FISH AND FISHING ON THE CRANE AND DUKE'S RIVER

By A fisherman KJB
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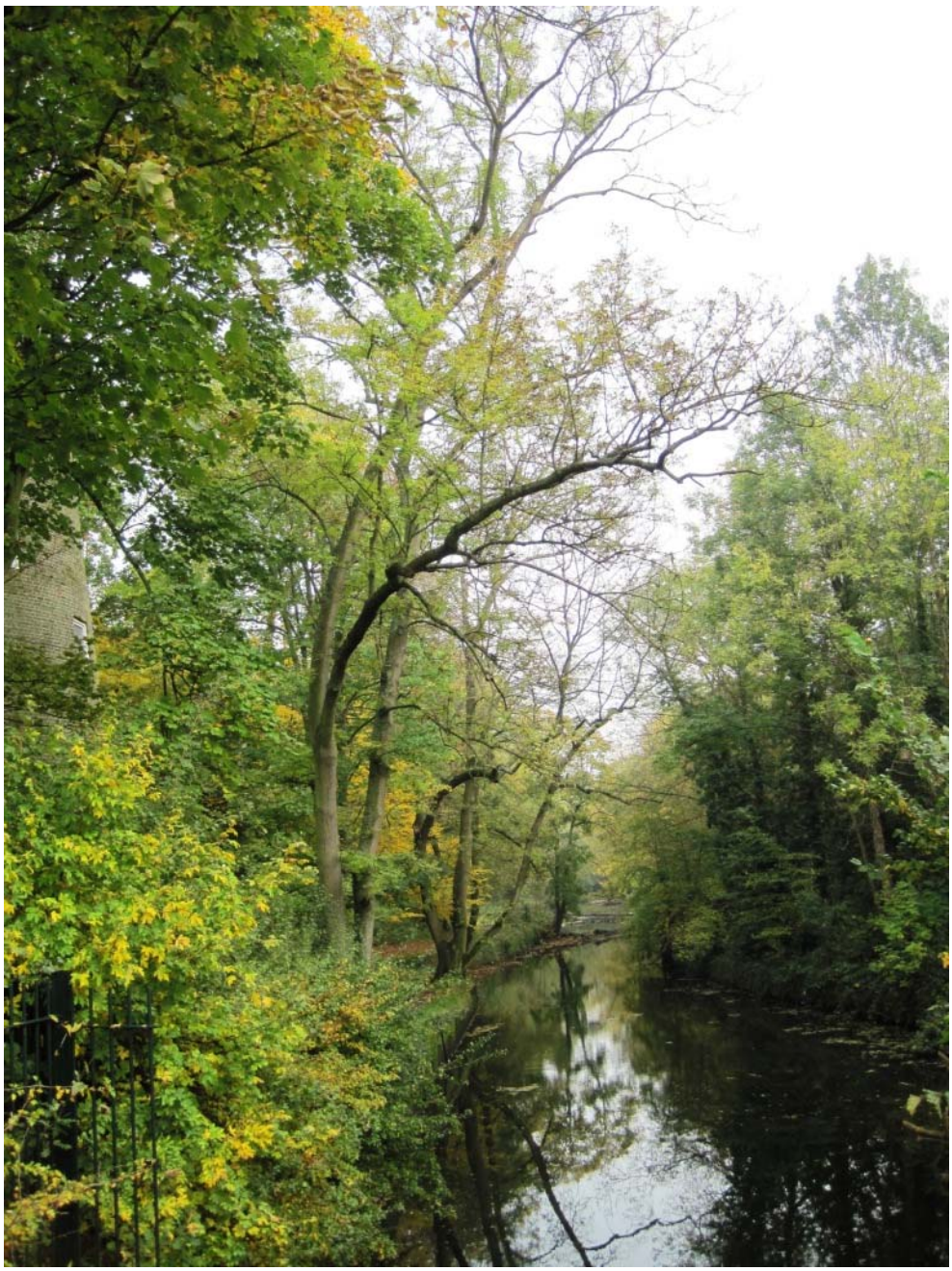

The author with a local tidal Thames carp of 30lb taken on traditional float tackle

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1.0 INTRODUCTION

The River Crane rises from the twin branched arms of Yeading Brook East and Yeading Brook West within the borough of Harrow. The two streams converge just south of Northolt Aerodrome and flow together as one down through Yeading and between Hayes and Southall. After passing under the Grand Union Canal, the waterway becomes the River Crane and continues its journey past Cranford and Heathrow Airport, before being joined by the Bedfont arm of the Dukes River at North Feltham. Skirting the western edge of Hounslow Heath, it then disappears momentarily beneath Feltham Marshalling Yard. Re-emerging near Hanworth Crematorium, it winds its way through Crane Park right down to Kneller Gardens in Whitton. Here the river splits into two distributaries; the St Margaret's arm of the Crane (which is joined by Whitton Brook just below the A316 road bridge) and the Isleworth arm of the Dukes River.

Both of these empty into the Thames at Isleworth, at Railshead and Kidd's Mill respectively.

2.0 SETTING THE SCENE

Although detailed information concerning fish life in the Crane and the Dukes River in the distant past is almost non-existent, we can look at various other factors and draw some reasonable conclusions. For example, a number of mills were in operation on both rivers during the Middle Ages, indicating a good head of water flowing steadily and strongly enough to turn large heavy water-wheels. Add to this the absence of 'modern day' chemical and organic pollution and you have an environment conducive to extensive biodiversity where fish should thrive. Indeed, many authors agree that in medieval England, most of our rivers would have been well blessed with an abundance of fish-life and many fisheries in the Middlesex area mentioned in early records boast extremely impressive catch rates.

These early fisheries took the form of 'fishing weirs', where typically wooden stakes and/or rocks would be strategically placed across the full width of the river to direct fish into appropriately positioned nets and/or wicker-work baskets. In effect, they were very efficient trapping stations and the Domesday survey records such a station on the River Crane at Whitton.

Eels were apparently the fish of choice and fisheries were usually assessed on their catch rate alone.
This was probably due to their widespread abundance and the fact that, unlike other fish, they can survive out of water for long periods, allowing them to be transported long distances fresh and alive.
Lampreys/lamperns were also very abundant and highly prized, especially among the nobility and King Henry I is famously said to have died due to a 'surfeit of lampreys'!

As to other species present in the Crane and Dukes River, we can only speculate, but once again most authors agree that before many of our rivers fell prey to modern-era pollution, the native brown trout (Salmo Trutta) would have been a common fish in most of our waterways. A clean, swift-flowing Crane with well

oxygenated water, particularly near its source, almost certainly held a population of trout. Similar tributaries of the Thames in the London area including the Colne, the Wey, the Brent, the Wandle and the Lea all have a history of holding trout long ago, so it would be fair to assume that they would have been present, though maybe not abundant, in the Crane also. Similarly, we could probably add coarse fish such as chub, dace and possibly barbel to the list, as well as 'small fry' minnows, bullheads, gudgeon and stoneloach.
All these species are fish known to prefer and thrive in clean, swift-flowing, oxygen-rich rivers and streams.

However, now having named ten different types of fish likely to be have early inhabitants of the Crane and Dukes River, the question arises as to how much interaction there would have been between them.
Modern day thinking splits rivers into four distinctive zones - the trout zone, the grayling zone, the barbel zone and the bream zone. The trout zone refers to the upper reaches of river including its source, where typically it will be narrow and the water cool, shallow, fast-flowing and well oxygenated. As you move downstream, most rivers become progressively wider, deeper and slower-flowing and the water warmer and less oxygenated, typified by the broad, sluggish reaches of the bream zone. Applying this 'modern' scale to the early Crane and Dukes River is not an exact science, but it would be fair to assume that as both rivers are relatively short and small watercourses and were both powering water-wheels throughout their entire length, there would not have been a clearly identifiable bream zone as such and the distinction between the remaining three zones hard to recognise and define. In the upper river close to it's source (the trout zone), you would have expected to have found trout, bullheads, minnows and stoneloach as these are fish most demanding of cool, swift-flowing, well oxygenated and unpolluted water. Moving down into the grayling zone, you would have expected the appearance of chub and gudgeon, while barbel, dace, eels and lamperns were most likely to be found in the lower reaches of the barbel zone.

The Graduated River Zones

Upper Reaches	**Middle Reaches**		**Lower Reaches**
TROUT ZONE	GRAYLING ZONE	BARBEL ZONE	BREAM ZONE
OXYGEN CONTENT			
VERY HIGH	HIGH BUT DECREASING WITH DEPTH		ADEQUATE, BUT POOR IN DEEPER WATER
AVERAGE TEMPERATURE DURING SUMMER			
UP TO 15˚ C	OFTEN ABOVE 15˚ C		OFTEN UP TO 20˚ C AND HIGHER
TYPICAL FISH SPECIES			
BULLHEADS, MINNOWS, STONE LOACH, TROUT	BARBEL, CHUB, DACE, EELS, GUDGEON		BREAM, PERCH, ROACH

It should be stressed however that this scale is used to place all the various species into their IDEAL environments where, given complete freedom of migration, they would choose to inhabit and that a certain degree of intermingling between zones would take place. This would depend on how adaptable each type of fish is and the degree to which conditions significantly differ between each zone. Put simply, if the water in the grayling and barbel zones is still relatively cool, swift-flowing, well oxygenated and unpolluted, then it is quite possible that trout, bullheads, minnows and stoneloach would be found along the full length of the river, though usually in lesser numbers compared to the trout zone.

Returning specifically back to the Crane, it appears that a royal medieval fishpond was constructed along its bank at Babworth, just above Baber Bridge. Perhaps as early as 1211, records indicate that this plot of land was presented by the Crown to the newly formed Friars of Hounslow. However the existing fishpond and fishery remained property of the Crown. Such fishponds were a common feature in medieval England, the idea said to have been introduced by the Romans several centuries beforehand. Typically, a large pond would be dug close to a particularly productive stretch of river and a connecting channel running into its

head and leaving its tail would be cut, ensuring that a flow of natural, fresh, well oxygenated water was constantly passing through it.

Naturally, some sort of fishery, usually a fishing weir, would be present nearby to catch fish en masse for transference into the fishpond to be used as and when required, the incoming and outgoing flow channels obviously 'screened' in some way to guard against escapees. Fish were a highly-prized source of food at the time and the contents of such fishponds were usually reserved for members of the nobility and the church.

Many of these ponds were particularly large and grand constructions which would have been expensive to create and maintain and it would appear that Babworth Pond was one of these. It was apparently vandalised during the second Barons War in 1264 and when it was in need of repair in 1377, it was referred to as a 'stank' pond, requiring the attention of several carpenters and workmen. Such ponds were lined with timber and rendered watertight with a coating of clay, surprisingly advanced and extravagant for medieval England. By all accounts, Babworth Pond would have been an important and valuable asset during its heyday and records suggest that it was an active fishpond/stewpond for over three hundred years.

Interestingly, a modern ecological survey conducted by the London Ecology Unit during the late 1980's noted "an old overgrown pond" on the site - possibly the remains of Babworth Pond?
Winding the clock back to the 13th century however, the writing was on the wall for 'traditional' Saxon fishing weirs. King John's Magna Carta of 1215 outlawed their use and it was decreed that all existing weirs on English rivers be dismantled.

3.0 AN EARLY GOLDEN AGE?

The Domesday survey of 1086 told our Norman conquerors that numerous fisheries or 'fishing weirs' existed on most of our river systems, including one on the Crane at Whitton.Their use was completely unregulated however, allowing operators a free hand to catch whatever they wanted, whenever they wanted. In fact, the hunting and trapping of all manner of wild game in Saxon England was largely unregulated, a situation our new masters were keen to rectify.

Norman culture recognised the importance of conservation and soon draconian laws were introduced to curtail many established practices. All game was decreed Crown property and afforded Crown protection.
The penalties for flouting these new laws were intentionally severe to discourage poaching and this caused much bad feeling, especially as previously 'free game' was suddenly the preserve of the nobility.

Over the passage of time, these laws were relaxed somewhat allowing commoners certain restricted rights, but as far as the Crane was concerned, much of it probably became off limits for several hundred years! The area now known as Hounslow Heath covered far more ground in medieval times and it appears as though it may have been designated as a 'Royal Chase' - a venue for all manner of field sports (hunting, fishing, shooting etc) strictly reserved for the Crowns use. Edward III, Henry VIII, James I and Charles II are all said to have been regular visitors and a contemporary reference stated that "None shall hunt, hawk or course near Hounslow Heath without licence, nor fish in the brooks or rivers".

Clearly any fishing rights commoners enjoyed on the Crane before the Norman conquest were largely revoked in a relatively short space of time and this, coupled with the royal decree to remove the fishing weir at Whitton (and possibly Babworth?), could have led to a fish population explosion. While the actions of individuals netting and trapping fish at various locations would have had a negligible effect on the river as a fishery, fishing weirs almost certainly had a detrimental effect. Apart from their potential to rapidly deplete stocks, they would have prevented freedom of migration within the Crane. Most species of fish tend to be somewhat nomadic and opportunistic in nature, always seeking out new and/or better feeding areas, spawning grounds or places of refuge. However, barriers to migration often restrict and inhibit this natural urge and can lead to fish populations becoming rather fragmented and 'static', with pockets of particular types of fish tending to stay in the same locations. This in turn can result in certain stretches playing host to extremely large numbers of fish, all unhealthily competing against each other for the

same feeding areas, spawning grounds etc while other stretches, perfectly capable of supporting fish-life, remain relatively barren.

Given COMPLETE freedom of migration within a hospitable river system, fish will tend to colonise most areas and be fairly evenly spread to avoid any over-competition. I believe it is reasonable to assume that IF the fishing weirs were dismantled on the Crane as decreed, fish would have spread rapidly to all areas and thrived.

