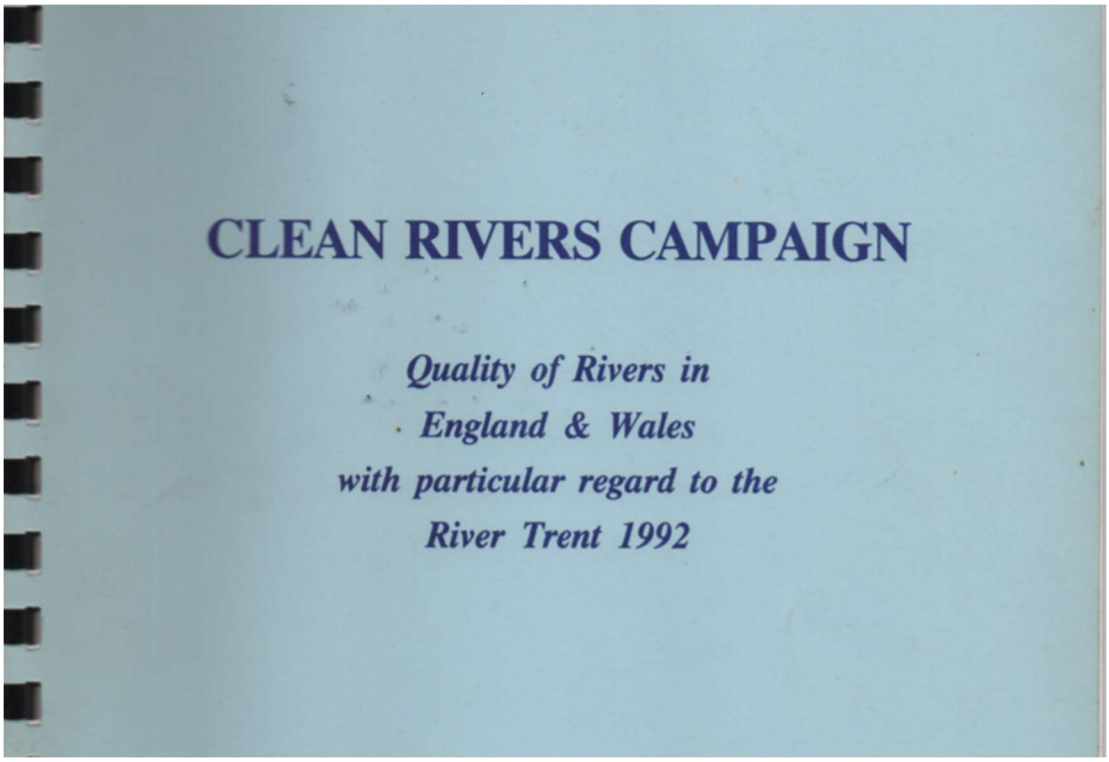
River Quality Report 1992; 31 Years On.



31 years ago, the Trust, just before it changed its name from Clean Rivers Campaign published the following report. This document outlines the dire condition of the rivers in England and Wales in 1992.

Today river pollution is starting to creep up the political agenda. The publics main concerns are centred around combined sewer overflows that regularly pollute streams and rivers. In 1992 these discharges into rivers were invisible due to the gross pollution emanating from the main sewage works.

What was written in 1992 is relevant today and demonstrates the pressure that the population of the country puts on infrastructure. If water companies do not keep up investment and concentrate on dividends to investors these problems will keep recuring.

INTRODUCTION

English rivers,and for the purpose of this report, British rivers, have always played an important role in the nations consciousness. Nearly every child since early in this present century has been enchanted by 'Wind in the Willows' by Kenneth Grahame; tales of animals living a human existence on the riverbank.

> "I beg your pardon" said the Mole, pulling himself together with an effort. "you must think me very rude; but all this is so new to me so-this-is-a-river!"
>
> "The river". corrected the Rat, "And you really live by the River? What a jolly life!"
> "By it and with it and on it and in it", said the Rat. "Its brother and sister to me, and aunts and company, and food and drink, and (naturally) washing. It's my world I don't want any other. What it hasn't got is not worth having and what it doesn't know is not worth knowing. Lord! the times we've had together, its always got its fun and excitements.

On enquirin if life at times was dull and solitary for the Rat.

> "no one else to-well, I mustn't be hard on you". said the Rat with forbearance, "You're new to it, and of course you don't know. The bank is so crowded nowadays that many people are moving away altogether. O no it isn't what it used to be, at all. Otters, kingfishers, dabchicks, moorhens, all of them about all day long and always wanting you to do something-as if a fellow had no business of his own to attend to!"

That was the British vision and to a great extent the actuality of the river in 1908. A river both well stocked with wild life but also showing the first signs of the overburdening effects of tourism.

The view of British children and adults have been fixed by this and similar stories, a river rich in wildlife living orderly and unstressed lives, in relative safety and contentment.

Oh halcyon days but even then the lily had been gilded to make the reader aware of times past when this was more of a reality.

