

River Mersey

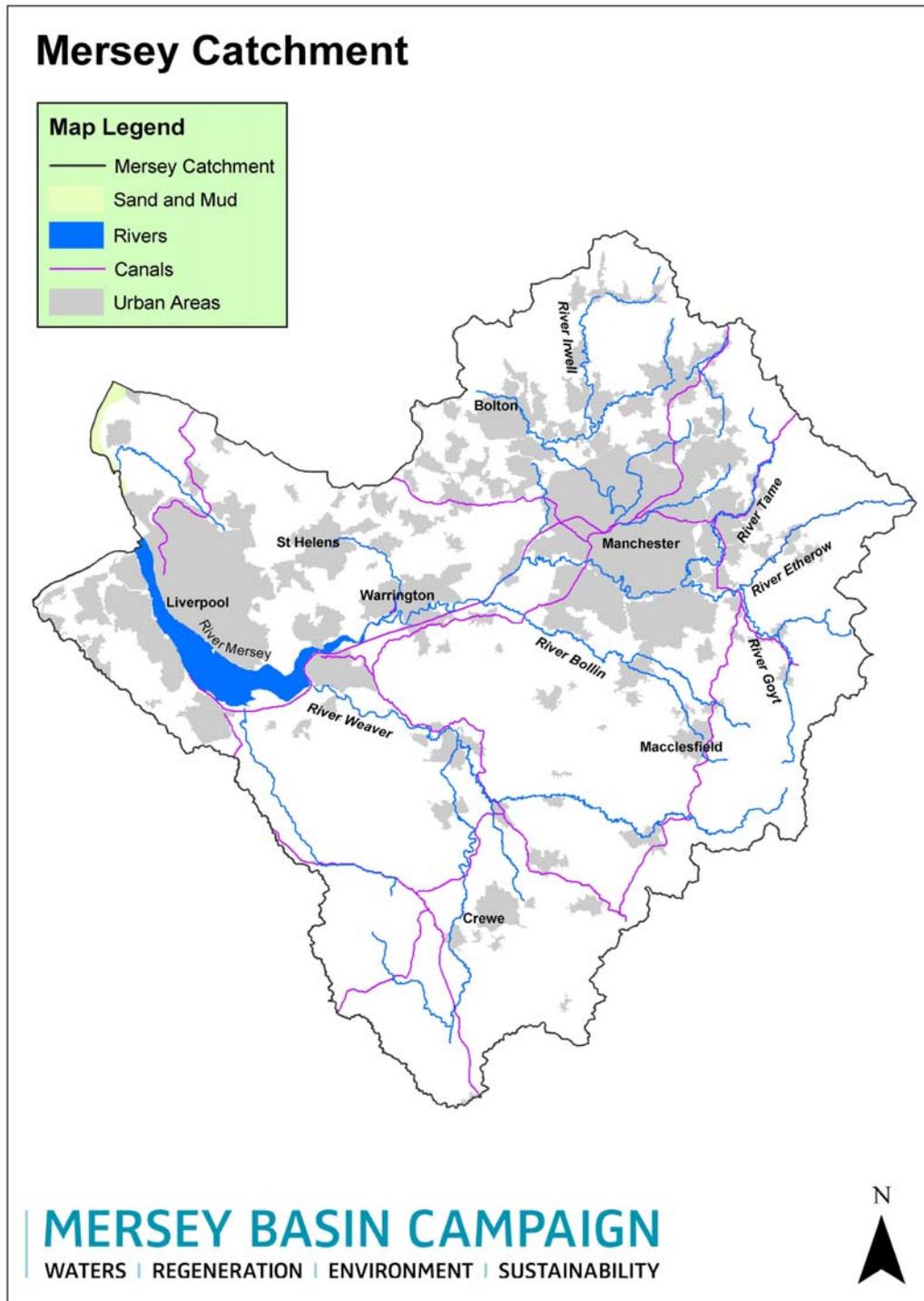
The River Mersey flows from the Peak District in the North West of England, through Manchester and out to sea at Liverpool.



Did you know?

- The length of the River Mersey is 110 km, of which the Estuary is 26 km long;
- The total area drained by the Mersey and its tributaries is 4,680 km²;
- Over 5 million people live and work within the catchment;
- The name 'Mersey' originates from Old English 'Maere' meaning boundary;
- The Mersey was the ancient boundary between the Saxon kingdoms of Mercia and Northumbria;
- The River Mersey forms at the confluence of the River Tame with the River Goyt in Stockport.

