The River Axe in 2025

An Overview

Friends of the River Axe

"People of the Place, Voice of the River"

AV&DCS

Edited by Mike Lock

The costs of producing this booklet have been met from a legacy to the Axe Vale and District Conservation Society from

the late Betty Ord-Smith

for many years a member of the Society.

Her late husband, Derek Ord-Smith,

was

Treasurer of the Society from 1992 to 2006.

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Vicky Whitworth and Lesley Clarke

This booklet has been put together for Friends of the River Axe (FORA) by Axe Vale and District Conservation Society to tell people about the various projects taking place on the River Axe and her tributaries. The Axe is an important river ecologically but is not in a good state nor are the brooks, streams and rivers that join her. Therefore, protection and improvement of water quality and riparian habitats is incredibly important. We hope that if you are reading this you agree with us.

Friends of the River Axe is a group that aims to speak up for the river, and our slogan is "*People of the place, Voice of the river*".

Eleven committed wildlife, conservation and nature-based community organisations met in November 2024 to discuss the state of the Axe catchment, and quickly realised we have a common goal – to make our rivers better. There is much we can do because together we are stronger. We have ambitious plans – and we're always looking for more good people like you to join us and give a hand.

One of our aims is to spread the word about the poor condition of our local rivers and tell people about the many projects that are underway to improve the state of the river and return it to its original glory. We, at Friends of the River Axe, cannot claim in any way to be driving these projects. But we can lend them our support and one of the ways we can assist is to tell you about what is going on. This newsletter is, therefore, both a call to arms and an informative document.

This work is in three parts. First there are general descriptions of the river and its problems. This is followed by accounts of the various current projects on the river, and of some other aspects of the river's ecology past and present. Finally some of those who have worked on the improvement of other, smaller, catchments share their experiences.

Please read on and find out about the work that is happening or planned. These excellent projects and the articles about them – kindly written by very busy people – will inform, entertain and amaze we hope.

We would like to thank all of the contributors and say that we have attempted to make this as balanced an approach as possible with articles from as many projects and groups as we could get.

Please enjoy reading this newsletter and if you would like to get involved, contact us at **friendsoftheriveraxe@gmail.com** or find us on Facebook under friends of the river axe, or use the following QR code.

Vicky Whitworth - born and bred in East Devon - had her environmental conscious pricked while working for Anita Roddick at The Body Shop in the 1990s. A resident of the Axe Vale for 20 years, Vicky brings her skills as an HR Director to speak up for the river and the local communities.

Lesley Clarke is the current Chair of Axe Vale and District Conservation Society and has lived in the Axe Vale for 20 years. In retirement she further developed her interest in the natural world and completed a degree in Environmental Science.'

The River

The River Axe – a Brief Outline

Mike Lock

The River Axe rises in Dorset, forms the boundary between Devon and Somerset, and flows through East Devon for much of its length, reaching the sea at Axmouth, just east of Seaton.

The catchment comprises approximately 450 square kilometres (174 square miles) of East Devon, West Dorset and Somerset. The main river is around 35 km long with the source lying just south-east of the village of Chedington, which also hosts the source of the River Parrett, which flows north through Somerset and into the Bristol Channel.

From Chedington, the river flows north-west and then west to Axminster, joined by the Kit Brook and the Blackwater as well as smaller streams. Just west of Axminster it is joined by its largest tributary, the south-flowing River Yarty, and then flows south-west to the sea and is joined at the top of the estuary by the River Coly.

It is important to understand the 'administrative geography' of the Axe. The Environment Agency (EA) and Natural England are the principal bodies responsible for the protection and enhancement of the environment in England. In terms of river and catchment management they place the Axe within the Lim and Axe Operational Catchment on the eastern edge of the East Devon Management Catchment. This also includes the rivers Creedy, Exe, Clyst, Culm, Otter and Sid. Each Operational Catchment is divided into constituent waterbodies – the Lim and Axe contains 13 waterbodies in total – 11 of which drain into the estuary. These are the Upper and Lower Coly, Offwell Brook, Umborne Brook, Corry Brook, River Yarty, Kit Brook, Forton Brook, Blackwater River and the Upper and Lower Axe. This 'administrative geography' provides the framework under which the EA and NE assess and report on the river and stream health.

