



Chapter Four

The River and Pollution



THE RIVER AND POLLUTION

Background Information

The River Mersey rises high in the Pennines and flows down across the flat lowland plains towards Liverpool and the estuary to the Irish sea. The river drains some 4750 km² which includes a large part of Cheshire and South Lancashire including the urban and industrial areas of Merseyside and Greater Manchester.





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Estuaries are fascinating places. The area where the river meets the sea provides a strange mixture of conditions – the water is partly salty and partly fresh, the land is sometimes dry and sometimes covered with water as the tide comes in. An estuary can be a very valuable place for wildlife but it has special problems when it comes to dealing with pollution and the Mersey estuary has needed particular attention.

In some estuaries, the tides which come in and out will “flush” the estuary and sweep pollution out to the sea. The Mersey estuary however, has a narrow mouth where it meets the sea and widens out between Widnes and Liverpool. This means that pollution is just washed backwards and forwards and takes a long time to reach the sea. Much heavily polluted sediment is deposited in the wide part of the river.

Under the national system of classifying river pollution which ranges from 1 (good) to 4 (heavily polluted) the Mersey estuary is rated as Class 3 which means it is too polluted to have any large fish populations and the water can only be used by industry and not for drinking.

Many organisations are working hard to upgrade the Mersey and its tributaries to Class 2 by the year 2010. This is being implemented by organisations such as North West Water, The National River Authority and the Mersey Basin Campaign, who have spent over £550 million between them since 1980 on projects to improve sewage systems in the area and build new treatment works. There is still a lot of work to be done but the tide of pollution is slowly beginning to turn.



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Curriculum tasks for pupils

1. Brainstorm a diagram for pollution
2. River – water survey – see page 48
3. Pollution on river bank survey – see page 49
4. Design a poster warning against pollution in the river.
5. Design a sign to be placed on river bank against dumping waste in the river.
6. Design a poster to illustrate different classes of river – see page 50

River Water Survey

What colour is the water?	
Describe any manmade objects floating on or below the surface.	
Would you describe the water as dirty? Give some reasons.	
Would you describe the water as dirty? Give some reasons.	
What might you expect to see in a river with clean water?	

Pollution on the banks of the river

Where is your survey point?		
Make a tally chart of these pollutants		Now make up 5 questions to interrogate your data
plastic		
glass		
metal		
wood		
rope		
sewage		
dead surface animal life		
dead underwater creatures		
clothing		

Water Pollution Levels

<p>Class 1 rivers: The water can be used for drinking, Fish like salmon and trout can live there because the water has lots of oxygen.</p>	<p>Class 3 rivers: The river has too many pollutants and after too little oxygen for fish to be able to live there. Small animals are able to withstand the pollution and live there. You cannot drink this water but it can be used by industry.</p>
<p>Class 2 rivers: The water needs to be treated before it can be drunk. There is enough oxygen to support fish like bream, chub, perch and roach but not usually salmon or trout.</p>	<p>Class 4 rivers: The was is so badly polluted that hardly any oxygen is present. No fish live there. A few small creatures can live in this inhospitable habitat.</p>



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6. Extract from a letter written in 1697 by Thomas Patten to Mr Richard Norris, of Speke Hall

“Sir

I am informed that there is a design to bring a bill into the House of Commons against fish wears that hinder navigation, in navigable rivers, and that take and destroy fish and the fry of fish. You very well know the mischief that is done in the River Mersey or at least heard that vast numbers of salmon-trout are taken, so as to supply all the county and market towns twenty miles around; and when the county is cloyed, or when they cannot get sale for them, they give them to the swine. Your brother did formally take three or four salmon a week at a fishing, in or near Speke, but, of late, hath taken very few, or none, of which he hath complained to me; and he imputed this loss to the destruction of the fry, and hath after threatened to prosecute your fishermen.

Than again these wears are as mischievous another way, by their hindering the passage of ships, boats and barges; as for example, in the same River Mersey what a vast advantage would be to Liverpool if the river were made navigable to Manchester and Stockport. Since I made it navigable to Warrington there had been sent to Liverpool, and from Liverpool, 2,000 tons of goods a year, and I believe, as much by land, which if the river were cleaned of wears, would all go by water, for the river to Manchester is very capable of being made navigable at a very small charge. And this would encourage all tradesmen in Manchester, Stockport, Macclesfield, Congleton, Bolton, Bury, Rochdale, some parts of Yorkshire, Derbyshire and Stafford to come to Liverpool and buy their goods instead of going to London; the carriage would be so easy and cheap it would nearly double the trade of Liverpool...I pray excuse this tedious letter and I desire a line in answer.

I am & Co,
Thos Patten”



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Comprehension exercise to go with Thomas Patten's letter to Mr Richard Norris in 1697.

1. What is Thomas Patten enquiring about in the first line of his letter?
2. Which type of fish are being taken from the River Mersey?
3. Is the fishing near Speke getting harder or easier? How can you tell?
4. What have fishermen in Speke been threatened with?
5. What do you think the sentence "hindering the passage of ships, boats and barges" means?
6. Who would benefit if the River Mersey was made navigable from Liverpool to Manchester and Stockport?
7. How has Mr Patten helped to improve navigation on the river?
8. From which places might tradesmen come to Liverpool to buy their goods?
9. Does Thomas Patten say that it would be expensive or easy and cheap to improve the trade of Liverpool?
10. How does Mr Patten excuse his letter at the end?