The great proportion of the country's population lived in the towns and cities where waterways were the arteries of commerce, filthy with the discharge of industry and still abundant with raw and partially treated sewage.

Georgian and Victorian reformers had seen that the rivers were not safe environmentally, not for the sake of wildlife or plant life but for humans. The increase in population in the 18th and 19th century had also meant a concentration of population to the centres of industry and commerce. This led to a high proportion of poor housing and even poorer sanitation. Eventually, in the mid 19th century, English towns were ravaged by great cholera epidemics.

" The campaign for health loomed large in Victorian towns. Its foundation had been laid by the pioneering doctors in the eighteenth century, but the Victorians waged it with increasing knowledge, fervour and powers of enforcement. Corporations spent far more on the provision of drainage, sewage and a good water supply than on anything else". Mark Girourd 'The English Town'

The Victorians gathered the sewage up into the pipes under the streets and on the whole discharged the cumulative waste of large areas, sometimes through filtration works, but mostly into the watercourses of the towns downstream of the borough limits. This was passing on the problem through believing that the effluent would be watered down and made harmless.

Nevertheless, the Water Act of 1876, which regulated for the first time the discharge of sewage into the rivers, also forbade swimming in them and this rule has been consolidated ever since.

The sewage from cities and towns inland from the coasts of this island has to pass into the river systems purely to get rid of the staggering volume of liquid.
Methods were constantly being revised but, whilst the method was superficially complex, they were basically simple in principal. They were classified as:

1) The separation of suspended solids from the liquid

2) Coagulation of the colloidal and very finely divided solids by chemical precipitation and/or physical and bacteriological action

3) Removal of the polluting properties of the solids in solution by biological oxidation.

4) Hygienic disposal of the separated solids.

After passing through the screening plant for the removal of the large floating solids, and then through grit collectors to remove grit, the sewage is passed through a series of settling tanks. The next process is one of oxidation of the sewage. This can be done by the means of percolating filters. These consist of a circular clinker bed, over which rotates a central pipe with four perforated arms passing out a fine spray of sewage. In this way the organic impurity in the sewage is broken down and oxidised. Effluent from the filter beds is led into a humus tank where solid matter settles. After a period in this tank the treated sewage is discharged to a water course.

An Alternative method is the activated sludge process, in which the sewage is passed into a tank with a layer of biologically active sludge, the aerobic micro-organisms which utilise oxygen to oxidise impurities. Air pipes discharge large volumes of air into the tank, which mixes the sewage and the activated sludge and provides the necessary oxygen.

A third method, the electrolytic method, in which sewage passes through a disintegrater, is then mixed with sea water, and then enters an electrolytic cell for a few seconds where the chlorine released as the anode deodorised and disinfects the sewage.

These methods of cleaning sewage had not really changed much from the Victorian designs and all relied on ' bucket chemistry'. Since 1946 the 'State of the Art' sewage treatment has progressed to some extent but is still basically the same.

The British have close ties with the land and agriculture, very few people are more than two generations from having their roots in the countryside and that has left a romantic image of the country - far removed from the reality of today.

Most of the population still think of grassed downlands and mixed farms; hens round the door and foaming buckets of milk; rivers running through reed beds; water meadows and farm ponds with ducks and geese.

Sadly but realistically these thoughts are just dreams and romanticised memories. Today farming is a high yield agribusiness with little time for aesthetics and husbandry.

Farmers now produce silage that has to be clamped, slurry that has to be lagooned, other wastes that have to be disposed of.

Farmers use chemicals to increase the yield of their crops, chemicals to protect them, some use the sludge from the sewage farm to spread over their fields; all of which have a negative as well as positive side to their use; for the water environment rainwashing and leaching these cocktails into the streams and rivers.

Hundreds of thousands of people take to the roads from all the cities and towns of this island every weekend - all pushing out fumes and dust. Not all of which is heading up to the ozone layer - instead it lands back on the ground and on the road surfaces waiting for the next shower of rain to send them straight down the drains and into the rivers. Heavy metals washed down with dilute sulphuric and nitric acid rain into the watercourses.

Industry within towns and cities, industrial parks and even isolated villages pump waste into the rivers of this country for which they pay the 'water watch dog' the National Rivers Authority for the privilege. Industry paying but in reality the consumers getting their pockets picked.

SECTION 1

RIVER POLLUTION

Sewage Treatment Works

The House of Commons Environment Committee started its 1987 report - Pollution of Rivers and Estuaries with:

> " Unlike some developed countries, the UK has a strong tradition of tackling water pollution and a good record to proove it -- here at Westminster, we need only to glance out of our windows to appreciate the dramatic nature of these improvements ..... The Thames Estuary counts among our great post-war success stories in estuary restoration; but there are other industrial rivers up and down the country, such as the Trent -- where recovery has been just as dramatic"

At first sight of these statements one would have to agree with the select committee - these rivers, like the Thames, were dead and had been resurrected and brought back to a fairly good state. By 1980 over one hundred species of fish, representing 95% of those native to the Thames had been found back in place.

