3
River Goyt Tributaries				
Randall Carr Brook	QSL at Combs Reservoir to Cadster	RE2 (1995)	RE2	B2
Randall Carr Brook	Cadster to confluence with River Goyt	RE2 (1995)	RE2	B2
Todd Brk	QSL Browside Clough to River Goyt	RE2 (1995)	RE1	B1
Black Brk	QSL at A625 to Chapel-en-le-Frith STW	RE2 (1995)	RE2	B2
Black Brk	Chapel-en-le-Frith STW to River Goyt	RE4 (1997)	RE3	B3

QSL - Quality Survey Limit

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Warm Brk	QSL at Chapel-en-le-Frith to Black Brook	RE3 (1995)	RE3	B3
Wash Brk	QSL at Roych Brook to Black Brook	RE1 (1995)	RE1	B2
River Sett	QSL Coldwell Clough to Brookhouse Brook	RE2 (1995)	RE2	B1
River Sett	Brookhouse Brook to River Goyt	RE2 (1995)	RE2	B2
River Kinder	QSL at Kinder Reservoir to River Sett	RE2 (1995)	RE1	B1
Rowarth Brook	QSL at Rowarth STW to River Sett	RE2 (1995)	RE2	B2
Hollywood End Brook	QSL at Mill Brow to confluence with River Goyt	RE2 (1995)	RE2	B2
River Etherow	QSL Black Clough to Outlet Bottoms Res	RE2 (1995)	RE1	B1
River Etherow	Outlet Bottoms Reservoir to Glossop Brook	RE3 (1995)	RE2	B2
River Etherow	Glossop Brook confluence to River Goyt	RE3 (1995)	RE3	B3
Shelf Brook	QSL Yellowstacks Brook to Old Glossop	RE2 (1995)	RE2	B2
Glossop Brook	Old Glossop to confluence with River Etherow	RE2 (1995)	RE2	B2
Hurst Brook	QSL Hurst Reservoir to Glossop Brook	RE2 (1995)	RE2	B2
Hatherlow Brook	QSL at Romiley to confluence with River Goyt	RE4 (1995)	RE3	B3
Torkington Brook	QSL at Hazelbank to confluence with River Goyt	RE3 (1995)	RE2	B2
Poise Brk	QSL above Torkington Park to Ochreley Brook	RE4 (1995)	RE3	B3
Poise Brk	Ochreley Brook confluence to River Goyt	RE4 (1995)	RE3	B3
Ochreley Brook	QSL Torkington Road to Poise Brook	RE4 (1995)	RE3	B3

Watercourse	Reach	Proposed Short-Term RE RQO	Proposed Long-Term RE RQO	Proposed Long-Term Objective for Biological Water Quality
Tame	QSL at Readycon Dean Reservoir to New Years Bridge Reservoir	RE2 (1995)	RE2	B2
Tame	New Years Bridge Reservoir to Hull Brook	RE2 (1995)	RE2	B2
Tame	Hull Brook confluence to Chew Brook	RE2 (1995)	RE2	B2
Tame	Chew Brook confluence to Ashton STW	RE2 (1995)	RE2	B3
Tame	Ashton STW to Hyde STW	RE4 (2001)	RE4	B3
Tame	Hyde STW to confluence with River Mersey	RE4 (1995)	RE4	B3
River Tame Tributaries				
Hull Brook	QSL Lower Castleshaw Reservoir to River Tame	RE2 (1995)	RE2	B2
Diggle Brook	QSL at Diggle Reservoir to River Tame	RE2 (1995)	RE2	B2
Chew Brk	QSL at Yeoman Hey Reservoir to Robert Fletcher site	RE2 (1995)	RE1	B1
Chew Brk	Robert Fletcher site to confluence with River Tame	RE3 (1995)	RE3	B3
Carr Brook	QSL at Reservoir to Buckton Vale	RE5 (1995)	RE2	B2
Carr Brook	Buckton Vale to confluence with River Tame	RE3 (1995)	RE2	B2
Swineshaw Brook	QSL at Upper Swineshaw Reservoir to Canal Take-off	RE1 (1995)	RE1	B3
Swineshaw Brook	Canal Take-off to confluence with River Tame	RE3 (1995)	RE2	B2
Wilson Brook	QSL at Newton to Randal Brook confluence	RE3 (1995)	RE3	B3
Wilson Brook	Randal Brook to confluence with River Tame	RE4 (1995)	RE3	B3
Denton Brook	QSL at Jackson's Gardens to River Tame	RE3 (2001)	RE3	B3