Location and Basic Geography



Map showing the catchment of the River Mersey in North West England.

Location and Basic Geography

The River Mersey originates at the confluence of the River Tame and the River Goyt in the town centre of Stockport, Northwest England. It flows west, towards Liverpool, passing through South Manchester towards Warrington, where the river becomes tidal at Howley Weir and the Upper Estuary starts. It widens to form the Inner Estuary at Runcorn. Here is the confluence with the navigable River Weaver.

The Mersey Estuary continues through the 'Narrows' a straight narrow channel with depths of up to 30 m driven by a change in geology. It forms the Outer Estuary, a large area of inter-tidal sand and mud banks as it flows into Liverpool Bay on the Irish Sea. The Mersey is a tidal river with the second highest tidal range in the UK of about 10 m. These strong tides have created deep channels and sandbanks throughout the Mersey Estuary, which can make navigation difficult.

Water Quality of the River Mersey Historical Background

With the opening of Liverpool's first dock back in 1715, the Mersey catchment became a prime location for industrial expansion. It was the advent of mechanised spinning and weaving which induced the siting of new mills along watercourses within the region. Associated with the textile industry was an increase in the bleaching, dyeing, finishing trades as well as chemical works. Allied to the growth of these was the growth of the paper, heavy chemical and glass industries, which are still in production to this day. All of these industries used the waterways as a means for the disposal of industrial waste. This has resulted in a legacy of pollutants within the River Mersey of particularly noxious substances such as mercury; pesticides such as DDT; and persistent organic contaminants, such as polychlorinated biphenyls (PCBs) and pentachlorophenol (PCP).

As industry grew, so too did the human population. Nearly 5 million inhabit the Mersey catchment. Historically the domestic waste produced by this population has been disposed directly into the waterways resulting in gross pollution. Progressively a situation was reached where the environment did not have the capacity to degrade, dilute and disperse all of the material put into it.

Time for a Change

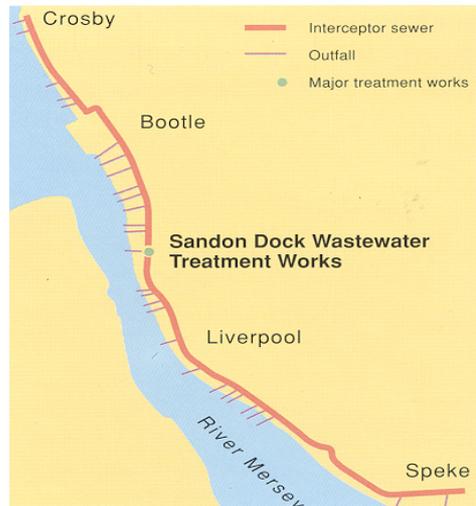
In 1985, at the inception of the Mersey Basin Campaign, set up as a consequence of this, the Mersey Estuary was the most polluted estuary in the UK, receiving up to 60% of the mainland pollution generated by industry and a population of over 5 million inhabitants. Water quality has improved in recent years as a result of initiatives such as the Mersey Basin Campaign and more stringent EU requirements, and also by technological changes and advances in scientific understanding.

Time for a Change

In an effort to rid the Mersey Estuary of its unenviable title of the most polluted estuary in Europe, North West Water embarked, in 1981, upon a clean-up scheme designed to counteract the years of misuse and neglect. From an examination of the main problems, it was seen that levels of oxygen within the main river systems and Mersey Estuary, driven by the high levels of sewage discharged into the waterways, was a major stumbling block to improved water quality.

One of the first steps was to tackle to direct discharges of crude sewage into the regions waterways. For example, new primary sewage works at Sandon Dock replaced 28 crude sewage discharges directly into the Mersey Estuary through the MEPAS scheme (Mersey Estuary Pollution Alleviation Scheme), diverting wastewater to a new treatment works. This is just one programme initiated as a direct result of massive investment by North West Water (and now United Utilities) in sewage treatment and its associated network.