Added to this, they would have received a further huge boost during the 1530's when a special channel was cut to connect the River Colne at Harmondsworth with the River Crane at Baber Bridge. Subsequently named the Dukes River, it was constructed to bolster the flow of the Crane, increasing the productivity of the mills downstream.

Obviously, it would have also permitted the migration of fish between the two rivers and possibly altered the nature of the fish population, their location and the very nature of the river itself. If there was any doubt concerning the 'natural' presence of trout in the Crane, the Colne certainly held them and they could have taken this opportunity to enter and colonise the Crane. Furthermore, a much stronger flowing river could have drastically altered the fish zones, pushing certain species much further downstream than usual. Similarly, many of the long-established feeding areas, spawning grounds and places of refuge may have been destroyed or lost, compelling fish to seek out pastures new.

Quite possibly, there may have been a significant migration of fish way upstream, above the point at which this new fast-flowing channel entered the river. A bizarre situation could have existed whereby the upper reaches of the Crane were slower flowing than the lower reaches!

Most species of fish are very adaptable creatures and can usually adjust accordingly to such changes to their environment. However, a faster-flowing river was about to give rise to a potential bane.

4.0 MILLS, MILLS EVERYWHERE

Although various water mills existed on the Crane and Dukes River during the Middle Ages or even earlier, prior to the 17th century they were so relatively few in number that they probably had little or no real impact on the river environment. However following the construction of the 'Dukes cut' in the 1530's, harnessing a swift-flowing channel of water from the River Colne to boost the flow of the Crane, numerous mills began to spring up to exploit this new source of power. Perhaps the first, established as early as 1610, was sited on this new channel just above the point where it entered the Crane. Originally it was a gunpowder mill, but by 1630 it had been converted into a sword foundry.

In fact, during the course of Henry VIII's reign some years earlier, it became apparent that the nation had to start mass-producing its own gunpowder rather than relying on unpredictable supplies from overseas. Several of gunpowder mills were established in various locations in and around the London area, steadily increasing in number during the subsequent reigns of Elizabeth I and James I. However, the stretch of River Crane between Baber Bridge and what is now Crane Park became a particularly important site for the manufacture of gunpowder and by the middle of the 18th century, several mills were in operation here.

For various reasons, this would have almost certainly have had adverse effects on the resident fish population. They would have found the constant noise and disturbance of numerous water-wheels churning through the water distressing and probably wouldn't have chosen to feed, spawn or take up residence nearby. Moreover, if they had complete freedom of migration, I would imagine that many of them would have headed way upstream above Baber Bridge or way downstream below Crane Park, beyond the range of the mills. Likewise, the human presence and activity associated with the constant coming and going and loading and unloading of mill-side barges would have been considerable, adding to their general feeling of unease.

It is quite possible that the fish population of the Crane became very fragmented at this point, with large numbers existing in the upper and lower river (including the Dukes River), but very little in between.
As mentioned previously, this isn't an ideal scenario as it leads to too many fish competing for the same sources of food, spawning grounds etc.

Another unwelcome development would have been the early advent of pollution. Saltpetre (potassium nitrate), sulphur and charcoal were the principal raw materials involved in the manufacture of gunpowder, all acidic toxins. Considering the sheer scale of the production along Hounslow Heath, it is likely that varying degrees of residue would have found its way into the river from time to time, either directly (accidentally or otherwise) or indirectly (leached by heavy rainfall from contaminated ground). While this may not have necessarily killed many or any fish, it would have altered the nature of the water and probably the food chain in general.

One measurement of water quality is the 'Ph Scale' numbered 1 -14, whereby 7 is neutral, below this value acid and above it alkaline. Ideally, fisheries should have a neutral value of 7 as this usually promotes the widest diversity of plant life which in turn promotes the widest diversity of invertebrates. While fish-life can actually exist in the range between 5.5 -10, as waters become progressively more acidic or alkaline, so the range of plant life and invertebrates becomes more restricted. As an example, a typical upland mountain beck with a low acidic reading of 5.5 - 6.0 will hold trout, but be somewhat devoid of plant life and invertebrates. Consequently it is only able to support a very limited fish population and the few trout present grow very slowly and rarely exceed 12 - 16 ounces in weight.

To what extent the Crane below Baber Bridge became more acidic while the gunpowder mills were in operation is impossible to gauge, but if it did fall as low as 5.5 - 6.0, it would have become a very poor environment for the reasons already outlined and would have given fish extra incentive to migrate way upstream or downstream.

Differing River Environments

	TYPICAL UPLAND BECK (POOR ENVIRONMENT)	TYPICAL CHALK STREAM (GOOD ENVIRONMENT)	TYPICAL LOWLAND RIVER (AVERAGE ENVIRONMENT)
Ph VALUE	5.5 - 6.5 (ACID)	7.0 - 9.0 (NEUTRAL –ALKALI)	7.0 - 9.0 (NEUTRAL-ALKALI)
TEMPERATURE RANGE	4˚C-15˚C	8˚C-15˚C	8˚C-20˚C
PLANT LIFE	EXTREMELY LIMITED	EXTREMELY VARIED	VARIED
INVERTEBRATE LIFE	EXTREMELY LIMITED	EXTREMELY VARIED	VARIED
FISH LIFE	USUALLY LITTLE MORE THAN LIMITED NUMBERS OF BROWN TROUT GROWTH RATE SLOW	SUITABLE FOR BOTH COARSE FISH AND GAME FISH, BUT OFTEN MAINTAINED AS TROUT FISHERIES. GROWTH RATE RAPID	MORE SUITABLE FOR COARSE FISH GROWTH RATE AVERAGE

Another major factor to be taken into consideration is the countless, huge explosions which took place, particularly during the second half of the 18th century. Early production methods were extremely hazardous, with large quantities of wood being burned (to produce charcoal) in close proximity to large quantities of refined/partly refined gunpowder. Accidents were inevitable. One in 1758 caused an earth tremor which was felt as far afield as Maidenhead, 16 miles away. In 1772, THREE mills exploded sending shockwaves even further afield into Selbourne, Dorset. Worst of all however was the incident in 1796 when a mill and a barge loaded with 30 barrels of powder caught fire and exploded. The mill itself was blown to smithereens and the blast was so colossal, it shook and damaged houses in Hounslow, Isleworth and Brentford.

Aftermath of an explosion at the Hounslow Gunpowder Mills
London Illustrated News, 1859

Naturally, these accidents would have had a catastrophic effect on the Crane. The initial shockwave alone would have would have killed or stunned large numbers of fish over a considerable area. Similarly, the amount of airborne toxic residue would have been huge and much of it would have settled in the river, possibly enough to kill plant and fish-life. All manner of other debris would have also have found its way into the water - masonry from the destroyed mills, uprooted trees, collapsed riverbanks etc.
Major blockages would have occurred, requiring swift remedial action to quickly restore the 'working' flow of the river. These clearances would have been carried out very hastily, with little regard for the aquatic environment. Consequently, established feeding areas, spawning grounds and places of refuge may have been disturbed or even totally destroyed, completely changing the whole nature of certain stretches.

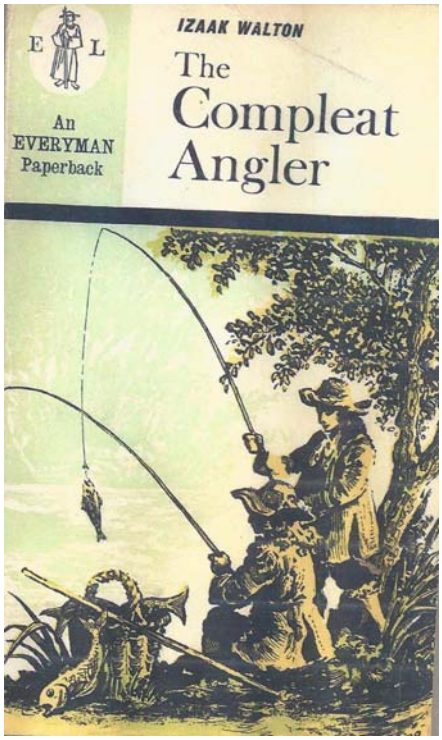
Thankfully these accidents became less frequent with the passage of time, more care being taken during the manufacturing process. However, gunpowder was produced along the Crane for more than 200 years and it almost certainly had numerous detrimental effects on the river. When all production finally ceased in 1926, there was a collective sigh of relief. Times were changing though and the evils of gunpowder manufacture were about to be replaced by the evils of early urban sprawl.

5.0 A 'FISHY' INTERLUDE

While gunpowder mills came and dominated the middle reaches of the Crane for over 200 years, interesting developments were occurring elsewhere.

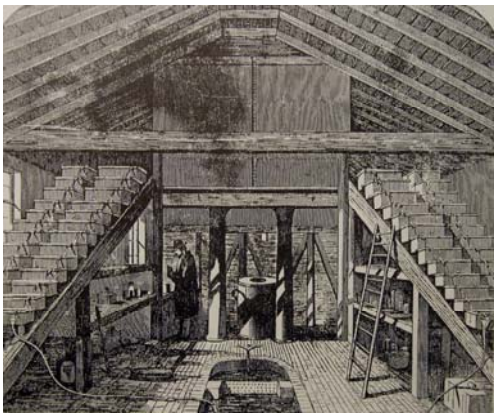
Until the middle of the 17th century angling with rod and line was rarely practised anywhere in Britain.
Early forms of fishing usually involved the use of traps or nets and this tradition continued for generations.
However, 1653 saw the first publication of Izaak Walton's "The Compleat Angler", a truly ground-breaking volume. Books about angling had been published far earlier, as early as 1496 in Britain, but made little impression. Walton's book really captured the imagination and proved to be hugely influential.

Within a relatively short space of time, angling with rod and line began to rapidly gain in popularity among all classes of people. Indeed, by 1748 it would appear that anglers may have been fishing the upper reaches of the Crane.



A curious epic poem entitled "Hounslow Heath" and written by local resident Wetenhall Wilkes in that year outlines all manner of activities and pursuits he witnessed around the heath. He speaks of roach, perch, bream and trout in the river at Cranford, specific species of fish clearly identified and named, implying knowledge of angling or angling activity.

No speculation regarding the life and works of Francis Francis however. Born in 1822, he became a writer/journalist by profession, specialising in the field of angling. In 1851, he married and moved to "The Firs" in Twickenham, a property including a plot of land bordering the River Crane. A keen angler, he fished both the Crane and the Thames and it was his dismay at witnessing the latter falling into decline which prompted his move into fish-farming. Around 1860, he entered into a partnership with the Thames Angling Preservation Society to produce much-needed stock fish for his beloved Thames. Specialised hatcheries were designed and constructed alongside the river at Hampton and also at "The Firs" in Twickenham, possibly the first establishments of their kind in Britain. Accordingly, as little was known or had been written about rearing fish, it was a somewhat risky venture requiring a carefully considered 'trial and error' approach. Both hatcheries were soon producing large numbers of young fish, with Francis playing a major part in the success. Between 1861-66, the Hampton hatchery produced over 200,000, including 137,000 brown trout destined for the Thames. Later, fertilised trout eggs from these hatcheries would be shipped to Australia and New Zealand to provide first-generation parent fish for subsequent farming. The river fishing for wild brown trout in New Zealand is now considered to be among the finest in the world, all due to the remarkable pioneering work of Francis Francis during the second half of the 19th century.



Francis Francis in his fish hatchery, London Illustrated News

In 1864, he was instrumental in bringing the very first batch of Wels catfish to mainland Britain, a full 16 years before their first 'official' introduction at Woburn Abbey in 1880. He died in 1886 and was buried in Twickenham Cemetery, but his memory lives on. A local angling club based in Twickenham was later founded and named after him, still in existence today and regularly fishing the Thames in their distinctive traditional punts.

A more curious piece of Crane-related angling folklore concerns the alleged capture of a truly enormous chub. Several sources, old and modern, mention a 10lb 8oz fish caught by a certain W.Cockburn from the Crane in 1875. No other details are given, casting doubt on its authenticity. However this fish is included on the Specialist Anglers Alliance" list of top 50 chub at position 4, an honour not usually afforded to any capture totally lacking credibility (see Appendix 7).

Finally, perhaps the best documented example of angling activity on the Crane/Dukes River in days long past is contained in Walter Gallichan's book of 1908 "Trout Waters of England". A section of the 'River Crane' almost three miles long, running between Twickenham and Whitton to Isleworth, is glowingly described in some detail. It is boldly proclaimed as the chief fly-fishing stream in Middlesex, with catches of

up to a dozen trout possible during a half-day session. It mentions that the venue was artificially stocked with fish from a trout farm in Berkshire and that the abundant minnow and gudgeon population were easy prey, ensuring a rapid growth rate. The river further upstream between Hounslow and Feltham is credited with holding pike, perch, dace and "other general fish" and the author speculates that this stretch, and maybe others, could also be converted into a trout fishery if certain fish were removed. He confirms that this practice was periodically undertaken on the lower river to preserve and protect the livelihood of the trout. The fishery itself was being leased from its owner, the Duke of Northumberland, by an exclusive syndicate of 30 members using the Royal Oak pub in Isleworth as their base. Apparently, a mounted and cased specimen of 2lb 14oz took pride of place in the bar.

A truly fascinating account, but clearly this fishery was centred along the Dukes River rather than the Crane. The lower Crane in Kneller Gardens was being used as an open-air bathing area between 1895-1928/9, obviously precluding any sort of angling activity. Moreover, a decision was made to stock trout into the venue without the benefit of a thorough, modern-day 'feasibility' study. This seems to suggest previous knowledge of the river existing as a trout fishery, therefore suitable for trout.