The press acclaimed this and the catching of some salmon in the Thames as the end of pollution in the River and by association, the problems of all Britains rivers was over

But, even before the Commons Environment Committee wrote its own eulogy on pollution control the old round of neglect and inaction had begun to repeat itself as sewage treatment investment was cut.

In 1985/86 financial targets for financial return on capital; 1.5% on existing assets and 5% on new assets. At the same time Government proposed that the water authorities were to be near self-financing by 1988. So the achieve these aims charges were increased by 10% and spending was reduced on pollution control.

South West Waters official water quality surveys showed in the period 1980 to 1985, 1,107km of river quality declined whilst only 96km improved. The water authority stated that with limited resources less effort had been put into pollution prevention.

20% of sewage treatment works failed their consents, emergency call out went up by nearly 30% due in great part to sewage treatment plant breakdown, due to lack of maintenance.

Nation-wide water pollution grew everywhere except in official statistics, which stated a reversal in the problem.

The 1985 Control of Pollution Act provided for nearly one third of the 6,000 sewage discharge in England and Wales and granted them relaxed consents, so increasing licensed pollution.

On November 21st 1988 the Department of the Environment put in hand arrangements with the Water Authorities for further reductions in required standards, this time because of the planned Water Industry Privatisation.

An 'Ends' magazine Report pointed out

"The Authorities would be unable to sign flotation prospectuses if their businesses were committing criminal pollution".

The Department of the Environment over this whole period kept moving the goal posts to make the industry appear clean and wholesome - so to attract the punters from the Stock Exchange

The next 'fiddle' or possible criminal manipulation of the pollution consents levels achieved by the Water Authorities was mind bending in its originality.

At this point, 1989, a works was taken to meet its 'consents' if 95% of samples were within the limit each year. Thus the limit is referred to as 95% limit and compliance is 95% compliance.

The Water Authorities did not change the terminology, instead they altered the terminology's meaning.

So now; the 95% assessment is to be taken as the mean value of current quality (as defined above) times two. Mindbending? It meant that the highest value consent from average sample results in a year 1985, 1987 or 1988 was then doubled willy nilly. This result was then to be rounded up to the nearest multiple of five.

At a stroke the Water Authority:s 95 percentile allowed them to double their ability to pollute legally.

Her Majesties Inspectorate of Pollution (HMIP) the Government controlled agency accepted this fiddle without a murmur.

By September 1989 already seven hundred and fifty works were breaching consents and more than one thousand sewage works had applied for relaxations on their already doubled and rounded up consents to pollute. Many of these relaxations were granted with time limits originally to 1991, which was changed to 1992 and even later to 1994 and 1996.

The waste water industry will be examined further in the case study of the River Trent and Stoke Bardolph Sewage

treatment works, serving Nottingham in particular.

Agriculture

There were few pollution incidents due to agriculture before the early seventies. Whilst by the late eighties and now the nineties it has become a major problem.

> "hayricks and duckponds are a rare sight on todays farm"

stated the Commons Environment Committee in its 1987 report which continued:

> "Silage stores and slurry pits seem to be their successors. Slurry can be one hundred times and silage two hundred times as polluting as domestic sewage.

Farming today produces high amounts of pollution, Severn Trent calculate that one tonne of silage equals one hundred gallons of silage liquor which when calculated for realistic agricultural quantaties means that a four hundred tonne clamp would produce as much pollution as the town of Derby.

The House of Commons Environment Committee took issue with the Ministry of Agriculture Fisheries and Food (MAFF) over its attitude towards pollution;

> "MAFF's failure to take farm pollution seriously is encapsulated in its ineffective approach of 'positive encouragement'(rather than regulation)"

The Dutch Government though faced with a vociferous farming lobby managed in 1989 to introduce strong anti pollution regulations. MAFF prove that they are guardians of agriculture rather than the public interest.

In the 1992 National Rivers Authority report ' The Influence of Agriculture on the Quality of National Waters in England and Wales states that:

> "The majority of all reported farm pollution incidents are due to organic wastes (87%); oil represents 3%; pesticides less than 2%; nutrients less than 1% and all others about 7%"

The 87% is broken down thus,

Cow slurry	55%
Silage	20%
Pig Slurry	10%
Poultry	2%

The National Rivers Authority state that the best method of reducing or forestalling pollution incidents is farm visits. Sadly the National Rivers Authority state that since 1989 and December 1991 only about 5% of farms at risk have been visited.

In the same report the National Rivers Authority state that it will be "many years" for improvement to have a widespread beneficial effect on water quality.

Alongside the National Rivers Authority and working against them is the British Agrochemical Association (BAA). In Their leaflet "Pesticides and our Water Supply' BAA state that:

> "just because a residue can be detected does not mean to it is a hazard"

They go on to say that one of the most regularly found agricultural chemical found in water is atrazine, a weedkiller, BAA also state that it is a negligible problem and that the only time chemicals are a problem is when they are misused.

This leaflet was published in 1992. The British Government, on May 12th 1992 banned all non agricultural use of atrazine.

Friends of the Earth greeted the news with the statement that;

> "prevention of pesticide pollution is better than cure".