THE RIVER AND POLLUTION

People have always used the Mersey as a convenient drain but this did not begin to cause problems until the 18th and 19th centuries. During this time the industrial revolution led to the rapid growth of both population and industry which made increased demands on the water supply. Water was used in large quantities and then discharged after use back into the river, both from industrial and domestic sewage. Watercourses in urban areas became foul and evil smelling. The availability of raw materials near the ports of Liverpool and Birkenhead, the ease of transport by sea, or the meeting point of land and sea home goods led to the development of significant industries – soap manufacture at Port Sunlight, oil refining at Stanlow and the chemical pollution. These industries helped to sustain the area through periods of decline but the effluents discharged had a drastic effect on the environment and have been a contributory cause of pollution in the Mersey.

The biggest source of pollution, however, was domestic sewage. This reached the river either through sewage treatment works or from storm overflows. One and a quarter million people live in the large towns along the estuary banks and these numbers generate vast quantities of sewage. Significant pollution also comes from agriculture, either through fertilisers being washed through the soil, or leaks from silage pits and animal houses. The estuary not only has to cope with pollution from the River Mersey but also the pollution from its tributaries such as the Irweel and Weaver.

True or False

1. The River Mersey did not have a pollution problem before the 18th and 19th centuries. True / False.
2. The development of soap making, oil refining led to chemical pollution during the Industrial Revolution. True/False.
3. Domestic sewage from the 3m population along the banks of the Mersey was only a small source of pollution. True / False.
4. Farmers were not a cause of pollution. True /False.
5. The Mersey estuary could not cope with the pollution. True / False.



THE RIVER AND POLLUTION

Points of view about the river

The view of Liverpool from Tranmere

“After passing a distant ferry and ascending on a hill, I was told by my guide – “All you see spread beneath you – that immense plain, which stands like another Venice upon the waters – which is intersected by those numerous docks – which glitters with those numerous and cheerful habitations – which is the busy seat of trade, the gay scene of elegant amusements, growing out of its prosperity, where there is the most cheerful face of industry, overflowing riches, and everything that can delight a man that rushes to see the prosperity of a great community and a great empire – all this has been created by the industry and the disciplined management of a handful of men since you were a boy.”

Extract from the diary of Lord Erskine – cited in H Gawthrop, *The Mersey and the Ferries* 1853.

1. Where does this diary extract come from?
2. Does the guide describe Liverpool in an enthusiastic way?
3. Try to write the guide's words in modern language.
4. Would you agree with the guide's description today?



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The Boat Museum is a working museum of inland boats located at the junction of the Shropshire Union Canal and the Manchester ship Canal. Worksheets and education packs relating to canals and a science pack on water are available.

The Boat Museum
Dockyard Road
Ellesmere Park
Cheshire
CH65 4EF

Guided tours around sewage treatment works can be arranged by North West Water. They also have a range of information leaflets relating water control in the Mersey Basin.

North West Water
Public Information Unit
Dawson House
Swinton
Manchester
M27 2UX

Publications

The Detectives Study Pack is comprehensive in providing information and ideas on project work relating to pollution. Children can also help to compile part of a survey which is linked into a national database.

Mersey Basin Campaign
Voluntary Sector Network
The Building Centre
115 Portland Street
Manchester
M1 6DW
Tel: 0161 228 6924

Literature and publications relating to environmental management and pollution in the region are available from:

National Rivers Authority
North West Region
P.O. Box 12
Richmond Fenclough House
Knutsford Road
Warrington
WA4 1HG
Tel: 0925 53999



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Additional Information

Site Visits

Mersey Ferries Sea Life Aquarium at Seacombe Terminal opened in May 1991 and contains many living creatures from the Mersey including conger eels, sea anemones, lobsters, octopus and dog fish.

Joint Ferry Cruises and Aquarium tickets are available if you wish to combine your visit.

The aquarium at Liverpool Museum contains fish and other living creatures from estuarine waters.

Liverpool Museum
William Brown Street
Liverpool
L3 8EN

Martine Mere Wildfowl Trust features wetland habitats and wildfowl species.
Teachers packs and related worksheets available.

Wildfowl Trust
Martin Mere
Nr Ormskirk
L40 OTA

Medium Term Planning Sheet

Focus:	Unit of work:	Year:	Time Allocation:
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In planning and teaching teachers will provide effective learning opportunities for all pupils by:

- (i) setting suitable learning challenges
 (ii) responding to pupils' diverse learning needs
 (iii) overcoming potential barriers to learning and assessment for individuals and groups of pupils

Learning Objectives Key Questions	Focus N.C.ref	Suggested teaching strategies	Learning Outcomes	Links & Notes
Where is the River Mersey? What happens there? How is the river polluted? Is there any sealife in the river? What did we learn from looking at the River Mersey?	Geog 1a 2c 2d Engl 1c,d 2a,c,e Geog 1b 2b 4a Geog 2b 1b	Introduction & brainstorming about River Mersey. Visit to Mersey Ferry and Seacombe Aquarium. Looking at pollution and sealife. Using river water survey from resource pack.	To know where River Mersey was and who uses it. To be aware of local pollution in the river and to investigate life in the river. To understand the level of pollution in the river.	NC ref throughout Geog 1a, 2a 5a Photographic evidence of pollution (ICT) 5c2, 5b, 1c Follow up from visit ICT 3a

Resources:

Mersey Ferry Pack

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Learning Objectives Key Questions	Focus N.C.ref	Suggested teaching strategies	Learning Outcomes	Links & Notes
What did we see that pollutes the River Mersey? How can we represent waste found as an art display? How can we use materials found to illustrate pollution?	Geog 1b 3c	Discuss pollutants and show examples. Use pollution on river banks as focal point. Transfer tally chart into a bar chart using ICT.	To become aware of materials causing most waste.	Ma2 5a,b
Resources:				