

Liggard Brook

and Main Drain Improvement Scheme



ENVIRONMENT
AGENCY

flood prevention

Liggard Brook & Main Drain Improvement Scheme



be completely drained between successive tides, and water levels remain high for several days.

Liggard Brook passes through the centre of Lytham and receives water from numerous surface water drains. Following heavy rainfall, high water levels in Liggard Brook prevent the efficient operation of these drains, causing flooding of property and water logging of the surrounding area. In all, more than 100 houses are affected.

Main Drain and the upstream lengths of Liggard Brook drain the farmland around Lytham. Some flooding of farmland is experienced every winter. In all more than 600 hectares are at risk of flooding.

The Problem

Flooding of Lytham and the surrounding farmland has been a problem for many years. The area is flat and low lying and is drained by two watercourses, Liggard Brook and Main Drain. These watercourses discharge into the Ribble Estuary through tidal outfalls. Twice a day, at high tide, the outfalls are tidelocked as sea levels are higher than the water levels in the in-land waterways. This means that water cannot pass from the land out to sea and when this occurs together with heavy rainfall, flooding is the inevitable result. The excess water cannot

The Solution

After a thorough public consultation exercise culminating in a display of possible options and the development of an environmental statement, an appropriate solution was identified. This involved controlling the Liggard Brook water levels, through the residential areas of Lytham, by diverting flood flows into the adjacent Main Drain catchment. A new overflow weir and river diversion channel provide the link with the Main Drain watercourse. The Dock Bridge Pumping Station was included at the Main Drain's tidal controlled

on



Earthworks at the new outfall structure



New pumping station under construction



Floodwaters being discharged into the Ribble Estuary

outfall. This allows continuous and efficient drainage and discharge of flood flows from both catchments at all states of the tide. This option was the most appropriate as construction works were avoided in the built up areas of Lytham and householders and farmers along both Liggard Brook and Main Drain would benefit.

The final proposals included the construction of a 50,000 gallon per minute pumping station, pump control house, outlet structure, a road bridge, three farm access bridges, an overflow weir, laying large diameter pipes, widening of 2000m of watercourse and the excavation of 500m of new channel.

A key environmental enhancement was incorporated into the design of the works with all the new and regraded channels having a low level ledge. This will allow the introduction of appropriate native aquatic and wetland plants, enhancing the habitat and providing a wildlife corridor through an area of farmland which was previously deficient in such features.

The Design

An interesting problem was encountered at the outset of the detailed design work, as ground investigation work was underway. The Agency was advised that the site of the proposed pumping station had previously been the

site of a First World War Picric Acid (explosives) factory. For reasons of national security such installations were not marked on any maps or plans and consequently the previous use of the site had not been identified earlier.

Closer examination of the site revealed that foundation slabs from old structures were present below ground level in a field that was being used for grazing cattle. To allow the works to proceed the Royal Ordnance Division of British Aerospace was employed to examine the previous history of the site, to assess risks associated with construction work and to check that the site was clear of explosives. Fortunately no explosives were found.

The Construction Works

The construction works, costing £1.5 million began in March 1997 and were substantially completed in April 1998.

Undertaking works in an area such as this has its inevitable problems, not least of which was waterlogged ground and flooding of the construction works. These problems have been overcome by the Environment Agency which will allow Lytham residents and farmers to look forward to a much drier future.

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0645 333 111

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ENVIRONMENT
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Fisheries



North West



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Protecting & Impro

In the North West

The overall health and quality of rivers, reservoirs and lakes is clearly illustrated by the abundance and diversity of their fisheries and the wider ecology.

Fishing is still regarded as Britain's most popular pastime, attracting more than 3 million anglers nationally - more than 380,000 of them in the north west where rivers and stillwaters are rich in a variety of fish species. They range from the common roach to the arctic char and the vendace found only in the Lake District.

There are a vast number of both game and coarse fisheries throughout the north west. Many of the game fisheries are in Lancashire and Cumbria, where the water quality and habitats of the rivers and lakes are ideal for these fish.

In carrying out its fisheries work, the Environment Agency has valuable allies in the form of thousands of anglers who fish in rivers and lakes across the region. Anglers can help reduce the impact of pollution or report suspected poaching by using the Agency's free 'phone "hot-line" 0800 80 70 60 when they notice something wrong - perhaps fish in distress, or contaminated water.

The Environment Agency employs over 70 full-time fisheries staff in the region - from scientists who monitor the health and size of the fish population, to bailiffs who protect fisheries from illegal fishing and mount fish rescues or transfer operations.

To fish legally, anglers must have a rod licence (which can be bought from Post Offices throughout the region). The revenue from these licences makes up over half the cost of the £20 million national fisheries bill - the rest coming from Government grant-in-aid.

Those who do not have a licence can be prosecuted and fined up to £2,500 by the courts. The revenue from these licences is spent on:

- habitat improvement
- enforcing fishery laws and byelaws
- carrying out regular surveys to check the health and abundance of fish stocks
- rescuing fish when pollution incidents occur
- research to maintain, improve and develop fisheries
- restocking fisheries.



bailiffs watch for illegal fishing

Improvements to fisheries

In the region there is a programme of fishery habitat improvements, including the construction of fish passes to aid fish, particularly migratory salmonids, to their spawning and nursery areas.

ving Fisheries

Other projects include the cleaning of spawning gravels and, in order to restore the character of water courses, the creation of meanders, riffles and pools and bankside improvements to aid nature and wildlife.