6.0 THE CRANE UNDER PRESSURE

For centuries, much of the land surrounding the Crane and the Dukes River was sparsely-populated heathland /farmland with small isolated settlements scattered far and wide. Glover's famous map of 1635 illustrates this quite clearly and any subsequent development tended to take place around the existing hamlets and villages.

Until the mid 19th century, very little had changed. Much of the land was still being used for farming/market gardening, but the coming of the railways (London & Great Western Line in 1850 and the Metropolitan District Line later in 1884) began to bring more people to the region. Consequently certain areas of open space had to be surrendered for housing and industrial development, although initially the pace of change was slow and gradual. However in July 1916, residents of Cranford were complaining to the local press about noxious fumes emanating from an apparently heavily-polluted River Crane. Further upstream between Hayes and Southall, there were a number of manufacturing plants bordering Yeading Brook and these establishments were the likely culprits.

The aftermath of World War One saw the pace of change accelerate considerably. During the 1920's, but especially the 1930's, the construction of new housing was extensive and the wide open spaces of yesteryear began to grow increasingly smaller. The opening of the Great West Road in 1925 and the advent of motorized travel in general prompted much of this activity. Roads and houses encroached ever closer to the Crane, the danger of exploding gunpowder mills having passed with their ultimate closure in 1926. Unfortunately however, much of their associated drainage/waste water systems were 'plumbed into' the river and this appeared to have an instantly detrimental effect. The Crane in Kneller Gardens had been used as an open-air bathing area since 1895, but had to cease operating in 1928/29 due to reports of children apparently contracting polio from the 'newly' polluted water.

Building continued apace throughout the 1930's, only halted by the outbreak of World War Two. Surprisingly however, the need for a major airport to serve a rapidly expanding London was such that initial construction work on Heathrow was undertaken undeterred between 1939-45. A very basic facility opened for business in 1946, but subsequent expansion stimulated a huge new raft of related development - houses for its workers, hotels for its clients and numerous associated service industries.

Large scale gravel excavation began on Hounslow Heath and continued throughout the 1950's. Around the same time, it would appear that a local angling club, Feltham Piscatorial Society, acquired the fishing rights on a substantial stretch of the Crane. Details are somewhat sketchy and speculative on this matter as the present association hold no records of this, but later evidence contained within an ecology report DOES confirm that they had a standing interest in the river. The general belief was that the Crane was hardly worthy of angling attention at the time and this seems to be confirmed by the generous injection of fish from the nearby River Colne in 1954.

This stocking didn't appear to be a success as various sources recount an overgrown, oil-stained, unmaintained and generally neglected River Crane throughout most of the 1960's. In fact, two letters to the local press over a decade apart (1950 and 1965) paint a very similar picture, both highlighting its foul, polluted state. Also, by this time, gravel extraction had ceased at Hounslow Heath and the location was being used as a landfill site for domestic refuse.

This continued for several years up until the early 1970's. Just how much this practice contaminated the land and any sub-surface groundwater is a matter for conjecture, but the slow leaching effect of rainfall would almost certainly have periodically washed various contaminants into the river.

Between1950-70, it would appear that the Crane was being polluted on a regular basis from numerous sources. Accordingly, local residents would often mention its poor condition, with the presence of floating oil and its associated unpleasant aroma the most common theme. It acquired the reputation of being a 'dirty' river, holding little in the way of fish life and certainly not worthy of angling attention. A far cry from the healthy river described by Gallichan in 1908.

7.0 EARLY RECOLLECTIONS OF THE CRANE/DUKES RIVER

My earliest memories of the Dukes River in Isleworth would date from around 1972. It was full of sticklebacks and seemingly nothing else, so it was very popular with the local 'tiddler-net brigade' of children. It never struck me as being a polluted river, the water was 2-3ft deep in most places and usually quite clear. During high summer it often had a strong 'peppery' smell though. Older boys soon began fishing it with baited hand-lines and we became aware of inhabitants other than sticklebacks. Gudgeon were often taken and occasionally stoneloach, which were mistakenly identified as catfish! Apparently some of these older boys also fished the local stretch of the Thames and were believed to have transferred some of the fish they caught there into the Dukes River. These were usually small eels, very common in the tidal river at the time.

Way upstream on the Crane, the river was improving. It appeared that a major clean-up campaign had been launched, part of a Greater London Council (GLC) initiative. Years of neglect and fly-tipping were being swept away. All manner of rubbish was removed from the river and its banks and wildly overgrown vegetation was cleared. A more orderly-looking Crane Park was beginning to take shape, almost 40 years after its initial foundation. Sadly though, fish life was sparse here too - sticklebacks, gudgeon, stoneloach and minnows, essentially minor small stream species.

Returning back to the Dukes River, it seemed a somewhat barren environment. Apart from a fine layer of soft blanket weed on the bottom, there was precious little other weed growth, possibly due to the steady flow and depth of water (a sluggish flow and shallow water usually promotes weed growth in abundance, often over-abundance!). Also there was a distinct lack of associated aquatic wildlife. Ducks, coots, moorhens etc were rarely seen and herons and kingfishers almost unheard of. Some localized dredging work took place along Riverside Walk in Isleworth during 1974/75 and the river lost much of its natural depth here. During the drought of 1976, this stretch 'shrank' significantly leaving just a narrow band of water in the newly-dredged central channel.

The lack of varied fish-life continued throughout most of the 1970's, an ecological study of the Crane conducted by I.E Byrne during 1978-79 noted very little apart from sticklebacks, stoneloach and gudgeon. However in 1979-80, anglers local to Hounslow Heath became aware of some roach, dace and small carp in the river just below Baber Bridge. There was also a huge concentration of gudgeon, making it a particularly popular spot with young anglers. Initially, early catches comprised of mainly gudgeon, sticklebacks, occasional roach and very occasional dace and small carp.

During the spring/summer of 1980 however, the sluice gate just above the bridge separating the Crane from the Bedfont arm of the Dukes River was forced open, allowing many fish belonging to Feltham Piscatorial Society to enter a new home. The effect was instantly noticeable, with clearly many more fish other than

gudgeon and sticklebacks present in the river and the new arrivals colonising several other locations downstream along the golf course. A session fished in September 1980 yielded roach, bream, dace, rudd, bleak and gudgeon. Unbelievably, a similar incident was reported to have occurred in October 1984, Feltham P.S claiming that around 5000 of their fish was released into the Crane. Some were miraculously retrieved nearby, but many remained at liberty.

Strange to think that two apparent acts of vandalism should play such a major part in rejuvenating fish-life in the Crane, but throughout the 1980's, species rarely or never seen or known in the river for many years were suddenly present and spreading to all areas. At first, these new fish populations were very localised - small pockets scattered far and wide and easily overlooked. Indeed, a Thames Water fishery survey carried out on the Crane and Dukes River between1987-88 concluded that overall fish populations were poor, although both rivers were considered capable of supporting reasonable numbers of coarse fish. It also recognised the importance of the tidal section of the Crane at Isleworth as a likely spawning/nursery ground.

Extract from Thames Water's *Newscast* (Summer 1988) mentioning the potential of Crane and Dukes River.

Fisheries staff survey the River Colne as part of a major study of a planned flood alleviation scheme

Future schemes show flexible approach...

fisheries will be complete by next Spring. The information it supplies will be used to protect and improve the fisheries.

If the scheme goes ahead, it will break new ground nationally and will take up to ten years to complete. Much preparatory work is needed.

As well as bringing water flowing into places where it has vanished from the public eye, ALF will provide a chance for fisheries staff to turn the clock back and create some small but valuable fisheries. It should enable the Darent in particular to be a more robust fishery than it can with its present flow regime.

A project that monitors the impact of removing water is also under way in the Cotswolds where valuable water resources are provided by the limestone beneath the area. Abstraction undoubtedly has some effect on river flows but, until now, no-one knows exactly what it means for river life. A preliminary survey of the Coln is now complete and work on the Ampney Brook and the Churn is well advanced.

The impact of yesterday's approach to rivers is seen clearly in London — for example in the River Crane and Dukes River system which rises at Harrow, flows to the east of Heathrow and discharges to the Thames at Isleworth.

Much of the river was widened, straightened and cast in concrete by the GLC and other agencies but, despite its city environment, much of it flows through open parkland and this semi-rural habitat is seen as important by bodies like the London Wildlife Trust.

A recent fisheries survey showed that overall fish populations are poor although water quality is good enough to support reasonable coarse fisheries. The main limiting factor was felt to be the poor, austere environment produced by past engineering schemes.

By contrast, the tidal Crane was found to contain lots of young freshwater fish and flounders and probably acts as an important nursery for the tidal Thames.

Now an imaginative flood alleviation scheme is on the drawing board, taking full account of survey information and fisheries expertise. It aims to create significantly better fisheries, as well as reducing the risk and frequency of flooding.

The initiative should create a modest angling amenity on the Crane for local anglers as well as providing better fisheries throughout the system. As fisheries improve, more young fish will find their way down the tidal Thames and help to improve fisheries in the tideway.

Involving environmentalists of all disciplines in the planning of flood allevation schemes today will help ensure no more barren, concrete channels are added to the list. People from 11 environmental specialisms have studied plans to spend £8 million on protecting those who live in the Colne Valley from floods.

Much detailed work was needed to deal with the fishery and angling aspect of the study. Fisheries staff provided expert input, particularly on the provision of fish passes, and the Colne Valley Anglers Consultative advised on angling matters.

No long-term adverse impact on fisheries was identified by the study. The greatest impact

During the summer of 1989, I became aware that there were significant numbers of small chub, roach and dace in many areas of the Dukes River - fish probably 'filtered' down from the Crane. I also became aware of fishing matches being held on the Crane at "Twickenham" and being won with good weights of mainly roach. A subsequent reconnaissance mission along the Crane revealed little of interest at Twickenham, but a nice surprise at Hanworth. Just above the bridge next to the Crematorium, I saw a huge shoal of roach at least a hundred strong with individual fish between 4 -10oz apiece. This was significant for two reasons; firstly, it was a clear indication of how well a somewhat limited number of fish at Baber Bridge ten years earlier had thrived and spread down-river and secondly, many of the larger fish would have been mature enough to spawn the following spring.

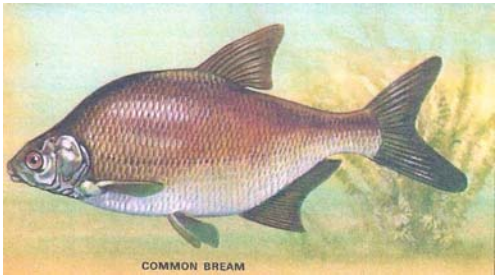
1990 saw an increase in the numbers of chub, roach and dace in the Dukes River, with numerous pockets of fish present from the upper river at Kneller Gardens, all the way down to Riverside Walk in Isleworth. Disaster struck in August however, a major pollution incident originating somewhere in Crane Park.

Thousands of fish were killed in both the Crane and the Dukes River, highlighting just how well-populated they had become. Many fish survived, but their numbers had been cruelly depleted. Could they bounce back and how long would it take?

8.0 ANGLING BEGINS IN EARNEST

After seeing so many fish die in both the Crane and Dukes River in August 1990 and learning that neither waterway would be restocked, I naturally thought they would take years to recover. Accordingly I stopped visiting them regularly, but during the spring/summer of 1993, I was strongly urged to re-new my interest.
Up until this point, I'd never really looked upon them as worthwhile angling venues even though I had personally witnessed the emergence and spread of roach, chub and dace populations. It soon became clear that both rivers had staged remarkable recoveries, with fish spotted in many areas. Moreover, the habitats now appeared ideal - a decent head of clean looking water, steady flow, areas of deeps and shallows, weed beds (generally not overgrown) and plenty of natural shade and cover provided by bank side trees and bushes. They LOOKED like rivers which could support reasonable fish populations and so much of the Crane looked so inviting, it was hard to decide where to fish.

My first session took place just above the Meadway Bridge in June 1993. I caught 100 fish, including 54 roach averaging around 4oz apiece, an impressive result for such a small river. In fact, I soon became aware that the lower Crane around the Meadway area was full of fish of all types. Roach were dominant, with most samples between 2oz - 8oz apiece. Gudgeon were also present in abundance, followed by more limited numbers of chub, dace and bleak. There were also bream, rudd, tench and all sorts of carp/carp hybrids - fish not usually common in small rivers. As I explored more of the Crane further upstream, I began to appreciate just how many fish were in the river and how evenly spread they were. I tried numerous locations between Kneller Gardens and Hanworth (A 314) bridge and caught fish virtually everywhere.
This was very unusual, but it highlighted the huge head of fish present and the ability of the river to accommodate them along most of its length. However the difference between the upper and lower reaches was noticeable. For some reason, the river above Hospital Bridge generally held less fish and less variety than the river below this point. Roach certainly weren't as dominant and far more chub were present.
Gudgeon and the 'lesser' minor species mentioned previously were relatively scarce, but the roach and chub tended to be a better average size than downriver.



In contrast, the Dukes River wasn't so 'angler friendly'. Being a narrower waterway with much shallower and clearer water meant the fish were very wary and easily spooked. Also, it was a much weedier river than the Crane, with some of the growth rather excessive in certain areas. The number of fish present and variety was somewhat limited by comparison - numerous small pockets scattered far and wide, rather than an even spread. However if the Crane was essentially a roach river, the Dukes River was essentially a chub river.
Chub were clearly the dominant species, followed by by gudgeon, roach and dace. Considering how abundant roach were in its parent river, they were fairly scarce in the Dukes River and chiefly small fish less than 4oz apiece. Chub-wise, most samples ranged between 2oz - 12oz apiece, with a 'ceiling' weight just shy of 2lb.

One factor which both rivers did have in common at that time however, was the constant cycle of life. During the course of three consecutive summers, hoards of small fry could be seen in their margins, clearly indicating that most fish were spawning successfully. Indeed, the chub population in particular seemed to be

expanding quite rapidly and the fact that you could catch them any size between 1oz and almost 3 lb on the Crane, highlighted that every year was producing a sizeable crop of new young fish.