Watercourse	Reach	Proposed Short-Term RE RQO	Proposed Long-Term RE RQO	Proposed Long-Term Objective for Biological Water Quality
Mersey	River Goyt/Tame confluence to Stockport STW	RE3 (1995)	RE3	B3
Mersey	Stockport STW to Princess Parkway	RE4 (1995)	RE4	B3
Mersey	Princess Parkway to Carrington Pumping Station	RE4 (1995)	RE4	B3
Manchester Ship Canal	Carrington Pumping Station to Woolston New Cut	-	RE4	-
River Mersey Tributaries				
Norbury Brk	QSL at Norbury Hollow to Poynton Brook	RE3 (1995)	RE2	B2
Micker Brk	Poynton Brook to confluence with River Mersey	RE2 (1995)	RE2	B2
Poynton Brk	QSL at Poynton Bridge to Micker Brook	RE3 (1995)	RE2	B2
Gatley Brk	QSL at Heald Green Station to River Mersey	RE5 (1995)	RE2	B2
Chorlton Brk	QSL at Tan Yard Brow to Cringle Brook	RE2 (1995)	RE2	B3
Chorlton Brk	Cringle Brook to confluence with River Mersey	RE3 (1995)	RE3	B3
Fallowfield Brook	QSL at North Reddish to confluence with Chorlton Brook	RE3 (1995)	RE3	B3
Cringle Brk	QSL at Heaton Chapel to Chorlton Brook	RE3 (1995)	RE3	B3
Old Eea Brk	QSL at SJ 7692 to River Mersey	-	RE4	B3
Sinderland Brook	QSL at Portway to Fairywell Brook confluence	RE4 (1995)	RE4	B3
Sinderland Brook	Fairywell Brook confluence to Altrincham STW	-	RE4	B3
Sinderland Brook	Altrincham STW to confluence with Manchester Ship Canal	RE5 (1995)	RE4	B3
Fairywell Brook	QSL at Whitecarr Lane to Sinderland Brook	RE4 (1995)	RE4	B3
Timperley Brook	QSL at Wellfield Lane to Sinderland Brook	RE5 (1995)	RE4	B3

Watercourse	Reach	Proposed Short-Term RE RQO	Proposed Long-Term RE RQO	Proposed Long-Term Objective for Biological Water Quality
Bollin	QSL at Langley to Dane Moss tributary	RE2 (1995)	RE2	B2
Bollin	Dane Moss tributary to Macclesfield Station	RE3 (1995)	RE3	B3
Bollin	Macclesfield Station to weir at SJ903 760	RE4 (1995)	RE3	B3
Bollin	Weir at SJ903 760 to Macclesfield STW	RE3 (1995)	RE3	B3
Bollin	Macclesfield STW to River Dean confluence	RE3 (2001)	RE3	B3
Bollin	River Dean confluence to Pedley Brook confluence	RE3 (2001)	RE3	B3
Bollin	Pedley Brook confluence to Manchester Ship Canal	RE2 (2001)	RE2	B2
River Bollin Tributaries				
Rossendale Brook	QSL at Lowerhouse to confluence with River Bollin	RE4 (1996)	RE3	B3
Shoreclough Brook	QSL at Hurdsfield Industrial Estate to River Bollin	RE5 (1995)	RE4	B3
River Dean	QSL at Lamaload Reservoir to Rainow STW	RE2 (1995)	RE2	B2
River Dean	Rainow STW to Wilmslow STW	RE2 (1995)	RE2	B2
River Dean	Wilmslow STW to confluence with River Bollin	RE3 (1995)	RE3	B3
Harrop Brk	QSL at Bowerclough to River Dean	RE2 (1995)	RE2	B2
P Shrigley Brook	QSL at Industrial Estate to Harrop Brook	RE2 (1995)	RE2	B3
Red Brook	QSL Redbrook Brook to Shirdfold Farm Stream	RE2 (1995)	RE2	B2
Red Brook	Shirdfold Farm Stream to River Dean	RE2 (2001)	RE2	B2
Spath Brk	QSL at Stanley Green IE to River Dean	-	RE4	B3
Cotterill Clough	QSL at Ringway to River Bollin	RE4 (1996)	RE4	B3
Pedley Brk	QSL Peckmill Bottoms to Marthall Brook	RE3 (1995)	RE2	B2
Birkin Brk	Marthall Brook confluence to Knutsford STW	RE3 (1995)	RE2	B2