For most of its course the Axe flows briskly but gently, with short riffles separating gently flowing pools. There are floods every year, mainly but not exclusively in autumn and winter, when the river spreads over its floodplain and blocks most crossings between Axminster and the sea. In its upper reaches the underlying geology is varied, with the bedrock being limestone or

calcareous sandstone; in the lower reaches it flows over mudstones or alluvium. The water is therefore neutral to mildly alkaline and base-rich. The river between Axminster and the sea seems too small for the wide valley and it has been suggested that the valley is a glacial overflow channel formed by the overflowing, through the Chard Gap, of a glacial lake (Lake Maw) in the upper Bristol Channel, penned in by ice moving south from the Welsh hills.

The main town on or close to the river is Axminster, but there are numerous small villages and farms scattered along the edge of the flood plain. Water for domestic use is no longer sourced from the river but is piped in, mainly from Wimbleball Reservoir in Somerset. Away from settlements, the river flows almost entirely through agricultural land, mainly dairy farms with grazing land near the river and fields of fodder maize and grass for silage further away, off the flood plain.

The River Axe is designated as a Site of Special Scientific Interest (SSSI) under the Wildlife and Countryside Act 1981 and as a Special Area of Conservation (SAC) under the Conservation of Habitats and Species Regulations 2010. The SSSI extends from the junction with the Blackwater Stream at Broom, north-east of Axminster, to the tidal limit at the A3052 bridge near Boshill Cross. The reasons for designation include the good quality and varied lowland river habitats, as well as the geomorphological feature of a lowland river meandering freely in its flood plain. However, assessment in 2011 led to the SSSI being rated as in unfavourable condition and declining.

Important fish species mentioned in the designation include Atlantic Salmon, Brown Trout, Sea Trout, Bullhead, Brook Lamprey and Sea Lamprey. Otter, Water Vole, White-legged Damselfly and Medicinal Leech are among other animals mentioned, and Short-leaved Water Starwort is an uncommon water plant that has a stronghold here among the beds of Water Crowfoot and pondweeds. Himalayan Balsam is an invasive alien plant found throughout the catchment and particularly along the riverbanks.

The fauna of the river and catchment has changed considerably in the last 50 years. A trap at the tidal limit that operated in the 1960s (see p.12) suggested an annual run of hundreds of Salmon and thousands of Sea Trout. Now the figures are a tenth of this at best. Tagging at the trap showed that Axe Salmon joined others to feed off Greenland and returned to the Axe, while tagged Sea Trout were recaptured in many Devon rivers and even as far north as the Tweed. Records from the trap make little mention of Mullet but they are now common in the river in summer, sometimes reaching Axminster. Otters were rare at that time but are now frequent but elusive throughout the

catchment. Mink appeared while the trap was in operation and persist in reduced numbers, thanks to targeted trapping. Water Voles were formerly widespread but were probably exterminated by Mink; they have been reintroduced to the lower reaches. Little Egrets colonised the estuary in the 1960s and bred from about 2007. Nesting Lapwings, Skylarks and Yellowhammers were recorded from the floodplain in the 1980s but are now absent as breeders; Redshank last bred in 2013. River plants are now less abundant than formerly and there are fewer species.

Mike Lock is a retired botanist and ecologist who has lived in the Axe Valley for the past 22 years.

What's wrong with the Axe?

Simon Browning

An outline of the geography and administrative geography of the Axe and its catchment has been given above (p.4-6).

One of the Environment Agency's main duties since it was formed in 1996 is monitoring of the aquatic environment. This involves programmes of water quality sampling and testing, surveying for fish, aquatic invertebrates, plants and channel morphology. Since 2000, the results of these monitoring programmes have been reported via the Water Framework Directive, EU legislation that UK experts were instrumental in developing and which has been transposed into UK law post-Brexit as the Water Environment Regulations. The original Water Framework Directive was ambitious – setting the target that all waterbodies should be at 'Good' overall status, that is, achieving set thresholds for various ecological (fish, invertebrates, plant communities, water quality and morphology) and chemical factors (pesticides, toxic metals, industrial chemicals and pharmaceuticals) – by 2015. That proved beyond most European member states including the UK, and the deadline was then extended to 2027. Unfortunately, there is no real sign of improvement in the vast majority of our rivers and following new requirements to test for so-called 'forever chemicals' in the tissues of fish and mussels (which revealed them to be present in virtually all samples in excess of acceptable limits), the deadline for reaching good chemical status has been

extended further to 2063. The Environment Agency analyses results from all the different types of monitoring and assigns ‘Reasons for Not Achieving Good Status’ (RNAGS) to each waterbody. This helps in targeting measures to reduce pollution and other negative impacts on river health.