Beating the Poachers

In the north west, almost 40% of the Agency's fisheries activity is directed towards enforcement. This includes licence checking, enforcement of byelaws, and anti-poaching activities.

In parts of the north west, poaching has become big business. The crime is well organised, with poachers operating in gangs using equipment such as two-way radios and night sight binoculars.

Despite being faced with formidable opposition, teams of Environment Agency bailiffs have thwarted many covert poaching operations.

Through gathering evidence of these illegal exploits, many successful prosecutions have been brought.

The Agency has sought to take the profit out of poaching by making the handling of "illegally" caught fish an offence. Many poachers sell their "catch" at the back door of pubs and restaurants, but now managers and staff - and members of the public - can face prosecution if caught buying the fish, with courts empowered to impose heavy fines.

The Environment Agency

Activities of the Agency are grouped under two broad headings:

- Pollution Prevention and Control, including Waste Regulation, Water Quality & Integrated Pollution Control
- Water Management, including Flood Defence and Water Resources as well as maintaining and improving, the region's Fisheries, Conservation & Recreation resources.

However, strong links between pollution prevention and control and water management ensure optimum benefits to all the region's fisheries from all the Agency's functions.

Rivercall

The Environment Agency operates a service for people using the rivers in the north west. By contacting Rivercall on 0891 500 999 people are updated with information on flow levels on river systems across the region. A recorded message is updated daily, giving the latest river conditions based on the level of flow above or below normal summer levels, as well as indicating if levels are rising, steady or falling.

Rivercall gives information on locations at:

- River Eden - Kirkby Stephen, Appleby, Warwick Bridge
- River Kent - Sprint Mill
- River Lune - Killington, Caton
- River Ribble - Locks Weir, Jumbles Rock, Samlesbury
- River Weaver - Ashbrook
- River Dane - Rudheath
- River Irwell - Bury Bridge
- River Goyt - Marple Bridge

Local Environment Agency Plans

Many demands are made on the environment. Water is abstracted to meet the needs of people, agriculture and industry. Treated sewage and other effluents are discharged to our rivers. Changes in the use of urban and rural land can influence the water environment. Rivers, canals and the coast are used for recreation and amenity purposes. Because these varied uses and influences can sometimes conflict, perhaps compromising future needs as well as damaging the water environment, an integrated approach is needed to achieve a sustainable balance.

Fish are sensitive to changes in their environment and usually prefer to live in clean, well oxygenated waters. Some



Environment Agency officers survey fish

stretches of river which run through the region's major towns and cities are too polluted to support fish life. But even in some parts of polluted rivers fish such as sticklebacks can survive.

Through the efforts of the Environment Agency, many of these rivers, including the River Mersey, are being cleaned up and fish are returning or being re-introduced to stretches where water quality has improved. The Environment Agency fish farms at Leyland, Witcherwell and Warwick Bridge rear fish for this purpose.

Local Environment Agency Plans (LEAPs) set out a shared vision for river catchments, reached through consultation with the local community and interested parties. Each one identifies objectives for catchment water quality, water quantity and physical features and the action to be taken by the Environment Agency and others to achieve these objectives.

It is important to stress the role of partnership. Landowners, individuals, local government, other government agencies, industry and interest groups all have a role to play in the management of the water environment in conjunction with the Environment Agency.

The production of each LEAP involves a number of stages. The first document to be produced is the Consultation Report following informal liaison with all the key parties on the key issues that need to be tackled within the area. Following public consultation, work starts on the Action Plan, establishing a long-term vision for the area and the action needed to tackle the key issues.

In the north west, Catchment Management Plans were produced by the National Rivers Authority (NRA, one of the predecessors of the Environment Agency) for the following:

Upper Mersey, Eden Estuary, Alt and Crossens, Derwent and Cumbria Coast, Irwell, Ribble, Douglas

Consultation Reports, Action Plans and Annual Reviews for individual catchments are all widely available.

The Future Of Our Rivers

The good news is that improvements to our rivers, which have been brought about largely by improvements in sewage treatment and the sewerage systems, are set to continue on the Mersey and elsewhere. North West Water Ltd has a capital investment programme which should lead to some significant improvements in fish populations over the next five years.

Improvements at Chorley Sewage Treatment Works mean improved fish populations on the River Yarrow and investment at Macclesfield Sewage Treatment Works will hopefully see an increase in the distribution of fish in the River Weaver. Improvements to Fazackerly and Hillhouse Sewage Treatment Works augers well even for the River Alt, with the eventual return of conditions suitable for diverse fish life.

The outlook is a positive one, with the Environment Agency implementing a far-reaching programme of care and consolidation - but it can only be truly successful if there is a meaningful partnership with all concerned with the welfare of the water environment.

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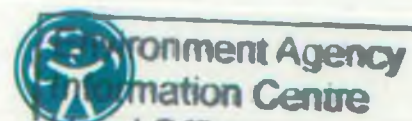
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