The MAFF though made sure that the farming industry would continue to use atrazine.

INDUSTRY

Industry is still the largest polluter of Britains waterways.

Many of the'pollution incidents' are accidents which were preventable if facilities and procedures were safer and better, equipment more modern and operators better trained and more aware.

A great proportion are 'small' but their effects can be catastrophic. In May 1989 the Lyme Brook, a tributary of the River Trent was polluted with fuel oil over a seven mile stretch.

On another tributary of the River Trent in 1990 a two thousand gallon oil tank was emptied into the river. This time vandals were responsible, but excuses cannot be acceptable.

In 1989/1990 the Commons Environment Committee were impressed by their visit to Shipley Europe Ltd, a chemical company near Coventry, where they saw a large system of underground tanks which were to catch spillages or the large amounts of contaminated water that would be the by product of having to fight any fire at the plant.

Incidentally, on the Rhine, BASF and Sandoz have both recently fitted similar systems to their plants.

MINE WATERS

One underestimated area of pollution came to the attention of the public in 1991. The Wheal Jane mine in Cornwall flooded and produced a very photogenic pollution down the River Carnon and right across the Fal Estuary.

Wheal Jane; one of the thousands of disused mines in the United Kingdom had filled with rain and subterranean water after being abandoned by its owners.

Abandoning 'worn out' mines is a method of objurgating responsibility by all mining companies from the small to the huge, like British Coal.

The Water Resources Act 1991; an environmental horror of a Bill, makes sure that no company is held responsible for any redundant mine,which it might or may have owned, polluting the water environment. By its language the problem falls to the National Rivers Authority which we will see in a following section is unable to cope.

Coal mines across the country drain water into all the great rivers; the Severn, the Trent, the Humber, the Tyne, the Avon, and the Wye are amongst their number.

The minerals that enter the rivers include the very elements of 'Hell', iron, zinc, cadmium and other heavy and toxic metals.

All the National Rivers Authority regions concur with South West region of the Authority;

> "Historic mining is listed as one of the sources of low water quality in the region"(National Rivers Authority 1990 Survey)

It is hard to comprehend the Governments stand with regard to the privatisation of the coal mining industry with out addressing the issue of pollution liability concerning future redundant mines.

As the 'Flowers Commission' on Energy and the Environment 1981 states that if the costs of remedial action be recovered from the person (mine operatives) who caused the pollution; remembering that the discharges from redundant mines are exempt from pollution control. If the mine owners would not or could not pay, the Commission recommends that Central Government should meet the cost of essential work.

The Flowers Report also recommended that the National Coal Board should pay for any pollution clean up from their abandoned mines from the date of their reports recommendation in 1981.

Since the eighties National Pit Strike many hundred mines have closed all of which have a deterious affect on the water ways of the country.

SECTION II

THE QUALITY OF RIVERS IN ENGLAND AND WALES

The National Rivers Authority published their report into river quality for 1990 in December 1991. The report was the first major survey since 1985, minor surveys being conducted on an ongoing basis.

Over the whole of England and Wales there was seen to be a large number of changes in classification on stretches of river from 1985.

Approximately (the National Rivers Authority are never exact) 15% of the total river length In England and Wales was downgraded. It was also noted that the decline was mostly in the best quality waters.

It was stated that the reasons for these changes could be "mostly" explained by three major factors;

a. increased monitoring

b. the weather

c. discharges from sewage works, industry and farms.

The National Rivers Authority report noted that

"where water quality improved this was either because of better treatment of waste water, or because industries closed down"

The National Rivers Authority, it points out, "may" have begun to make an impact on the efforts of those discharging beyond their consents.

In the general conclusion, survey methodology was blamed because of greater accuracy. The National Rivers Authority report goes on to say that this decline would be less noticeable if there were changes in the way the survey was compiled. This again would be a shifting of the goal posts.

"Water quality,..... could be substantially improved by drawing on information on the biological state of the river"

Comments on Regions from the National Rivers Authority Report

ANGLIAN

"Some of the improvements which were forecast to take place between 1985 and 1990 have been achieved, but these are limited mainly to small stretches of rivers"

It was noted that in the period 1985 to 1990, 11% of classified river length had dropped in quality, 405km in length.

The reasons put forward included a reduction of expenditure in sewage treatment works, with especially increased ammonia concentrations, discharges from storm overflows and the lack of water in rivers due to drought conditions over the recent past.

NORTHUMBRIA REGION

"Most of the improvements which were forecast to take place between 1985 and 1990 have been observed, but were offset by downgradings elsewhere".

Since 1985; 141.5km of river has been downgraded in the Northumbrian region, most be from 1a to 1b and 1b to 2 but significant stretches of watercourse have been downgraded to 3 and 4. Five stretches below sewage works (unnamed in the report) have become class 4; which in National Rivers Authority's terms;

"Waters which are grossly polluted and are likely to cause a nuisance".