So, where does that leave the Axe?

According to the Environment Agency’s latest assessment none of the eleven waterbodies in the Axe catchment achieve Good overall status. Looking at the Ecological status, none achieve Good status here either – with 9 at Moderate, the Lower Coly at Poor and the Forton Brook at Bad – the worst possible classification level. The good news is that all 11 waterbodies achieve Good or High status for aquatic invertebrates, ammonia, dissolved oxygen, temperature and pH. Five of 11 waterbodies are classed as Good for fish, these are the Blackwater River, Offwell Brook, Umborne Brook, Upper Axe and Yarty. Apart from chemicals, phosphate is the most common element to fail, with all waterbodies achieving Moderate status for phosphate (except the Kit Brook, which is Good). Macrophytes (submerged or emergent higher plants) and phytobenthos (algae and similar organisms forming a layer on the riverbed) were a cause for failure in 8 of the 11 waterbodies. The Upper Axe was classed as Good and two waterbodies – the Forton Brook and the Upper Coly were not assessed for plants. Whilst sediment pressures (typically an excess of fine sediment and silt washed in from arable farmland) are not reported directly under the Water Framework Directive – failing macrophytes are often seen as a sign that sediment is a problem. This also affects fish spawning as fine sediments clog the riverbed gravels, depriving fish eggs of the oxygen they need to survive.

Among chemical pollutants, all waterbodies failed for mercury and polybrominated diphenyl ethers (PBDEs) – a group of man-made compounds used as flame retardants and in a wide range of products including electrical equipment, textiles and foams. The Corry Brook, Lower Axe and Yarty also failed for benzo[g-h-i]perylene (one of many polyaromatic hydrocarbons (PAHs) emitted from car exhausts and industrial processes which can be deposited from the atmosphere into soil and water).

The Reasons for Not Achieving Good Status that the Environment Agency assign can tell us about the likely causes of these failures. A total of 72 RNAGS were identified across the 11 waterbodies; of these, 22 were due to the failures for mercury and PBDE in all 11 waterbodies. These are assigned as ‘Not applicable’ as it is deemed that no individual sector is responsible. Of the remaining 50 RNAGS, 16 are attributed to ‘Poor Livestock

Management' largely causing phosphate and macrophyte failures. Next highest, with 10 RNAGS is 'Sewage discharge (Continuous)' – these are the consented discharges of treated sewage, not the unplanned releases of partly or untreated sewage from Combined Storm Overflows (CSOs). Another 6 RNAGS each are attributed to 'Poor nutrient management' and 'Poor soil management' – again, impacting primarily on phosphate and macrophytes. The remaining 12 RNAGs are divided between 'Unknown (pending investigation)' (5), 'Trade/Industry discharge' (2), 'In-river activities (inc. bankside erosion)' (2) and 'Reservoir / impoundment', 'Incidents' and 'Barriers – ecological discontinuity' (usually weirs or culverts) with 1 each.

Overall the 'official picture' of the Axe is of a catchment that is significantly impacted by agricultural practices and by sewage discharges, both of which are responsible for introducing excess nutrients (especially phosphorus) into the river, upsetting the balance of plant communities and favouring fast growing species and algae. Agricultural runoff and sewage discharges also contain pesticides, herbicides and fungicides from agriculture, and pharmaceuticals, industrial chemicals and heavy metals from wastewater although these are less frequently tested for. Agriculture is also largely responsible for fine sediment entering the river; much of this is washed into the rivers during heavy rainfall. Farmers are increasingly aware of the problems that soil erosion causes to our rivers, as well as the economic consequences of losing topsoil, and many are re-thinking where they grow maize and/or sowing cover crops to protect bare soil over the winter.