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Birkin Brk	Knutsford STW to Tatton Mere Stream	RE2 (2001)	RE2	B2
Birkin Brk	Tatton Mere Stream to Mobberley Brook	RE2 (1995)	RE2	B2
Birkin Brk	Mobberley Brook to River Bollin	RE3 (1995)	RE2	B2
Marthall Brook	QSL at Marthall Lane to Pedley Brook	RE3 (1995)	RE2	B2
Tatton Mere St	QSL Head of Tatton Mere to Birkin Brook	RE3 (1995)	RE2	B2
Mobberley Brook	QSL Alderley Edge STW to Mobberley STW	RE5 (1995)	RE4	B3
Mobberley Brook	Mobberley STW to Birkin Brook	RE5 (1995)	RE2	B3
Sugar Brk	QSL Hargreaves Bridge to Mobberley Brook	RE2 (1995)	RE2	B2
Rostherne Brook	QSL at Mere to Little Mere Outlet	RE4 (1995)	RE2	B2
Blackburn Brook	Little Mere Outlet to Birkin Brook	RE4 (1995)	RE2	B2
Agden Brk	QSL at A56 to confluence with River Bollin	RE4 (1995)	RE3	B3
Manchester Ship Canal Tributary				
Sow Brook	QSL at Lymm Dam to Manchester Ship Canal	RE3 (1995)	RE3	B3

Canal	Reach	Proposed Short-Term RE RQO	Proposed Long-Term RE RQO	Proposed Long-Term Objective for Biological Water Quality
Peak Forest	QSL at Whaley Bridge to junction with Macclesfield Canal	RE2 (1995)	RE2	-
Peak Forest (Buxworth Branch)	QSL at Buxworth to junction with Peak Forest Canal	RE5 (1995)	RE4	-
Peak Forest	Junction with Macclesfield Canal to junction with Ashton Canal	RE5 (1995)	RE4	-
Huddersfield	QSL at Stanedge to Wellihole	RE2 (1995)	RE1	-
Huddersfield	Wellihole to Swineshaw Brook	RE2 (1995)	RE1	-
Huddersfield	Swineshaw Brook to Empress Processing site	RE3 (1995)	RE1	-
Ashton	Junction with Peak Forest Canal to Robertsons site	RE2 (1995)	RE2	-
Bridgewater	Lymm to Water Meetings, Trafford	RE2 (1995)	RE2	-
Macclesfield	QSL at junction with Peak Forest Canal to Cowley	RE4 (1995)	RE4	-

NRA GUIDANCE STATEMENTS and LPA DEVELOPMENT PLAN POLICIES

	LPA PLAN POLICIES WHICH PROTECT THE WATER ENVIRONMENT (plan policy reference shown)			
Development Plan	Water Quality and Water Resources	Flood Defence	Fisheries, Recreation and Conservation	Minerals and Waste Disposal
Warrington DC modified deposit Local Plan Awaiting Public Inquiry	DC 1 DC 2 ENV 23 ENV 24	ENV 10 ENV 11	ENV 15 ENV 16 ENV 17	-
Manchester MCC UDP Adopted 1995	E 14	NEW POLICY	E 3.3	-
High Peak BC. Deposit Local Plan Awaiting Public Inquiry	CF10 GD 16 CF 8	GD 15	BC 17 OC 10(i)	-
Trafford MBC Deposit UDP Modified plan following receipt of the Inspector's Report on deposit.	ENV 35	ENV 10	ENV 7 ENV 16 ENV 26 ORA 5	M 5 M 9 ENV 16
Tameside MBC Deposit UDP Modified plan following receipt of the Inspector's Report on deposit.	G 5 M 18 M 23	M 18 M 28	C 6 OL 16 OL 19 OL 20	M 1 M 3

NB: Table prepared December 1995

NRA GUIDANCE STATEMENTS and LPA DEVELOPMENT PLAN POLICIES

	LPA PLAN POLICIES WHICH PROTECT THE WATER ENVIRONMENT (their plan policy reference shown)			
Development Plan	Water Quality and Water Resources	Flood Defence	Fisheries, Recreation and Conservation	Minerals and Waste Disposal
Cheshire CC Structure Plan 2001 Adopted 1992	ENV 2	-	ENV 12	MWD 20 MWD 19
Derbyshire CC Structure Plan Adopted 1990	GEN 2 ENV 3	-	ENV 1	MIN 2 MIN 9 WD 6 WD9
Oldham MBC Modified UDP following Inspector's Report	WR 1 LR 2.52 BE 1.1	OE 1.50	OE 1 OE 1.3 OE 1.4	W1 LR 3.3 LR 3.4 W12
Stockport MBC modified UDP prior to Public Inquiry	UN 8.3 UN 8.5	UN 8.7	UC3	UM 1.1 UM 1.2 UM 2.1
Macclesfield BC Deposit Local Plan Awaiting Inspector's Report following Public Inquiry	DC 17 DC 18 DC 20 DC 21	DC 19	N 10	-
Peak District National Park First replacement structure plan adopted 1994	C 15	C 18	C 13	M 7

NRA

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