All was set for a bright future, but in September 1995 disaster struck. A typical "Urban Run-Off" incident saw a long hot dry spell of weather suddenly broken by torrential rain. This overwhelmed the local drainage system and foul water poured into the head of the Dukes River at Kneller Gardens. Much of its fish life was wiped out. It was a cruel blow so soon after the 1990 incident.

Fortunately this time, the Environment Agency decided that a re-stock was viable, so 3000 chub and dace (but curiously no roach) were released along the Mogden stretch in May 1996. Though not large fish, most of them were mature enough to spawn the following spring, the intention to establish a new self-sustaining population as soon as possible. My observation was that the majority of these fish headed way upstream and settled in the shallow, fast-flowing stretch alongside the Stoop rugby ground. As they were relatively small specimens and showing no signs of re-colonising the river downstream, I began to concentrate solely on the Crane and got to know it more intimately. I was soon building up a much better understanding of the river, for example where I was most likely to catch particular types of fish and where fish were likely to be found when the water was low and clear or high and coloured. It was interesting to see just how much the fish moved around according to the differing conditions.

Another observation of note was the backwater running parallel with Fulwell Park Avenue. Roach and chub between 2 - 3 inches long, tiny fish you rarely encountered on the main river, were present in huge numbers. This seemed to suggest that this particular location, and maybe the other backwaters upstream too, may have been important 'nursery grounds' for young fish. Probably not spawning grounds as such, but places where the depth of water and natural cover afforded by the dense bankside vegetation allowed vulnerable newly-hatched fish to take refuge and avoid predatation until they attained a more reasonable size.

In terms of general trends within the fish population, three things were very apparent; chub were becoming more plentiful and widespread, roach bigger than around 6oz were starting to become scarce and carp were being seen and caught more regularly. Most of the numerous roach between 4oz - 8oz apiece I caught during the summer of 1993 and which should have grown on to be samples in at least the 8oz - 1lb range within three or four years, seemingly disappeared without trace. This was very puzzling and disappointing, but the minor carp 'boom' offered some consolation. These were generally small fish, 1lb or less, of all varieties - commons, mirrors, ghosts, koi and brown goldfish. A much smaller number of large carp were also present, including at least four fish between 10 - 20lb in the lower river around the Meadway. One of these was a very striking bright orange and black koi, regularly seen in Kneller Gardens.

In the meantime, another miraculous recovery had taken place on the Dukes River. By the summer of 1998, the re-stocked fish had successfully spawned and grown onto a reasonable size. Chub between 2oz - 1lb apiece were now present in numerous pockets along most of its length. Also the presence of roach among them indicated that some fish had apparently migrated downstream from the Crane. The river was worth fishing again, but trouble was brewing upstream. A scheme to 'enhance' the River Crane above the Mill Road Weir was about to be implemented and it involved lowering the water level dramatically.
Things were about to change dramatically!

9.0 THE DOWNWARD SPIRAL

By the beginning of the 1998-99 fishing season, the Crane had become an extremely popular venue for angling. The river between Hanworth Bridge (A 314) and Kneller Gardens was being regularly fished by pleasure anglers and club match anglers alike. The big attraction was the fact that so much of this stretch was 'fishable', an average depth between 2 - 4 feet offering all species a safe refuge and a sense of security. Indeed, the fish population was flourishing and the Crane was at the height of its power.

Apparently however, the Environment Agency had been surveying the river for two years and felt it was in need of 'enhancement'. This basically involved dramatically lowering the water level above the Mill Road

Weir and modifying the current with flow deflectors, namely lines of huge boulders placed diagonally across the stream at various points. Regular anglers of the Crane were horrified by this proposal and viewed it with suspicion. It was common knowledge that after heavy rainfall, rapid urban run-off often led to the river breaking its banks in certain areas and the belief was that this scheme was more concerned with addressing this problem above all else.

Nevertheless, work began in September 1998 and much bank side vegetation had to be cleared to allow heavy-duty machinery access to the site. The amount of disturbance caused was obviously considerable - constant noise and vibration of the machinery in and out of the river, constant heavy colour in the water and constant churning up of the riverbank. This rendered the whole of the stretch between the Shot Tower and Mill Road Weir virtually unfishable and it was a matter of speculation as to how many fish were actually remaining in the stretch.

Most anglers were of the opinion that the majority of the fish would have either fled way upstream above the Shot Tower, via the nearby backwater, or way downstream below the Mill Road Weir, also via the nearby backwater. The common concern however was how many of these departed fish were actually going to return back to their old home afterwards and this fear proved to be well founded.

When the work was completed, the nature of the stretch had changed quite drastically. Much of it was less than 2 feet deep, with the flow diverted backwards and forwards across the river zigzag fashion by the flow deflectors. It was now too shallow to comfortably accommodate all of its former inhabitants, the lack of depth offering little in the way of safety or security. Indeed, any fish returning were going to be far more vulnerable to predatation. The fish that did return were limited in number and variety. The legions of quality roach together with the sprinklings of carp, bream and perch became memories of yesteryear. Chub began to almost monopolise the whole stretch, indicating that other species were struggling to adapt and survive.
Indeed apart from the precious few deeper areas, where fair-sized roach could still be caught, the chub only seemed to have tiny roach and minor small stream species (minnows, sticklebacks, bullheads, stoneloach and gudgeon) for company elsewhere. It also became a rarity to see many small fry along this stretch, suggesting that few fish were spawning successfully and/or numerous predators were active.

Thankfully the river downstream of the Mill Road Weir wasn't adversely affected by this change, although a slight drop in the water level was noted. Sport here remained generally good, but around this time it became apparent that certain 'interlopers' had infiltrated the Crane. Chinese Mitten Crabs were being seen and caught on a regular basis, together with less frequent sightings of American Signal Crayfish. There were also at least two or three 'discus-sized' terrapins at large! Sadly the Crane suffered yet another setback in July 1999 when there was a significant fish kill around the Meadway area. Although the Environment Agency rather under-estimated the scale of the incident, they did record a number of bullheads and stoneloach among the fatalities. This was interesting because these fish are widely recognised as being somewhat pollution-sensitive and are often found alongside brown trout in our finest and purest Southern chalk streams.

As recompense for this loss, 400 barbel, 500 chub and 600 dace were re-stocked into the river just below Hospital Bridge during the autumn of 1999. The introduction of barbel was very imaginative and well-received, the hope being that they would thrive in this new, shallower, faster-flowing section of the Crane.
Unfortunately all evidence seemed to suggest that most of these fish migrated way downstream and settled in the deeper, slower-flowing water in Kneller Gardens, where they were caught regularly the following summer and autumn. Even with the passage of time, reports/sightings of barbel in the river above the Mill Road Weir were extremely rare.

Another unmistakable observation was the fact that the water level in both the Crane and the Dukes River was clearly dropping with each passing season and a 'trend' was becoming established.
Indeed a prolonged spell of hot, dry weather during the spring/summer of 2002 was obviously having a punishing effect on the whole of the Crane/Dukes River system. Water levels were extremely low, with levels of dissolved oxygen also probably low. Torrential rain on the last day of July ended this spell and overwhelmed the local drainage system yet again. A deluge of foul water entered a perilously vulnerable

Dukes River, killing most of the fish-life in its path. However, for some reason, the Environment Agency decided against any sort of re-stock and to rub more salt into the wound, several thousand fish perished in the Crane the following summer (August 2003).

At this point, I stopped fishing both rivers.

10.0 POINT OF NO RETURN?

Even before the extensive fish-kills on the Dukes River in 2002 and the Crane in 2003, both rivers were beginning to lose much of their angling value. Long periods of below-average rainfall left numerous areas too shallow to hold many fish of note and almost perpetual conditions of low, clear water with little or no flow conspired against most angling activity. Obviously after 2002, the Dukes River was totally off-limits and after 2003, the fish population in the Crane was very sparse indeed. Anglers, including myself, began to drift away, the meagre sport on offer barely worthwhile. However I continued to visit both venues regularly as an observer, hoping to witness some sort of miraculous recovery.

After the 'Golden Age' of the 1990's it was painful to see the Crane and Dukes River at such low ebb and not unnaturally, my visits gradually became less frequent. With seemingly no realistic prospect of a significant improvement without some sort of carefully considered re-stock, the idea of never fishing both rivers again began to loom large and I stopped looking upon them as angling venues. Accordingly, I felt I no longer had a good reason to visit them as often and totally lost touch with them for two or three years.

Subsequent reports of 'large fish' in both rivers aroused my curiosity and renewed my interest, so during the summer of 2008 I began to re-visit them again. I was shocked by how much they had changed. The water was very low and clear, weed growth was excessive and invasive in many areas and the banks were so overgrown with nettles and bramble bushes, much of the waters edge was barely visible never mind accessible! Old popular swims were completely swamped with vegetation, suggesting that they had long been abandoned by local anglers.

Invasive weed growth on Duke of Northumberland's River above Queens Bridge July 2007

Initially I saw little of interest in either river, fair sprinklings of minnows, sticklebacks and gudgeon and just isolated pockets of essentially small chub, dace and roach scattered far and wide. Although the fish population was especially sparse in the Dukes River, a very limited number of carp between 3lb - 8lb apiece had somehow established themselves here and were often spotted singly or in pairs. More fish were present in the Crane and closer surveillance revealed that a reasonable number of chub between 2lb - 4lb apiece, flourishing due to far less competition for food, were lurking in the more shadowy areas.

I came to the conclusion that it would be worthwhile trying to target these bigger fish, so over the course of three successive summers (2009, 10 & 11), I fished a number of short 'roving' sessions. Although the results were generally impressive, it was hard work. Many areas were far too shallow to hold fish of any real size, including several of the old established hot-spots I fished back in the 1990's. The chub were very wary and baits had to be presented within inches of their lairs. This was often close to, or even under, large rafts of surface weed which was clearly starting to became a major problem on the Dukes River especially.
Indeed during 2009, Floating Pennywort was present in numerous locations, almost stretching across the full width of the stream in places. As this constituted a flood risk, much of this material was removed by the Environment Agency but left on the bank! Considering these plants proliferate powers of regeneration, this was somewhat surprising and this practice was subsequently observed in many other locations elsewhere.

Referring specifically back to the Crane, it appeared that the chub, although dominant, were not doing as well as they had in the past. A reasonable head of large and small fish, but a worrying lack of medium-sized ones in between. This seemed to suggest at least two consecutive bad years for spawning/fry production, unheard of back in the 1990's. There could have been numerous reasons for this including the obvious assertion that the ever-dwindling water level had effectively killed the old established spawning grounds and nursery grounds. Certainly some of these ended up just inches deep, 'dead' water by all accounts.
A deterioration of the water quality is another possibility, a problem with many rivers in urban areas today.

While water quality has to be extremely poor to actually kill most fish, 'tolerably' poor water often has adverse effects including retarding growth rate, blunting fertility and reducing resistance to disease.
Of course, all sorts of undesirable effluents of one form or another have been entering the whole of the Crane/Dukes River system for years, seemingly without causing too many ill- effects in most cases.
However, in the past I believe that both rivers contained a large enough volume of relatively 'good' water to harmlessly dilute most standard levels of discharges. Unfortunately though, as the Crane and Dukes River began to visibly shrink year by year, this no longer remained the case and they became increasingly vulnerable as a result. This was further compounded on the Dukes River with the demolition of the old "Atfield" weir in Isleworth, leading to parts of the riverbed being exposed in many areas, notably the upper reaches alongside the Stoop Rugby Ground.

The last time I fished the Crane and Dukes River was on the 29th July 2011, but the last time I saw fish in either river was in the autumn. During the summer, I became aware of a 'resident' shoal of 1lb - 3lb chub, about 30 strong, in the Crane just below Moormead Bridge at Cole Park. I visited them regularly during the summer and autumn to feed them, never resentful of the fact that I couldn't fish for them.

By the end of October, they had gone, everything was gone. A 'mechanical' failure led to a huge volume of raw sewage being channelled into the Crane near Heathrow Airport. Putrid, sandy-coloured water filled both rivers for several days and there were dead fish everywhere. Without doubt, local residents had just witnessed the worst pollution incident to hit the Crane catchment system in living memory.

12.0 CURSED AND CURSED AGAIN (FOREVER CURSED ?)

When the flood of filthy water eventually subsided, an aquatic desert remained. The Environment Agency removed 51 bags of dead fish from the Crane and Dukes River and undoubtedly many more casualties evaded collection. An initial survey concluded that all forms of biological life had been completely wiped out apart from a particularly hardy type of mud snail! The depth of local outrage was considerable, fuelled by widespread coverage and comment on the internet. Accordingly, a public meeting was arranged and held at Twickenham Library in July 2012, where representatives from Thames Water Authority had the unenviable task of placating this anger. It was announced that £400,000 would be made available to restore the Crane and Dukes River, a welcome gesture but viewed by some as merely a token gesture.

Meanwhile back on the Crane, a minor miracle was taking place. Kick-sampling sessions during the spring of 2012 revealed limited numbers of invertebrates beginning to return and during the summer, numerous pockets of tiny fish fry were observed in several locations between the Shot Tower and Kneller Gardens. In fact, significant quantities of these fry kept appearing week after week for over two months!

Opinion concerning their identity and source of origin was somewhat divided, with many suggesting that they were minor species (minnows, sticklebacks, gudgeon etc) from the utmost upper reaches of the Crane.
However the sheer quantity of numbers involved implied a far richer source than the relatively barren stretches above Cranford and subsequent sightings of more developed specimens revealed some of them to be either chub, dace or roach. Given this, it appeared that the River Colne (via the Bedfont arm of the Dukes River) was probably helping to resurrect the Crane.