The MEPAS scheme on the River Mersey



Further improvements to the treatment of wastewater now include tertiary treatment for the removal of ammonia from wastewater. Exposure to short periods of ammonia may kill salmonid fish species. For example, at Davyhulme wastewater treatment works in Greater Manchester, a natural purification process using a biological aerated flooded filter process removes ammonia, reducing discharges into the Manchester Ship Canal.

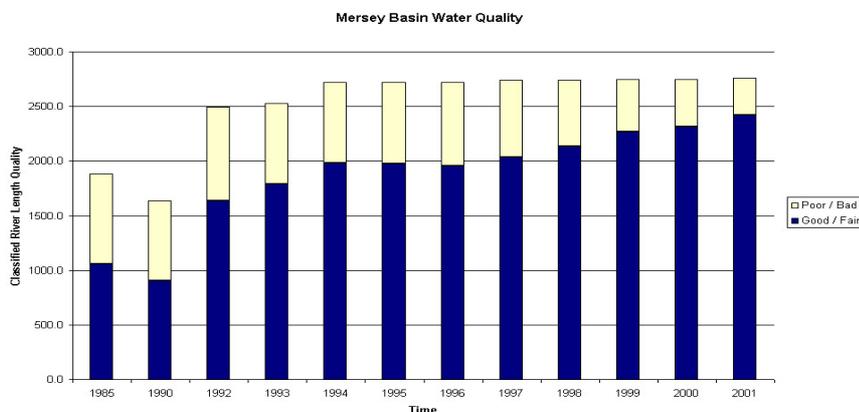


Figure showing water quality improvements across the Mersey Catchment from 1985-2001

The Future

Regular environmental monitoring by the Environment Agency has led to improved understanding of the complexity of many of the pollution problems, and an identification of where the major problems are. Currently, they monitor chemical and biological indicators as measures of river quality, but these only tell a partial story. With the new EU Water Framework Directive, a much wider understanding of the processes within our aquatic systems will be gained with regular monitoring of ecological indicators as well as chemical parameters. Overall river ecological assessments will allow a greater understanding of the longer-term impacts of the pollutants currently within our aquatic systems.

There is still a long way to go. Whilst many of the highly dangerous pollutants such as mercury and DDT are decreasing within the waters of the Mersey catchment, there are new challenges ahead with more contaminants finding their way into the watercourses. One such area for concern is the suite of chemicals acting as endocrine disruptors and leading to sex reversal in many fish species. There is a need to understand the implications and long-term impacts of these chemicals on the aquatic environments, as well as identifying the technology for removing these from the system.

Mersey Water Front Park

Mersey Waterfront is a Regional Park which spans more than 120km of the City Region's coastline, taking in the river Mersey and its estuary and parts of the rivers Dee and Ribble. It has been established to create a major internationally acclaimed attraction with a unique sense of place for people to live, work, invest and visit.

See www.merseywaterfront.com for details on the Mersey Waterfront Regional Park.



Wildlife and the River Mersey

The rivers within the Mersey catchment are of high local conservation value, with some sites of national and international importance. The Mersey Estuary has been designated as both a Special Protection Area (SPA) and a Ramsar Site in recognition of its conservation value, especially for birds, as well as the designation as a SSSI (Site of Special Scientific Interest). The Mersey Estuary has been designated a SPA because of the range of habitats, which have attracted 1000s of internationally important wintering wildfowl and waders. See <http://www.natureonthemap.org.uk/identify.aspx> for further details on the protected status of the River Mersey.

Water quality improvements now mean the Mersey supports a wide range of fish species, including migratory fish such as salmon. The River Mersey now supports salmon, trout, lamprey and dace. The increase in the numbers of fish in the river has encouraged a number of other animals to return to the Estuary. These include porpoises, grey seals and even octopus.

The Urban Mersey Basin, covering the Upper Mersey and River Irwell, supports a varied assemblage of habitats and species, though many of the habitats have been modified and created by human activity and these include ponds, canals and subsidence 'flashes', such as Pennington Flash.



Further Information

See the Environment Agency web pages for further information on the River Mersey:

<http://www.environment-agency.gov.uk/regions/northwest/>

The River Room at the Liverpool Museum:

<http://www.liverpoolmuseums.org.uk/liverpoolife/exhibitions/riverroom/river1.asp>

Greenwood, E.F. (ed.) (1999) *Ecology and Landscape Development: A History of the Mersey Basin*. Liverpool University Press, Liverpool.