One staggering success story for this region is reported as

" the effluent from Cramlington Sewage Treatment Works used to discharge into the non-tidal River Blyth but has now been diverted into the estuary. This has resulted in the improvement of 3km of the inland river from a class 3 to 1b"

How strange to treat this as a success story when it is only shifting the problem from one place to another!

NORTHWEST

Since the 1985 survey 525.25km of river has been downgraded.

This is the only area to admit to acid rain problems which have led to the River Etherow in the South Pennines being downgraded for 11.2km of its length.

The National Rivers Authority state that they are "concerned" about the high number of class 4 rivers in the region. Within the period 1985 to 1990 3.2km of class 4 river has been upgraded and 74km of rivers have deteriorated to class 4. "Almost" all the deteriorations are due to poor performance of the sewage and sewage treatment facilities, and almost all the other 10% is due to industrial estate drainage.

SEVERN-TRENT

In the period 1985 to 1990 the National Rivers Authority have achieved a 630km deterioration of the regions rivers.

There is in the River Trent catchment an increase in class 4 rivers, mainly on the River Tame due to sewage treatment

works which the National Rivers Authority say "are still a problem"

The River Trent also suffered a downgrading to a class 3 caused by the sewage treatment works at Stoke Bardolph discharging high concentrations of un-ionised ammonia.

There were also noted problems with sewage works on the Rivers Avon; Soar; Churnet; Anhor and Leadon.

The Severn Trent National Rivers Authority further pick out the Rivers Stour; Erewash; and Chelt; as needing substantial improvement to their effluent treatment works.

SOUTHERN

"A comparison of the 1990 results with those for 1985 gives the impression that 9% of river length has deteriorated"

The National Rivers Authority then goes to show that its predecessors testing had been inadequate and then with the use of manipulated figures - the figures used being those that fit with their present, unstated agenda. Even so 384km of rivers are recognised as having deteriorated.

Again, in this area as elsewhere, sewage effluent is singled out as being the main cause of downgrading, sewage and warm weather being responsible for algae bloom and eutrophication which alone was responsible for the downgrading of 66km of rivers.

SOUTHWEST

The National Rivers Authority state that there has been a consistant decline in rivers in the SouthWest region since 1980.

From 1985 to the end of the report period 40% of river length had been downgraded and that there had been an increase in class 3 rivers.

The main reasons given for these changes were named analytically; B.O.D.; ammonia and low dissolved oxygen plus high suspended solids; copper; zinc; low ph and high temperatures.

The reason for this was land use and mines.

THAMES

"There has been an apparent net decline in river quality since 1985"

The decline being 1143.2km of rivers, and the total length of the areas rivers 39% are classified as only fair, poor or bad.

Again effluent quality was blamed for the significant decline Especially mentioned were 28km of the River Wey downstream of the Bordon Sewage Treatment works; 22km of the River Lee downstream of Luton Sewage Works (The River Lee is at present running at about 90% treated sewage) and 14km of the Thames from the Ray to the Coln downstream of Swindon Works.

WELSH

From 1985 to 1990 a total river length amounting to 900km has deteriorated.

Sewage treatment works were again stated as a serious problem, one of the most notable treatment works being the Eardisley Sewage Works which was responsible for the Willersby Brook being relegated from class 1a to class 4. The equivalent of a salmon river turning into a stagnant stream.

WESSEX

"No major changes had been expected to take place between 1985 and 1990"

The total of 84km of rivers did drop in class and quality. Unlike other National Rivers Authority regions the dry weather of recent years was stated to have reduced sewage levels and that when added to the effect of improved sewage treatment, due to warmer temperatures, resulted in a smaller pollution load being discharged to rivers.

"Overall this produced a higher river quality than would be expected in a wet year"

YORKSHIRE

Some improvements anticipated to take place between 1985 and 1990 were achieved though this did not result in a net improvement in the quality of the regions rivers.

The main problem for river quality being sewage works discharges.

50km more rivers became class 4 and part of that length, 4km had been class 1b, the River being the Hertford which flows into the River Derwent. At the confluence of these rivers the Derwent continues and for the next 14km is in a downgraded state (from a class 1a to a class 2 and 1b)

It is also noted that the River Rother runs for 33km as a class 4 river which also affects the Don running through Doncaster.

SUMMARY

The 1990 survey was a well produced glossy report written in such a way as to allay fears for the future. The hard figures mentioned in this section required working out and at first glance terms like "net improvement of 1%" underlay a huge number of river kilometres in decline. The full length calculable for England and Wales being over 3856km of river in decline.

THE NATIONAL RIVERS AUTHORITY

THE NATION'S WATER WATCHDOG

The National Rivers Authority was set up as the water watchdog; taking the responsibility for the environment in, on and alongside the rivers, streams and other waters of England and Wales. It was formed in 1989 at the same time as the Government privatised the old Water Authorities who had, up to this point, been responsible for the water environment and pollution control. The National Rivers Authority was thus partly staffed by old water authority workers, covering all areas from grass cutters to water pollution experts and managers.

This Authority was called at it's launch in 1989 "The most powerful environmental agency in the world", which six months later was amended to "amongst the most powerful environmental agencies in Europe" by Lord Crickhowell, the National Rivers Authority Chairman.