Further kick-sampling surveys produced ever encouraging results, showing that the natural re-establishment of fish and invertebrate life was well under way far sooner than anyone could have expected.

Slowly but surely, the river was healing itself, patently obvious to any close observer. However, during the winter of 2012, the Environment Agency decided to introduce 5500 young barbel, chub, dace and roach into the Crane just below Baber Bridge. This appeared to be a somewhat curious move, disregarding the natural re-generation taking place. Similarly, invertebrate numbers were still relatively low and becoming increasing scarce with the onset of colder weather. Was there going to be enough sustenance for all these new arrivals?

Likewise, there seemed to be no real value in this stocking strategy. The fish were only between 1-2 years old, meaning that none of them would be mature enough to spawn during the following spring/summer. If such young fish had to be used, their introduction could have been deferred until the spring of 2013, when the river would have been better equipped to try and accommodate them. Even then, it was hard to see where so many relatively 'large' specimens were going to live in a chiefly shallow, inhospitable environment where minor small stream species were clearly dominant pre-pollution.

Advancing into 2013, the spectre of sewage fungus raised its ugly head yet again. An unbroken succession of slimy particles streamed downriver for weeks on end, large deposits and small dead fish seen in the river close to Heathrow. Perhaps as recompense however, an unseasonably mild spell during the spring stimulated some early spawning activity. Huge numbers of tiny fry were seen in the Crane from Pevensey Road all the way down to Kneller Gardens during April/May and just like the previous year, fresh batches kept appearing week after week. Once again, their source of origin was the subject of much debate, as they were obviously NOT the offspring of the sexually immature 5500 new residents. In fact a number of other curious anomalies were also apparent at this time. On the St Margaret's arm of the Crane, a group of chub between 4-12oz apiece and at least 80 strong was present just above the A316 road bridge and chub/dace between 6-8 inches long kept appearing just below the Mereway Road Weir. Most bizarre of all however, was the sighting of a pike around 30 inches long (maybe 8-9lb) in the Dukes River at Isleworth! It was extremely unlikely that any of these fish had managed to survive the October 2011 pollution, they must have originated from elsewhere afterwards and the River Colne was the most likely source.

Returning specifically back to the legions of ever-emerging fry, their impact was considerably more far-reaching this time. Unlike the previous summer, significant numbers of them had clearly migrated down the Dukes River and St Margaret's arm of the Crane. Subsequently minnows, sticklebacks and gudgeon were seen as far downstream as Silverhall Park and Moormead Bridge respectively. In addition to this, small chub and dace (probably part of the 5500 re-stock), were also seen at various points along the Dukes River. Things were going so well, it seemed too good to be true and so it proved.

The prelude to the next disaster came courtesy of maintenance work to the Mereway Road Weir. To facilitate this operation, the water level was lowered and this had a particularly profound effect on the Dukes River downstream. In many areas, just 1-4 inches of water were left standing and large expanses of the riverbed were exposed. The river remained in this perilous state for at 48 hours and as fate would have it, the very evening the water level was restored, a huge quantity of concentrated sewage sludge found its way into the Crane close to Hatton Cross. It has been alleged that an underground pipeline had apparently been accidentally fractured by unknown commercial contractors seemingly acting unlawfully! Almost immediately, reports were circulating that the river was full of grey, foul-smelling water and fish were obviously in distress.

Ironically, the following day saw the presentation of the "Crane Valley Conference" at RFU Twickenham and the sickening scale of the devastation was clear for all to see. Hundreds of dead fish were scattered far and wide all along the Crane and Dukes River, primarily small specimens 1-2 inches long (the new season fry) but also in among them, the juvenile barbel, chub, dace and roach stocked back in December 2012.

The fruits of a miraculous recovery snatched away in an instant, a bitter pill to swallow so soon after October 2011.

13.0 TAILPIECE

Surveying the wreckage of this latest incident was obviously painful for all concerned, but not without consolation. Although it appeared as if virtually all fish life had been wiped out yet again, certain types of invertebrates had managed to survive in significant numbers. Moreover, a small sprinkling of large specimens were observed in among the multitude of fish fatalities, notably four pike between 2-8lb apiece, four eels between 1-2lb apiece, a 3lb chub and a 2lb tench. These, together with scores of 1-2 inch chub, dace and roach, had almost certainly originated from the River Colne/Dukes River Bedfont since October 2011, highlighting the importance of this connection with the Crane. Indeed, the fact that so many 'naturally generated' fish were clearly seen in the river system within two years of October 2011 should be taken into account if any future restocking programmes are considered. Moreover at the time of writing, it is looking increasingly likely that decisions concerning issues such as this and river management strategies generally, will no longer be the sole preserve of the Environment Agency (E.A).

In recent years, there has been a 'realisation' that the dirty oft-polluted Crane of yesteryear is in fact an extremely valuable wildlife corridor worth preserving / conserving. To this effect, various organisations with a mutual interest in the river decided to pool their resources and form the Crane Valley Partnership (C.V.P) in 2005. Working together towards promoting and nurturing a much healthier and aesthetically pleasing watercourse for the benefit and enjoyment of all, considerable strides have been made. Progressively, more and more local residents have begun to visit the river and participate in the regular voluntary 'work days', helping to establish a strong feeling of camaraderie and civic pride. This feeling was further galvanized by the disaster of October 2011, as so much good work was wiped out in an instant. Citizens who had apparently appeared somewhat apathetic towards the Crane during its many previous travails were now deeply concerned for its welfare and future well-being. A past reluctance to challenge authority and ask difficult questions was swept aside as serious debate concerning all aspects of river management ensued. During the course of these discussions, it emerged how infrequently the E.A were routinely monitoring the Crane - just once every three years in certain locations! For a typical urban waterway prone to numerous incursions of harmful pollutants every calendar year, this is simply inadequate. A great many incidents have clearly gone undetected and unrecorded, a poor complement alongside the regular good work carried out by the C.V.P to try and improve the river.

London Wildlife Trust (on behalf of the C.V.P), produced "The Crane Valley" catchment plan in October 2013. An excellent document recognising the need for change and presenting an ambitious proposal for a more proactive community-based approach towards managing the Crane in future. All aspects of the entire catchment system are covered in some detail, with particular emphasis on issues adversely affecting the waterway and the seven basic objectives of the scheme. An integral part of this initiative will be the Community Water Quality Monitoring Scheme under the stewardship of the Zoological Society of London (Z.S.L). Due to begin during spring 2014, local volunteers/workers from four different member groups of the C.V.P will monitor five strategic locations along the Crane catchment every TWO MONTHS! Each site will be briefly kick-sampled and just eight basic groups of invertebrates included for analysis, the abundance/scarcity of these target species being noted and used to gauge the purity/impurity of the water. Similar operations are currently in practise on over 80 rivers nationwide under the "Riverfly Partnership" banner and have led to a much better understanding of the impacts of pollution on those waterways. Of course, it should never be forgotten why tailor-made catchment plans are so essential now. For decades many of our rivers, large and small, have been seen as little more than mere drainage channels and 'engineered' accordingly. Flood prevention has seemingly taken precedence in most cases and waterways have been artificially straightened, widened and even de-watered to minimise this risk. As a result, many natural features such as meanders have been lost, together with alternating areas of fast-flowing shallow water and slow-flowing deep water. Long sections of our rivers have been reduced to a uniform 'sameness' totally lacking diversity. Consequently, most have degenerated into extremely poor environments capable of supporting precious little in the way of varied flora or fauna. Sadly, many reaches of Yeading Brook, as well as the St Margaret’s arm of the Crane, are perfect examples of this and have often been highlighted accordingly in past ecological studies.

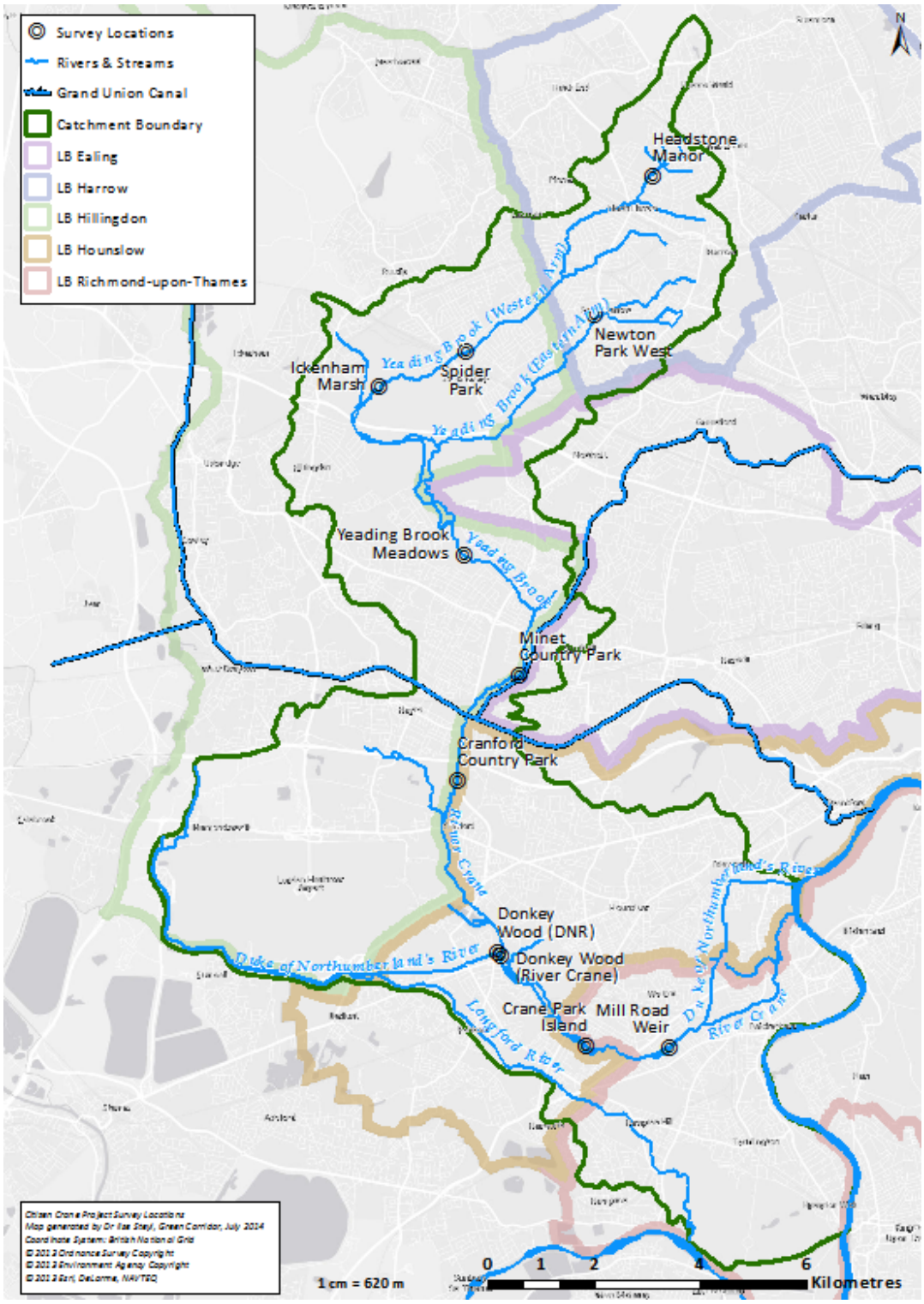
While any moves to correct our struggling waterways are of course welcome, river restoration is not an exact science. Essentially, man-made features are installed at strategic points to 'artificially' replicate and recreate the functions of lost natural features. It is a process which needs to be very carefully considered and tailor-made for each individual water. Poorly designed or incorrectly positioned installations will serve little or no useful purpose and may create problems of their own, such as accelerating the rate of erosion and siltation. Moreover, for these new installations to function efficiently, the water supply itself needs to be carefully controlled and managed, an aspect often overlooked in the recent past resulting in dire consequences for small rivers like the Crane.

Clearly, the dividing line between ultimate success and failure is very fine indeed and the right balance has to be struck. Sadly, in some cases this cannot be found or sustained due to circumstances beyond ANYONE'S control. Adverse climatic conditions is the most obvious example of this, the bane of long successive periods of drought during the second half of the 1990's effectively scuppering the hugely ambitious and expensive scheme to rehabilitate salmon back into the River Thames. Formulating an effective restoration programme for the Crane Catchment will not be an easy task and will be similarly fraught with danger and uncertainty.

The whole system has lost so much over such a long period of mis-management and neglect that it is likely to take years rather than months to rectify. Obviously resources will not be limitless and will have to be used wisely, but even then, the end product may disappoint - a much better 'looking' river may not necessarily equate to a much better aquatic environment. If this appears somewhat pessimistic, it is merely a very personal view from a rather disenchanted local angler. I can vividly remember the Crane of old, by no means perfect, but a superb fishery with remarkable powers of resilience considering the abuse it regularly received. I don't see any of this now, I see an ailing fragile river struggling to cope with the rigours of its urban surroundings and likely to succumb at any moment. This is the real issue for the future - we can only spend so much time and money installing flow deflectors, recreating meanders, restocking fish etc. After this, the Crane MUST be able to stand on its own feet otherwise the effort has been wasted.

Can it be done? Only time will tell.

Locations of where citizen scientists are collecting data within the Crane catchment
http://www.cranevalley.org.uk/projects/citizen-crane.html



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APPENDIX 1

SELECTED EXTRACTS FROM LOCAL ECOLOGY SURVEYS

Several ecology surveys have been conducted on the Crane/Dukes River in recent times and it may be interesting to briefly highlight some of their findings here;

Crane Valley: Ecology Study 1978-79 by I.E Byrne
A very individual and unique study, with hand-typed texts and hand-drawn illustrations.
Main emphasis on flora, but it includes several interesting pieces of 'background' information.
Mentions the long history of pollutions from local pig farms and various discharges from Heathrow Airport.
Also refers to parts of the river running very low or even drying up during past maintenance work and the toll it took on the ecosystem.
Confirms that local angling club Feltham P.S had a vested interest in the Crane and that the "River Crane Preservation Society" had been established to try and develop the river as a fishery. While they regarded the water quality as being adequate enough to support a reasonable fish population, they also recognised that frequent discharges after heavy rainfall (urban run-off) was regularly polluting the river, making it unsuitable for more sensitive salmonid fish species.
Overall fish population was recorded as poor with just five species noted; sticklebacks and stoneloach (common), gudgeon (occasional) and roach and chub (scarce).
Water samples taken at monthly intervals April 1978 - March 1979 for Ph analysis from the Meadway area varied between7.4 - 8.0, very healthy readings.

River Crane Catchment Study 1987 by D.Stubbs
An extremely meticulous report, complied on behalf of Thames Water Authority. Sadly almost exclusively concerned with flora rather than flora AND fauna, but contains a number of useful references.
The overall tone of the study is also interesting, frequently emphasizing the need to conserve the best habitats and protect them from "Inappropriate engineering works".
Many areas of the Crane rated Critical/Important sites, containing significant communities of rare flora and/or fauna. Conversely much of Yeading Brook and the St Margaret's arm of the Crane rated poor sites, with little wildlife value.
Also refers to the Aston & Andrews survey of 1970-77, where a combined total of 108 different invertebrates were found in the Crane/Dukes River system - second only to the River Darent (135) of the seven Thames tributaries covered by the survey.
Parts of the Crane very briefly mentioned include;

Isleworth - Tidal section believed to be an important spawning ground for fish.
Kneller Gardens - 'Small' (unidentified) fish noted.
Crane Park - Himalayan Balsam becoming very invasive.
Mill Farm - Water voles said to be abundant.
Hounslow Heath - Significant colony of European edible frog (Rana Esculenta) present.
Cranford - Evidence of oil pollution noted.

Brent And Crane Catchment Management Plan Consultation Report 1995 by The National Rivers Authority
A more balanced study, dealing in depth with both flora and fauna in equal measure.
Also includes far more specialized analysis of aquatic habitats and their various inhabitants.
Twelve different species of fish recorded in the Crane, dominated by roach and chub. Chub noted as far upstream as Cranford.
Yeading Brook identified as a 'poorer' environment, supporting a more limited population of minor species such as sticklebacks and gudgeon.
Tidal mouth of Crane in Isleworth recognised as an important nursery ground/breeding ground for young fish fry.
Fishery quality of most of the Crane and Dukes River rated as moderate.
Water quality rated RE 3 (scale 1-5) - water of fair quality suitable for high class coarse fish populations.
Invertebrate population rated C (fair).

North London Environmental Overview December 1999 by The Environment Agency

A very detailed report including several good references to a generally healthy-sounding Crane/Dukes River river system. Lower section of the Bedfont arm of the Dukes River singled out as being particularly good.

Water quality (chemically) rated as Class B - Good (biologically) rated Class A - very good.

Overall river quality rated RE 1 - very good.

Credited with holding good numbers chub, dace, eels, perch, pike, roach, rudd and tench and a wide variety of invertebrates, some rarely found elsewhere in the catchment area.

Sadly Yeading Brook highlighted as being particularly poor.

Water quality (chemically) rated as Class E - poor, (biologically) rated Class D - fair.

Overall river quality rated RE 4/5 - poor/very poor.

Numbers and variety of fish-life and invertebrates somewhat limited, with sticklebacks and stoneloach dominant.

The rest of the Crane and Dukes River was rated as follows: Water quality (chemically) Class E - poor, (biologically) Class C - fairly good. Overall river quality rated RE 3 - fair.

Upper Crane around Cranford only credited with holding modest numbers of chub, dace, eels, perch and roach.

However, middle reaches around Crane Park area singled out for special praise.

Fish populations said to be very good and invertebrates to number between 20-30 in variety, including pollution-sensitive species rarely seen in the past such as damselflies, caddisflies and mayflies.

The lower Isleworth section of the Dukes River was stated as holding good numbers of chub, dace and roach.

State Of The Environment In London November 2011 by The Environment Agency

A very lengthy study, but sadly containing little information about the Crane/Dukes River system.

What is clear however is the deterioration that had taken place since their 1999 study and the general feeling of pessimism for the future, somewhat ironic considering it was compiled just prior to the October 2011 catastrophe!

For example, the overall ecological status of the Crane was quoted as being poor in 2009 and still expected to be poor in 2015.

Water quality (chemically) rated as moderate, but overall biological status rated as poor, with moderate numbers of invertebrates and poor numbers of fish.

However, the Crane at Hounslow Heath was credited with holding seven different species of fish, with dace somewhat surprisingly being the most common.

APPENDIX 2

POLLUTION INCIDENTS

Being a typical urban waterway, the entire Crane catchment network is extremely vulnerable to all manner of pollutants entering its course. The complexities, and in some cases, the inadequacies of the local drainage system often lead to regular incursions of harmful substances such as sewage effluent, industrial by-products/waste products, oil, diesel/petrol and anti-freeze/de-icer preparations. In addition to this, certain establishments are given authorisation by the Environment Agency to discharge controlled quantities of waste into their local watercourses. In the North London Overview report of 1999, Nestle UK of Hayes, Hawker Pacific Aerospace of Hayes and Heathrow Airport are all listed as having been granted such consents.

To illustrate the sickening regularity with which significant/major incidents have occurred, numerous brief summaries are presented below.

November 1986

An accident at an unnamed trading estate saw 300 gallons of hydraulic oil spilt, affecting the River Crane between Feltham and Twickenham.
No further details were given as Thames Water Authority was considering a prosecution.

March 1990

Milky-white, foul-smelling sewage effluent, together with used condoms and toilet paper reported to be entering the tidal Crane at Talbot Road, Isleworth on a regular basis. A National Rivers Authority spokesman identified a housing estate at Mogden Lane as the source and a faulty drainage connection as the cause. Apparently these discharges began during the summer of 1989 and continued up to July 1990.

May 1990

500 gallons of shampoo preparation spilt at an industrial unit at Pump Lane, Hayes. Yeading Brook and the upper River Crane badly affected, with an estimated 500 fish (mainly roach) killed in the Cranford Park region. Company unnamed as the National Rivers Authority were considering a prosecution.

June 1990

Watneys Brewery in Isleworth discharged three barrels of ammonia into the Dukes River. Reports of the water turning brown and of the estimated 1000 fish fatalities having been 'bleached' white. A photograph appeared in the local press showing Isleworth schoolchildren in Silverhall Park with numerous buckets of dead fish, many of which appeared to be eels.

August 1990

A long, hot dry spell was broken by very heavy rainfall. The local drainage/sewage system was overwhelmed and a flood of foul effluent entered the Crane somewhere in Crane Park, de-oxygenating the water. Thousands of fish killed along the Crane and Dukes River mostly minnows, sticklebacks, gudgeon, small roach, chub and dace. A fair sprinkling of larger fish also perished including chub up to 1lb 8oz and roach up to 8 - 10oz. thankfully many fish in both rivers somehow managed to survive. A typical classic example of "Urban Run-Off" pollution.

September 1995

A similar scenario. .Another long, hot dry spell broken by torrential rain, overwhelming the local drainage network. Only the Dukes River was affected this time, the foul water probably entering the river at the bottom end of Kneller Gardens. A more devastating outcome however, as it seemed to wipe out virtually ALL fish life along most of the river. Thousands of minnows, sticklebacks, gudgeon, roach, chub and dace killed, with many of the roach and chub between 2 - 8oz apiece.

August 1997

Feltham food company, Pourshins of Girling Way, polluted the River Crane with milk. As the incident was witnessed by an Environment Agency officer, the catering firm accepted liability and was fined £7,000 with £500 costs. No mention of any fatalities.

July 1999
According to the Environment Agency, an unknown and unidentified pollutant entered the Crane around the Meadway area and had a very localised effect on the resident fish population. 500 chub, 500 bullheads, 500 gudgeon, 500 stoneloach, 20 bream, 5 perch and 1 eel said to have perished. Didn't seem to affect the Dukes River, but death toll far greater than 2026. A number of roach were clearly among the fatalities.

January 2000
A mass of small, brown glutinous particles streamed down the much of the River Crane for over three weeks, completely ruining the fishing. The Environment Agency declared that the substance was "sewage fungus, legally washed out from the systems of a nearby site". Heathrow Airport was named as a suspected source.

November 2001
A blockage in the local sewerage system led to raw sewage being discharged into Whitton Brook at Marlow Crescent in Twickenham. Thames Water Authority subsequently found to be at fault and fined a sum of almost £13,000. They were also fined a lesser sum of £7,000 for a similar offence involving Whitton Brook back in 1999.

July 2002
Another typical urban run-off incident, a carbon copy of September 1995. Heavy rainfall following a long, hot dry spell washed a torrent of foul water from the local drains into the head of the Dukes River at Kneller Gardens. A similar outcome as 1995, with most fish life wiped out all the way down to the Maltings estate in Isleworth. This time however, hundreds of quality chub, roach and dace between 4oz and 2lb were the most noticeable casualties.

August 2003
Described by the Environment Agency as a "Severe" incident, several thousand fish, among them sticklebacks, bullheads and roach, were found dead in the Crane at Twickenham. It was suggested that an unknown pollutant, possibly milk, beer or sugar, entered the river in the Yeading Brook West area, de-oxygenating the water. Also at around the same time, it was alleged that chemical foam used by the Fire Brigade to contain a major grassland fire over Hounslow Heath found its way into the river, causing further fatalities.

July 2006
At least 100 fish, many believed to be chub, found dead along the River Crane in Crane Park. Cause unknown, pollution or low oxygen levels initially suspected. The Environment Agency confirmed the number of fatalities, but their investigation apparently found no evidence to support either theory.

February 2010
Severe outbreak of sewage fungus along the River Crane and Dukes River. A grey, ghostly-like blanket of slime covered much of both riverbeds for at least two weeks. The Environment Agency said that they were looking for "A prolonged and sustained source of nutrient release" to trace the origin and stop it.
They advised dog owners to keep their pets away from the water.

October 2011
The worst incident within living memory. A 'mechanical fault' led to Thames Water Authority discharging a huge quantity of raw sewage into the River Crane near Cranford Bridge for several hours. All fish life believed to have been wiped out on the Crane and Dukes River below this point. Death toll estimated at 10,000 and included barbel, bleak, bream, carp, chub, dace, eels, gudgeon, minnows, perch, pike, roach and sticklebacks. At the time of writing, the Environment Agency is considering a prosecution.

February 2013

Sewage fungus began streaming down the River Crane and Dukes River and continued for at least seven weeks. Excessive deposits together with small dead fish were seen close to Heathrow during March. The Environment Agency positively identified the airport as the source of the pollution, glycol contained within the de-icers used on runways and planes responsible for the outbreak.

October 2013

An underground pipe carrying concentrated sewage sludge was apparently fractured accidently at a location north of the A30 near Hatton Cross. A considerable quantity of this matter entered the adjacent stretch of the River Crane, visibly darkening its hue and killing much of the newly-established fish life below this point. The vast majority of the victims were hundreds of chub, dace, gudgeon, minnows, roach and sticklebacks between 1-2 inches long.

APPENDIX 3

ANALYSIS OF THE OCTOBER 2011 FISH FATALITIES DATA

Following the major pollution incident in October 2011 affecting several miles of the Crane and Dukes River, the Environment Agency (E.A) recorded 3140 'official' victims outlined below:

Number of Fish	Species
1	Bream
1	Goldfish
2	Tench
3	Carp
4	Pike
5	Perch
6	Barbel
15	Stoneloach
43	Bullheads
53	Bleak
60	Eels
107	Dace
139	Sticklebacks
168	Roach
431	Chub
528	Gudgeon
1574	Minnows
3140 Grand total	**17 Species**

In contrast, a more minor incident back in July 1999 and said by the E.A to have had only "a very localised effect on the resident fish population" around the Meadway area of the Crane, claimed 2026 fatalities.

This apparent discrepancy however can be accounted for. No fewer than 51 bags of dead fish were collected from the Crane and Dukes River, but the contents of just 22.5 of these were closely examined and logged to produce the declared death toll. Almost 30 bags, possibly containing a further 4000 casualties, were excluded from the official count and many more would have evaded collection.

The very nature of the October 2011 incident would have seen large numbers of fish ailing very quickly and being swept downstream very quickly, seemingly supported by the fact that many more victims were retrieved from the Dukes River rather than from the Crane. Many could have been swept all the way through the system and down to the Thames before any clean-up operation even began! Similarly, any fish swept down the St Margaret's arm of the Crane and left stranded would have probably been beyond the power of recovery as access is so poor along most of its length. Add to this the huge amount of ground the E.A had to cover, essentially EVERYWHERE downstream of Cranford, and predators such as herons, gulls, crows, rats, foxes etc would have had ample opportunity to claim easy free meals in numerous locations before the clear-up was completed.

Without a doubt, the death toll was far greater than 3140, perhaps as high as 10,000 but for the purpose of this analysis, the composition of the 3140 identified victims will be accepted as being a typically representative cross-section sample of the Crane/Dukes River fish population pre-pollution.

Somewhat disappointingly, a staggering seventy three percent of the total comprised of minor species with little or no angling value - minnows, gudgeon, sticklebacks, bullheads and stoneloach.
Although these are commonly found in many small rivers and streams nationwide, the disparity between their numbers, particularly between minnows (1574) and sticklebacks (139) was very surprising.