This change was not just of semantics but also a veiled statement of fact. The Government had made it necessary for the National Rivers Authority to temper its zeal and to work in tandem with Her Majesties Inspectorate of Pollution. So the watchdog within six months had its teeth drawn.

In the 'ENDS' report of October 1991 it was noted that the Department of the Environment had cut the National Rivers Authority grant by 12%. These cuts provoked controversy within the National Rivers Authority itself about the competence of its own headquarters staff and had also jogged the Governments own Audit Office into a survey of the National Rivers Authority's financial affairs.

There was no fuss from the National Rivers Authority in regard to this cut in funding and the Authority went along with it when it published its corporate plan in October 1991. The grant for the 1990/91 financial year had been £104.6 million, the grant for 1991/92 was £93.7 million. The National Rivers Authority funding from central government for the present 1992/93 financial year has been again slashed by approximately 15% to around £79.6 million.

The National Rivers Authority shortfall in funding was expected to be made up from other "market forces". These were fishing licences, pollution levies, court damages claimed against polluters and abstraction licences from waters controlled by the National Rivers Authority.

The corporate plan published for 1991/92 indicated that they expected the National Rivers Authority workforce to be 235 below target by the start of the 1992/93 financial year.

The consequences of this is likely to be particularly severe for its ability to control pollution where, in the National Rivers Authority's words their " inheritance was poor"

These cuts are in reality even more severe that at first might be thought - at 1991/92 budget forecasts £11 million was committed to staff pensions alone.

The National Rivers Authority are left with less and less room to adjust their budgets for core functions; pollution control, fisheries, recreation, conservation, and navigation.

All the core functions give the educated observer cause for concern.

The corporate plan ascribed the cut to "slower than anticipated staff recruitment and modified expenditure plans". However a principal reason may be found elsewhere in this document.

What would appear to have happened is that the National Rivers Authority prepared staffing projections for last years plan failing to allocate sufficient personnel to its core work load and concentrating recruitment to its headquarter staff and to management in the regions.

In point of fact in Pollution Control the staff shortage is even more acute than the document would have us believe for the National Rivers Authority give usually 'net' shortfalls. The published shortfall in staff within this one department was noted as being 430 or 35% of the target work force.

This lack of staff heightens workload on a workforce that is seeing central cuts in funding, the debate with regard to a central pollution control organisation and the rise in pollution incidents becomes very demoralised.

Their demoralisation is further increased by the problem of the National Rivers Authority not taking severe action against persistent polluters.

This aspect of the National Rivers Authority's role has been criticised by many of the environmental pressure groups in England and Wales. In their report 'Water pollution Incidents", January 1992, the National Rivers Authority state that they prosecuted, in England and Wales, 282 polluters out of a total of 28,143 pollution incidents in 1990 (this being the most up to date report available).

The National Rivers Authority would seem to have reached agreements with many major companies with long term discharge problems. Many of these discharges are allowed because consents were not set prior to the 1989 Water Privatisation Act. This mean that the National Rivers Authority do not act on these companies though many of the discharges are in direct contravention of the European

Community Water Directives - this will be shown in more detail with the case study of the River Trent later in the report.

Within the National Rivers Authority there are many staff members, particularly in senior positions, who worked originally for the old water authorities before privatisation and who still have a sense of loyalty to the old make-up of the water business. It has been noted that individuals within pollution control side of the National Rivers Authority are loath to see their old partners held up as polluters, as will again be shown with regard to the River Trent. As will the fact that Water Companies have shared laboratory facilities with the National Rivers Authority.

The National Rivers Authority have been hamstrung by Government also with regard to their ability to prosecute polluters by the method of testing.

This method is know as tripartite testing, which means that if water is found to be polluted, further samples, three in number are taken. One is tested by the National Rivers Authority, one is handed to a "person of responsibility" within the organisation responsible for the pollution and one is kept as a back up in case there needs to be a control sample.

This method is costly, both in time and money. It also makes it at times exceedingly difficult, and at times impossible, to find someone to accept the sample on behalf of the polluter. This method also makes it exceedingly difficult for polluters to be brought to court.

The National Rivers Authority, by 1990 figures, can only bring action to bear on a very small number of polluters, these being in the main individuals and small companies who cannot afford to defend themselves adequately.

Large corporations and major companies are hardly troubled because of their capability to retain very expensive legal representation.

The only times these organisations are prosecuted is when there is a major, and publicly noted, accidental 'incident'. Long term polluters are not prosecuted as it is problematic that the National Rivers Authority could cope with the possibility of having costs awarded against them if they lost the case on a technicality.

CASE STUDY

THE RIVER TRENT

The River Trent is the second longest river that runs its whole course within the confines of England, from west to east, but flowing on route through all the points of the compass on its way to the sea,

This great river rises on desolate moorland in the foothills of the Pennine Mountains, North East of Stoke-on-Trent.

As the National Rivers Authority agree, it runs down to the edge of the industrial conurbation in its virgin form. This stretch contains all the life forms that give the river a great foundation.