Of the major fish species, chub were always likely to be the most abundant, but just 168 roach was a far cry from the heady days of the 1990's when they dominated the Crane. Similarly, a total of 107 dace hardly supported the E.A's view that they were prevalent in the upper river alongside Hounslow Heath (Fishery Survey 2011). It was tragic that only 5 perch, 3 carp and 1 bream were recovered. Back in the 1990's, before the water level was lowered above Mill Road Weir, it was possible to catch these fish anywhere between Kneller Gardens and the Shot Tower Weir pool. While they were never 'common' as such, it appeared as though a small but significant breeding colony of each of these species existed. This was certainly the case for the carp, the weird and wonderful array of hybrids being produced supporting this assertion. However after 1998, all three started to become increasingly scarce on the much shallower middle reaches of the Crane and within a relatively short space of time, their distribution was predominantly confined to the deeper areas on the lower river. For another interesting comparison, it is worth noting that of the 2026 victims claimed from the 1999 Meadway incident mentioned earlier, 20 of these were bream.

Equally as depressing was the almost total lack of barbel. Back in the autumn of 1999, a bold decision was made to introduce 400 young specimens into the Crane just below Hospital Bridge. The subsequent consensus of opinion was that, against expectations, most of these fish had seemingly chosen to migrate way downstream and settle in the deeper, slower-flowing reaches of the lower river. A return of just 6 samples out of an original consignment of 400 would suggest that they failed to acclimatize successfully.

To end on a more upbeat note, 60 eels was a heartening result and somewhat surprising. Eel populations elsewhere, especially on the Thames, have plummeted alarmingly in recent years. It is strange that the Crane should apparently buck this trend. Many were respectable specimens too, several between one and three pounds noted.

Taken at face value, this data would seem to define the Crane and Dukes River as fisheries of relatively poor quality. The overwhelming predominance of minor species is very reminiscent of the utmost upper reaches of the Crane, including Yeading Brook, which past studies have often identified as being both ecologically and biologically poor and containing perhaps some of the poorest environments within the entire Crane catchment area. The implication that the Crane is merely developing into an extension of Yeading Brook is extremely alarming, clearly highlighting the decline which has taken place. Moreover, doubts must now exist concerning the river's ability to support and sustain a reasonable and diverse population of typical coarse fish and any future re-stocking programmes need to be very carefully considered indeed.

APPENDIX 4

NOTABLE CATCHES

The Crane and Dukes River were superb fisheries during recent bygone years and to demonstrate this fact, I present six detailed examples outlining the significance of each one.

JUNE 1995 - DUKES RIVER

This was very much a speculative and experimental session. I had been aware that limited numbers of small chub, dace and roach had been filtering downstream from the Crane for many years, yet never seen any real evidence that reasonable self-sustaining populations of these fish had managed to establish themselves. Isolated pockets of essentially small specimens were seen regularly along the Oak Lane to Riverside Walk stretch in Isleworth, but mystery surrounded the much deeper reaches further upstream. I was particularly intrigued by the section between Queens Bridge and Chase Bridge. The river was much 'wilder' here, very weedy in places and the banks somewhat overgrown. It wasn't likely to be easy fishing, but I had a hunch that bigger fish mature enough to spawn, would be present. Float-fishing small pieces of bread, sport was extremely hit or miss. Some swims produced 3 or 4 fish instantly before bites suddenly ceased, while others produced nothing at all. Either way, it was necessary to keep on the move continuously and I covered the whole stretch in just less than 3 hours taking a total of 21 chub, 5 dace, 2 gudgeon, 1 roach and 1 bleak for an estimated weight of 13lb 8oz. A fairly modest haul, but a hugely significant result.

For decades the Dukes River was never considered worthy of proper angling attention and this catch proved otherwise. Similarly it highlighted that chub were clearly thriving and were the dominant species, with fish of all sizes between 2oz - 1lb 12oz being taken and the larger ones obviously mature enough to spawn.

NOVEMBER 1997 - RIVER CRANE

A 5 hour session I almost didn't fish! I had prepared for an early start, but heavy drizzly rain initially led me to abandon all thoughts of leaving the house. However by mid-morning it had stopped and the weather seemed set fair, so I belatedly headed for the Crane. After losing so much fishing time, I chose a swim just above the Meadway Bridge where I knew I was likely to get a flying start, even if sport was also likely to be relatively short-lived and a subsequent move would be necessary. As anticipated, float-fishing small pieces of bread brought bites instantly and I took 7 or 8 small chub between 2 - 4oz apiece in quick succession.

Just when I was expecting a lull in this activity, a rather sluggish River Crane suddenly to flow more steadily. The Mill Road Weir had obviously been adjusted to compensate for the earlier rain and bites continued to come thick and fast. However I was now catching slightly smaller 2 - 3oz roach and it soon became clear that a huge shoal of these had taken up residence. The first hour produced 36 fish and although I couldn't maintain this catch rate, the swim didn't die either and I was able to take another 100 in the following 4 hours, including some slightly better ones near the end. 116 roach, 14 chub, 5 dace and 1 bleak for 23lb 8oz was a truly staggering return. None of the fish were bigger than 4oz apiece and catching so many roach from the same single swim clearly demonstrated what a fantastic roach river the Crane was at the time.

NOVEMBER 1998 - RIVER CRANE

After recent heavy rain, the river was fining down nicely and looked in perfect winter trim. I was spoilt for choice as every swim was available and they all appeared so inviting. Initially I began just above the Meadway Bridge, in the exact location where I'd taken a near 20lb bag of fish the previous winter in similar conditions. However just 2 gudgeon and a tiny roach in the opening 20 minutes prompted an early move.

After much deliberation, I eventually decided to restart in Kneller Gardens and experienced a truly magical session. Float-fishing small pieces of bread, bites came straight away and never stopped for a full 5 hours.

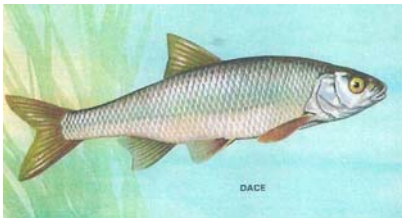
Sustained action of this intensity is rare enough on small rivers such as the Crane, but the ever-changing variety of fish I was taking was almost surreal.

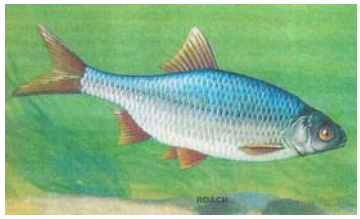
Although chub, gudgeon and roach were clearly the mainstays, the usual pattern of capture is for certain species of fish to dominate the swim during different stages of the session. Typically, an early run of chub

would be followed by a number of roach before finally giving way to gudgeon. This just didn't happen though, fish of all types and sizes were all competing simultaneously, so every time the float went under I had absolutely NO idea what was likely to be on the other end!

Adding the supplementary presence of carp, bream, rudd and bleak to this equation further heightened the sense of excitement and mystique. 57 chub up to 1lb 8oz, 28 gudgeon, 26 roach up to 12oz, 5 bream all just over 1lb apiece, a 5lb 4oz common carp, 1 rudd and 1 bleak for a total weight of 49lb 8oz.
This session had everything, seven different species of fish and so many quality samples.

Quite simply, the River Crane at its very best.





MARCH 1999 - RIVER CRANE
A somewhat strange session overall as I was really struggling to catch for most of the time. It was nearing the end of the fishing season and the river was clearly showing signs of becoming tired and jaded. I began in Kneller Gardens, float-fishing small pieces of bread as usual, but enjoyed little success.
I had to move several times, gradually working my way upstream in the process.

Typically most swims produced 2 or 3 fish straight away, including some fair-sized chub, before bites ceased altogether. This was very frustrating, but not unusual on the Crane when it was in a dour mood.
Under these circumstances, it was generally the best policy to keep on the move as there was always the likelihood of eventually finding a decent pocket of fish somewhere. However I spent just over 3 hours trying a number of usually productive swims I was very familiar with and had only taken 18 fish.

Time was running out and I had few realistic options remaining. One of these was a rather 'enigmatic' swim just below Hospital Bridge. It always looked so good and promised so much, yet rarely delivered.
Nevertheless, faced with another long tiring trek way upstream to the next location, I decided to try my luck.
The float slid under first cast, not a great surprise as I was expecting a few early fish followed by the inevitable slump. However the bites continued unabated and quality roach and chub were being brought to the bank in rapid succession. Over the course of 2 hours, I took a total of 50 roach and chub weighing in at 21lb 8oz. Roach up to 8oz, chub up to 1lb 8oz and nothing smaller than 4oz.

A good example of how even a below-par River Crane would often reward anglers prepared to persevere.

AUGUST 2000 - DUKES RIVER & RIVER CRANE
After the water level of the Crane was lowered during the autumn of 1998, the nature of the river was obviously altered quite dramatically. Many areas were left rather shallow and became progressively shallower over the course of numerous below-average rainfall months. Accordingly, the composition and distribution of the resident fish population began to change, with mainly chub and small minor species such as minnows, sticklebacks and gudgeon coming to dominate much of the Crane.

As this trend was also being replicated along most of the Dukes River, it became more worthwhile to specifically target the chub with a more specialised approach. Consequently I spent many sessions fishing 'roving' style, free-lining blackberries which only chub would take. Usually I would start on the Dukes River at Oak Lane in Isleworth and work my way upstream onto the Crane, casting at individual fish, groups of fish or into likely-looking holding areas as I stealthily progressed. Sport was often erratic, with numerous purple patches and lulls being experienced in equal measure.

This particular session however was exceptionally productive. I had over 50 fish to my credit when I reached the Crane and although the first part of this was poor, I was back among the chub above Mill Road Weir.
The stretch between Hospital Bridge and the Shot Tower would generally yield larger yet fewer samples, but I was blessed with both quality AND quantity during this final phase of the day.
When I eventually reached the tower, I'd taken 137 chub (including 35 between 1lb - 2lb 12oz) for an estimated weight of 96lb.

An incredible result highlighting the tremendous volume of chub present in both rivers at the time.

JULY 2001 - RIVER CRANE

A scorching hot day of 30 degrees, one of many leading up to this session. Consequently much of the river above the Meadway Bridge was low and clear with very little flow, generally very poor conditions for angling. I figured that under the circumstances, fish would probably be concentrated in the deep water swims down in Kneller Gardens, although I wasn't confident of catching many quality samples.

This seemed to be confirmed by an extremely poor start, just 8 gudgeon and 3 tiny roach taken on small pieces of bread in the opening 45 minutes. Catching primarily gudgeon from the outset is usually a bad sign, often indicating that the swim holds little else apart from gudgeon. Ordinarily I would have thought about moving swims at this point, but knowing how dire the rest of the river looked upstream, I knew I had to stay put and try something different. As a matter of routine, I always carried 1-2 pints of hemp and tares with me during my float-fishing sessions on the Crane and would often use it as 'back up' bait.
While bread would typically produce fish instantly, sport could be very patchy at times, with bites tailing-off very quickly or nothing other than tiny fish showing an interest. When this happened, I would switch to hemp and tares, which is renowned for being a very selective offering.

On this particular day, it worked like a dream! Amazingly, I began to take roach between 2 - 6oz apiece straight away and caught steadily for about 2 hours. Without warning though, the swim seemed to suddenly die, so I tried switching back to bread. As this only produced a few more small samples, I seriously thought about moving slightly downstream. On balance however, I decided to persevere with a more 'aggressive' feeding pattern and enjoyed the best spell of the session. I took another 50 good fish on hemp and tares in the following 2.5 hours to end up with 81 roach, 11 gudgeon, 5 chub, 2 dace and 1 carp for 30lb 2oz.
A catch dominated by roach, including four or five specimens of around 1lb apiece, outstanding sport for such a small river like the Crane.

APPENDIX 5

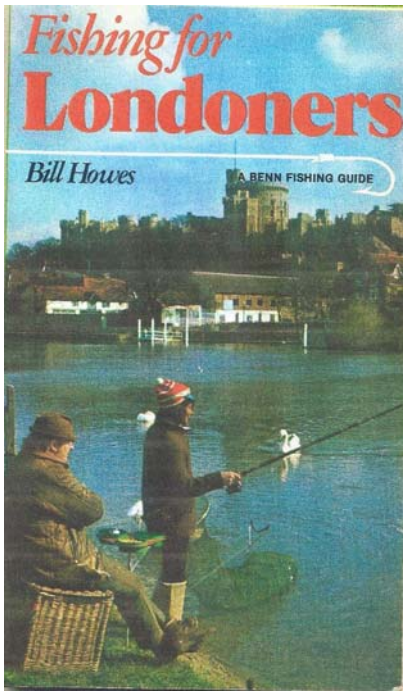
FISH KNOWN TO HAVE EXISTED IN THE CRANE/DUKES RIVER SYSTEM

Excluding hybrids and the various sub-strains of carp (Cyprinus carpio), no fewer than 19 different species of fish could be found in the Crane/Dukes River system in recent years.

This is quite staggering for an essentially small river/stream habitat, where the diversity of fish life is usually somewhat limited. Indeed, the utmost upper regions of the Crane, especially the Yeading Brook reaches, are not particularly well-blessed in this respect. However, further downstream just above Baber Bridge, the link with the River Colne via the Bedfont arm of the Dukes River is hugely significant and beneficial.