The aquatic life on this short stretch is home to, small trout, stone loach, water beetles, kingfishers and, on occasion, the dipper has been seen.

This is a class 1a watercourse.

When it reaches the confines of the Stoke stretch it changes. It is joined by other streams which make it a river. With it's girth comes the effluent of the industry and pollution of the 'five towns'.

The National Rivers Authority, on their own map to accompany the survey of water quality 1990 (published December 1991), shows two red water courses (class 4 river) and the continuation of this through the conurbation to the county park on the south side known as Trentham Gardens. The river then reverts to class 3. For several kilometres the pollution is watered down by mine waste waters from Redland coal mines. This water is high in acidity but still able to water down the effluent so that the river is again able to sustain fish life, but no longer the stone loach.

Down river further good quality rivers like the Sow and Penk join, broadening the flow. The River Trent in this stretch does not vary in quality and stays a good class river. Tributaries that join it's flow are not so good. The River Tame runs for tens of kilometres as a class 4 river until its meets the Anker which waters down the 'deadly flow'.

Right past Burton-on-Trent Breweries watercourse the quality is as the National Rivers Authority state, a variable class three river. This variation is caused by the sewage works along it's course; the quality reaches near class 4 river just after it passes sewage treatment works and before it comes to the next one it has been diluted back to near class 2, but as the flow from the next sewage treatment works meets the surge it reverts and falls in quality again.

This is the story of the Trents water quality until near Nottingham where the Erewash enters the river via a complicated route, passing through disused gravel pits.

This area is known as the Attenborough Nature Reserve and is of national importance. Recognition of which is signified by it's designation as a site of special scientific interest (SSSI)

The Erewash rises in Derbyshire and flows mainly through the east of the County.

Treated sewage from many small sewage works enter the flow which pollutes it and downgrades it to a class 3 and at times bordering on a class 4 river.

The EC directives regarding nutrient removal was originally drafted to be applicable for all sewage treatment works servicing a population of 2,000 person or more.

This was not accepted at the final draft and amended to covering sewage works servicing a population of 10,000 or more.

The Erewash is used by twelve or more outflows along it's whole length. All of which serves a population of less that 10,000. This has put the SSSI at risk and English Nature note the eutrophication of this water SSSI. There has been no action from the National Rivers Association of the Department of the Environment.

This contaminated water increases the free ammonia in the River Trent and over the last six years the National Rivers Authority's tables show a rise in unionised ammonia present in the flow near Colwick Weir, particularly in warm summer months. They also point out that from Attenborough there is a decrease in the rivers biological quality.

The reasons for this decline in quality is considered to be confidential to the National River Authority!

In the National Rivers Authority Survey 1990 the most dramatic river quality change was noted as that of the next stage of the River Trent.

From the outflow of the sewage treatment works for Nottingham, Stoke Bardolph, to beyond Newark-on-Trent (Winthorpe Bridge) and as far as Cromwell Lock - where the river becomes tidal, was downgraded from class 2 to class three.

This section of the river is one of the most heavily used stretches of the river in the country by anglers.

(Anglers come from all the major towns and cities of the Midlands and North to the River Trent, which is treated as their "Mecca'. The reason being that most of the rivers in their home areas are heavily polluted and Anglers

find few, if any fish, living in them)

As the report noted that this situation came about "by high concentrations of unionised ammonia".The National Rivers Authority stated that "Improvements to river quality will require improvements at Nottingham Sewage Treatment Works"

Here is a case of an outflow not falling short of it's consents standards, but in breach of European Directives on water quality.

The National Rivers Authority showed that they still had close ties from pre-privatisation days by closing ranks with Severn-Trent Water Ltd,.

Severn Trent stated that they had no plans for upgrading the sewage works till the next century. They also pointed out that they were still within the law as they were not constrained by consents appertaining to ammonia discharge.

The National Rivers Authority went along with this.

Friends of the Earth from Newark-on-Trent and the Nottingham Anglers Association together formed a campaigning body, now known as the Clean Rivers Campaign (CRC)

Publicity was readily given by all the arms of the media, which felt that they were not being given the answers from the National Rivers Authority or Severn-Trent Water. These two groups stated instead that their critics were simplistic and didn't understand the complexities of the problem.

This state of affairs continued with the Clean Rivers Campaign preparing to take out personal injunctions against the water company's Chairman and Managing Director to cease this pollution.

Members of Parliament such as Andy Stewart, Dennis Skinner, Alan Meale, Richard Alexander, Joe Ashton, Kenneth Clarke, and Jim Lester all put pressure on the National Rivers Authority who, in the third month of the campaign did an 'about face' and set consents for ammonia levels from Stoke Bardolph, without consultation with Severn-Trent Water ltd..

Severn Trent Water Ltd., stated that this was unfair and that the costs would be too great.

One month later after more pressure from the Clean Rivers Campaign, Severn Trent brought forward their plans to rebuild Stoke Bardolph Sewage Works at an estimated total of £37 million. This project is to be completed by the Spring of 1996. This timescale had been signified to the Board of Directors in February 1992 by CRC.

Along this same stretch of the river other sources of pollution, consented or otherwise, continue to appear.

Staythorpe 'B' power station uses the consents granted to the power generators for both the 'B' station and also the long since demolished 'A' station. The 'A' station was more than three times large than the 'B' station. The National Rivers Authority, at a public enquiry, with regard to a new proposed 'C' station on the same sight, stated that National Power still broke their consents on a regular basis. When questioned on why no prosecutions had taken place it was said that the National Rivers Authority did not have the internal structures in place, or the guidelines worked out for this type of incident. It was admitted that tripartite sampling had not been carried out as there was no possibility of prosecution.

Other sources of pollution of the river on this same stretch are; fly ash ponds, British Sugars factory, Newark Sewage Treatment Works, Croda Adhesives works scrap yards, untreated sewage outflows from private and public sources, marinas, pleasure boats, house boats and storm water outflows.

Once the river reaches Cromwell Lock the quality returns to a class 2 though there is still a biological decline noted and fish catches by anglers are noted to be declining, as they have been from Nottingham down.

There have been tests of fish for contaminants, such as heavy metals and chemicals on fish in the Trent along the Gainsborough stretch which has shown high levels of DDT present in fish tissue (published 1991)

This determinand and other; eldrins, drins, have also been found in tributaries of the Trent flowing together as the River Idle.

The River Idle is the water channel that drains the North Notts industrial and mining areas of Mansfield and Bassetlaw.

This area incidentally also produces more ozone depleting gases than any other for size in the country.

The tidal stretch of the river has been monitored by the Ministry of Agriculture Fisheries and Food (MAFF) - The National Rivers Authority has no systematic programme to test for poisonous fish.

Some fish contain a cocktail of poisonous contaminants. One eel, taken in 1990, contained lindane, aldrin, and cyfluthin, another contained DDT, TDE, dieldrin (all pesticides) and mercury, each over the respective standards.

The MAFF have warned anglers not to consume fish from polluted waters, but have avoided identifying which waters are polluted.

The National Rivers Authority have caught fish but do not appear to have the funds to pay for analysis - some regions

have been storing fish in freezers back to 1987 and has yet to analyse them.

The River Trent finally flows into the Humber Estuary and has a good effect on the estuary quality; returning it to fair. The Rivers Don, Aire and Ouse having made it of poor quality.

The River is one of the most visible recreational areas in England but has not been given the care it should have received.

The County Council for Nottinghamshire stated that it had been trying to get sewage from Stoke Bardolph to be cleaned up. Graham Leigh Brown, Head of Environmental Planning for NottsCC said that they had had little effect over the past year and welcomed the Clean Rivers Campaign's formation.

CONCLUSIONS

The Clean Rivers Campaign believes that the water environment is under severe pressures that are too disparate for one organisation, such as the National Rivers Authority as presently constituted ,to resolve.

The Clean Rivers Campaign also believe that all meaningful environmental legislation comes from the European Commission but is watered down by Her Majesties Government.

The Clean Rivers Campaign have a total lack of confidence in the philosophy "the polluter should pay" because it is the consumer who always picks up the cost.

The Clean Rivers campaign believe that the major figures of companies should be able to be held criminally liable for pollution - this should put Chairmen and Managing Directors personally liable for pollution incidents. The possibility of senior executives having to go to prison might galvanise the collective minds of the directors of companies to cease pollution.

The Clean Rivers Campaign call on the European Commission to instigate a inquiry into the quality of British watercourses. The reason for this being that the Rivers and other waters of England and Wales have come along way in the 1950's and 1960's - rivers where in a worse state than at any time in history. and are now in decline again.

This enquiry should ask what has gone wrong and why it has. It should work with groups and bodies to put together a package which will bring all waterways back to what their minimum standard should be.

Clean Rivers Campaign and British Waterways agree with the notion that all waterways in the country should not fall below a grade 2 waterway as a minimum.

This has been researched by British Waterways and we agree that this is now within the area of the 'Best Known Technology" The consentees should be obliged to cut pollutions. The polluters giving up the ethos of polluting to the maximum amount they can get away with - for example, National Power at Staythorpe 'B' Power Station.

The National Rivers Authority must be re-organised; taking the senior workers away from their old Water Board roots.

The National River Authority should be funded so that it does not have to rely on fishing licences or damages.

The National Rivers Authority, whose workforce is sadly apathetic and demoralised should be re-galvanised to be excited by the challenge of fighting for 'Our' environment.

The water environment is not a 'closed shop', it is the future for the rest of the nation.

Rivers belong to all citizens and so as it flows all manner and all types of users; from the idler to the fisherman and water sporter believe the waters belong to them.

Water has no boundary, moving from place to place and must be understood as "Our Common Inheritance".

BIBLIOGRAPHY

The Wind in the Willows,	Kenneth Graham
The Dirty Man of Europe	Chris Rose
The English Town	Mark Girourd
Our Food Our Land	Richard Body

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