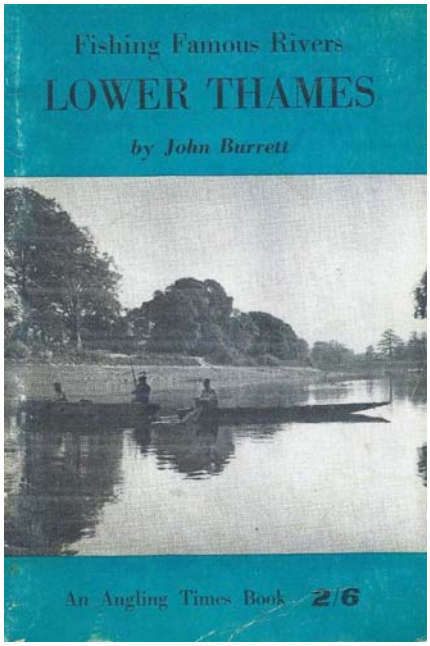
Exactly what type of fish were naturally indigenous to the Crane before this channel was cut in the 1530's is impossible to say with any certainty, but it clearly would have presented (and continues to present) an ideal opportunity for the famously rich and varied fish life of the Colne to enter a new home. Added to this, in more recent times, the Bedfont arm of the Dukes River itself has been leased by local angling club Feltham Piscatorial Society and periodically stocked with somewhat 'untypical' river species.

At this point, it may be useful to briefly highlight various examples specifically referring to fish life in the Crane/Dukes River system, some of which have already been mentioned elsewhere. Way back in 1748, the curious poem "Hounslow Heath" by Wetenhall Wilkes credits the river at Cranford as holding bream, perch, roach and trout, while the book "Trout Waters Of England" (1908) by Walter Gallichan not only speaks of trout in the Dukes River, together with gudgeon and minnows, but also refers to dace, perch, pike and 'other general fish' in the Crane much further upstream between Hounslow and Feltham.
In 1954, thousands of unspecified fish were apparently transferred from the Colne into the Crane and a subsequent book by John Burrett entitled "The Lower Thames" (1961) mentions barbel and chub, possibly part of this consignment, in the River Crane system.



Fishing for Londoners (1978) includes a reference to the Bedfont Arm of the Dukes River and the River Colne.

The *Lower Thames* (1961) includes a surprising reference to barbel in the River Crane.



In "Fishing For Londoners" (1978) author Bill Howes reports crucian carp, roach and rudd as being present in the Bedfont arm of the Dukes River and when this waterway was illicitly drained in 1984, it was claimed that around 5000 fish including bream, carp, perch, roach, rudd and tench were released into the Crane.

Although Feltham P.S managed to retrieve some of these fish, they eventually decided to restock their fishery and according to the local press, a staggering 20,000 small fish (unspecified) and 10,000 larger fish (also unspecified) were introduced during early 1985. Almost certainly, the composition of this generous injection of stock would have been carefully selected and tailored to closely replicate the composition of their lost stock.

More recently, there has been a further three more well-documented restocking programmes within the Crane/Dukes River system. 3000 chub and dace were introduced into the Dukes River at Mogden in May 1996.

In November 1999, 400 barbel, 500 chub and 600 dace were released just below Hospital Bridge on the Crane and most famously of all, 1500 chub, 1500 dace, 1500 roach and 1000 barbel were given a new home in the Crane just below Baber Bridge in December 2012.

Referring specifically back to the River Colne, its influence over the Crane is considerable and should never be underestimated. An extremely wide variety of fish life has always flourished in this well-managed waterway, its long standing reputation further enhanced in recent years by the capture of some truly exceptional specimens. The stretch between Colnbrook and Uxbridge, from which water is drawn off to feed the Bedfont arm of the Dukes River, is now credited with holding the major species barbel, bream, brown trout, carp, dace, eels, perch, pike and roach.

It would be fair to assume that each spring/summer after these fish, and indeed the fish within in the Bedfont arm of the Dukes River, have spawned, a significant quantity of fertilized eggs and/or newly-hatched fry could easily end up in the Crane. This appeared to be evident in the aftermath of the October 2011 disaster, the legions of tiny fish seen in the Crane during the summers of 2012 and 2013 unlikely to have originated from the relatively barren uppermost reaches of the river.

Tabulated below is a quick reference guide giving details of each type of fish, their possible/probable source of origin and their sensitivity/tolerance to pollution.

TABLE SHOWING FISH KNOWN TO HAVE EXISTED IN THE CRANE/DUKES RIVER SYSTEM THEIR ORIGIN AND SENSITIVITY TO POLLUTION

SPECIES	POSSIBLE/PROBABLE SOURCE OF ORIGIN	SENSITIVITY/ TOLERANCE TO POLLUTION	DATE OF RESTOCKING BY EA
Barbel	River Colne	Sensitive	1999 & 2012
Bleak	River Colne	Sensitive	
Bream	River Colne & Dukes River Bedfont	Sensitive	
Brown Trout	River Colne	Very Sensitive	
Bullhead	Probably Naturally Indigenous	Very Sensitive	
Carp	River Colne & Dukes River Bedfont	Very Tolerant	
Chub	Probably Naturally Indigenous	Tolerant	1996, 1999 & 2012

Crucian Carp	Dukes River Bedfont	Very Tolerant	
Dace	River Colne	Sensitive	1996, 1999 & 2012
Eel	River Colne	Sensitive	
Gudgeon	Probably Natural Indigenous	Tolerant	
Minnow	River Colne	Very Sensitive	
Perch	River Colne & Dukes River Bedfont	Tolerant	
Pike	River Colne	Sensitive	
Roach	Probably Naturally Indigenous	Tolerant	2012
Rudd	Dukes River Bedfont	Tolerant	
Stickleback	Probably Naturally Indigenous	Very Tolerant	
Stoneloach	Probably Naturally Indigenous	Very Sensitive	
Tench	Dukes River Bedfont	Very Tolerant	

APPENDIX 6

SPAWNING / SPAWNING GROUNDS / HYBRIDIZATION

As we have already learned, between the years 1979-90, a limited number of roach in the Crane just below Baber Bridge had multiplied rapidly and spread as far downstream as the Dukes River in Isleworth. Obviously those early fish were spawning successfully year after year and their increasing number necessitated migration to pastures new. The major factor of this phenomenon is the 'adaptability' of the roach. Indeed they are commonly found in all sorts of waters nationwide, hence their long-standing popularity among anglers. Clearly at home in still waters and running waters alike, they are not as particular about spawning grounds or conditions as other species, accounting for their widespread distribution. Many areas of the Crane during the 1980's were probably being used by roach each spring/early summer for spawning, with the possible exception of very shallow or fast-flowing locations. Ideally they prefer to lay their eggs in weed, but will readily use clean gravel too.

At this point, it may be useful to briefly outline the usual spawning 'ritual'. During spring/early summer each year, rising water temperatures and lengthening hours of daylight stimulates breeding activity among mature adult fish. Depending on their preferences, they will then seek out a suitable spawning ground and, circumstances permitting, will often use the same areas year after year. Whether the eggs are laid in weed or on clean gravel, the water is usually shallow and well-oxygenated and they are sticky to ensure that they are not swept out of this ideal zone. Development/hatching is governed by the temperature and oxygen level of the water, so eggs will always hatch more quickly in a warm, oxygen-rich environment. Conversely, unseasonably cold weather during spring/early summer and contaminants in the water usually has an adverse effect on spawning activity and egg to fry conversion rates.

Looking back at the Crane and Dukes River in the 1990's, three areas in particular struck me as being likely spawning grounds. Just below Hospital Bridge, well-oxygenated water ran very fast and shallow across clean gravel before dropping away into a deeper, steadier-flowing weed-fringed region. Roach were often present here all year round, together with fair numbers of small carp. For fish not favouring shallow, fast-flowing water for spawning, this seemed like an ideal location. Further downstream, about 50 yards below the Mill Road Weir, a fast gravelly run little more than a foot deep would be momentarily packed with chub each May/June. This was almost certainly due to spawning activity.

A similar location at the very top end of the Dukes River, just below the railway bridge, would also see large numbers of chub fleetingly present each spring/early summer. The fact that I personally witnessed this activity so many times from 1993 onwards probably explains how chub eventually came to dominate both rivers.

While on the subject of spawning/spawning grounds, special mention should be made of the various hybrids that existed in the Crane/Dukes River system. Although hybridization among fish is not particularly rare, it can only occur when two different but closely-related species are spawning simultaneously in the same vicinity. However, as different types of fish usually have different requirements as far as 'ideal' spawning grounds and conditions are concerned, this isn't likely to happen for prolonged periods of time. Similarly, the occurrence of hybrids in particular water usually suggests that both parent species are well-represented in that water. This wasn't the case with the Crane or Dukes River though!

Hybrids I caught personally included;

- Roach x Bream (roach very common, bream very rare)
- Chub x Bleak (chub very common, bleak very rare)
- Roach x Rudd (rudd very rare)
- Ghost Carp (common carp and koi carp both rare)
- Brown Goldfish (common carp and crucian carp both rare)

This would seem to suggest that ideal spawning grounds were few and far between on both rivers and that there was intense competition among several different species of fish for the best areas - chub and bleak (among others) in the shallow, fast-flowing gravelly spots and roach, bream, rudd and carp (among others) in the deeper, slower-flowing weedy spots.

Sadly, there was precious little evidence of such sustained and successful spawning activity in either river post-1998. There could have been many reasons for this, but the inescapable fact is that the reduced water levels dramatically changed the whole nature of both waterways, probably destroying long-established spawning grounds in the process. Certainly, the two shallow fast-flowing gravelly runs I highlighted earlier are now far too shallow to comfortably accommodate spawning fish such as chub.
Similarly, due to low flow rates, you would have to question whether the water in the deeper areas would now be carrying enough dissolved oxygen to allow fertilized eggs to develop properly.

The outlook is bleak. It's hard to see where a typical mixed population of river fish could all spawn successfully today.

APPENDIX 7

TOP 50 CHUB LIST

	Weight	Notes	Captor	Location	Month	Year
1	10.13.00		P Morgan	R. Wye	Nov	1981
2	10.08.00		Grant Dunn	Midlands gravel pit	Nov	2006
3	10.08.00	(2)	Dr J Cameron	R. Annan	Jul	1955
4	10.08.00		W Cockburn	R. Crane		1875
5	9.04.00		Dylan Docherty	R. Thames	Sept	2007
6	9.05.00		Andy Maker	Glos. Stillwater	June	2007
7	9.03.00		Steve White	Glos. Stillwater	May	2007
8	9.02.00	(6) (1)	Matt Micaller	Thames valley Lake	Oct	2006
9	9.01.00		G Gilder	Glos. Stillwater	Mar	1995
10	9.01.00	(4)	W Johnson	R. Wye	Apr	1945
11	9.00.00		Steve White	Glos. Stillwater	June	2007
12	8.14.00		Tony Gee	Thames valley Lake	Dec	2006
13	8.14.00	(2)	Rob Trough	Glos. Stillwater	Jan	2004
14	8.13.00		Simon Marshall	Glos. Stillwater	Apr	2004
15	8.13.00		Tim Archer	R.Lea	Mar	2003
16	8.12.00		Steve White	Glos. Stillwater	May	2007
17	8.12.00		Andrew Schofield	R. Ure		1995
18	8.12.00	(5)	P Sullivan	R. Kennet	Aug	1994
19	8.12.00		J Lewis	R. Mole	Oct	1964
20	8.10.00		Jerry Hammond	R.Lea	Aug	2004
21	8.10.00		Mark Passingham	MBK Fishery	May	1996
22	8.10.00	(2)	Peter Smith	R. Tees	Oct	1994
23	8.10.00		T Tummon	R. Stour, Dorset	Mar	1993
24	8.09.02		Darren Bennett	Twyford Lake	Feb	2000
25	8.08.00		Ian Davis	Dorset Stour	Mar	2003
26	8.08.00		Ian Davis	Dorset Stour	Nov	2002
27	8.08.00		Ian Nairn	R. Severn	Sept	1997
28	8.08.00		A Smith	R. Blyth	Aug	1980
29	8.08.00	(2)	D Deeks	R. Rother, Sussex	Jul	1951
30	8.06.00		Richard Pearson	R.Lea	Sept	2007
31	8.05.00		Danny Kelly	Gt Ouse	Sept	2008
32	8.05.00		Danny Smith	R. Thames	Jan	2007
33	8.05.00		Richard Herrll	Soutern Stillwater	June	2005
34	8.05.00	(3)	S Ellison	R. Trent	Feb	1993
35	8.04.00		Danny Taylor	Dorset Stour	Feb	2007
36	8.04.00		Martyn Pears	Dorset Stour	Nov	2004
37	8.04.00		S Mogford	Southern Stillwater	May	2001
38	8.04.00		C Smith	R. Thames	Jul	1975
39	8.04.00	(2)	J Roberts	R. Wissey	May	1960
40	8.04.00	(2)	G F Smith	R. Avon, Hants	Dec	1913
41	8.03.08		Allen Rowland	River Lea	Mar	2004
42	8.03.04		R Thompson	R. Nene	Feb	1972
43	8.02.08		Kevin Clubbs	Dorset Stour	Mar	2008
44	8.02.00		Barry Shipman	R.Lea	Feb	2005
45	8.02.00		Sean Donnelly	R Ribble	July	2004
46	8.02.00		Brian Naylor	Dorset Stour	Mar	2004
47	8.02.00		Allen Rowland	River Lea	Feb	2003
48	8.02.00		P Hayward	R. Waveney	Feb	1993
49	8.02.00		H Smith	R. Avon, Hants	Jul	1952
50	8.01.08		Marc Callaby	R. Wensum	June	1998

All fish are in date order so that fish caught many years ago have been superseded by more recent fish)

NOTES: 1. *Current British record* 2. *Previous British record*3. *Record not accepted due to weighing procedure 4. Out of season fish*5. *Record not claimed*6. *Largest stillwater chub ever reported* 7.*Current Chub Study Group record*

(Thanks entirely due to **Graham Cornish** of the **Chub Study Group** for assistance on compilation of this list)

http://www.anglingsites.com/saa/top%2050/CHUB%20_files/sheet001.htm 24/01/2014