We can also see signs of the impact that 'everyday life' has on our rivers – the seemingly ubiquitous presence of mercury and PBDE reflects how widely these chemicals are present in products used in house and garden and can enter rivers via surface water drains. Even chemicals that are removed during the wastewater treatment system are then released back into the environment when sewage sludge is spread onto land. Finally, climate change is also having a negative impact. More frequent, intense storms exacerbate run off and soil erosion, whilst summer droughts and heatwaves leave river levels dangerously low and cause water temperatures to soar.

On the positive side, we do know what many of the solutions are. More trees and riparian buffer strips can help cool rivers in the summer and intercept run off (and the soil, nutrients and chemicals that come with it) during heavy rain. Healthier, less compacted soils help water to infiltrate rather than run off quickly into rivers. The agricultural subsidy system is changing towards encouraging and rewarding more nature-friendly farming practices, but the

picture is still confusing, fragmented and overly complicated. The public are now much more aware that there is no ‘away’ when it comes to flushing the loo or pouring things down the sink or drain, and politicians are starting to tighten the regulatory regime around water companies which should yield improvements over the next 5–10 years (although at a significant cost to water bill payers!). A heightened interest in our rivers has seen communities across the nation self-organising and taking action. East Devon and the Axe in particular has more than its fair share of dedicated and passionate river enthusiasts, raising awareness, tree planting, ‘balsam bashing’, taking part in volunteer monitoring or wildlife surveys and writing to MPs and councillors. Perhaps most of all it is this surge of interest in our rivers and natural environment, and a determination to see them improve, that can give us all cause for hope.

Simon Browning is an independent advisor specialising in environmental monitoring and nature-based solutions; he also works part-time for The Rivers Trust as Monitoring Technical Lead.

Waterbody	Ecology	Fish	Invertebrates	Macrophytes	Ammonia	Dissolved Oxygen	Phosphate	Temperature	pH	Mercury	PBDE	Benzo(g-h-i)perylene	PFOS
Blackwater River	Moderate	Good	Good	Moderate	High	High	Moderate	High	High	Fail	Fail		
Corry Brook	Moderate	Moderate	Good	Moderate	High	High	Moderate	High	High	Fail	Fail	Fail	
Forton Brook	Bad	Bad	High		High	High	Moderate	High	High	Fail	Fail		
Kit Brook	Moderate	Moderate	High	Moderate	High	High	Good	High	High	Fail	Fail		
Lower Axe	Moderate		High	Moderate	High	High	Moderate	High	High	Fail	Fail	Fail	Fail
Lower Coly	Poor	Poor	Good	Moderate	High	High	Moderate	High	High	Fail	Fail		
Offwell Brook	Moderate	Good	High	Moderate	High	High	Moderate	High	High	Fail	Fail		
Umborne Brook	Moderate	Good	High	Moderate	High	High	Moderate	High	High	Fail	Fail		
Upper Axe	Moderate	Good	High	Good	High	High	Moderate	High	High	Fail	Fail		Fail
Upper Coly	Moderate	Moderate	High		High	High	Moderate	High	High	Fail	Fail		
Yarty	Moderate	Good	High	Moderate	High	High	Moderate	High	High	Fail	Fail	Fail	
% failing	100%	45%	0%	73%	0%	0%	91%	0%	0%	100%	100%	27%	18%

PBDE =Polybrominated diphenyl ethers (widely used flame retardants, now mostly banned but persistent)

Benzo*[*ghi*]*perylene: Found in products of incomplete combustion including car exhausts. Highly persistent and probably carcinogenic

PFOS = Perfluorooctane sulfonate and related substances (stain repellents in fabrics; many other uses; highly persistent and widely banned)

Mercury: formerly widely used in thermometers and other instruments; also fluorescent lighting tubes and other uses. Largely replaced but persistent.

The Axe Fish Trap

Mike Lock

From 1960 until the mid 1970s a fish trap was operated on the lower Axe. This was a project of the then Ministry of Agriculture, Fisheries and Food to study the dynamics of migratory fish in a typical English river. The project produced monthly reports which were, rather surprisingly, marked as 'Restricted Circulation'. However, a few years ago a partial set of these reports, covering the 1960s, was copied and posted on-line. What follows is a selection of the information in these reports. It illustrates the many changes that have taken place. The reports from the early 1960s were very detailed but after 1966 they become less so, with little or no information on other species caught. The last report covers January and February 1976 and has no mention of the ending of the project.

The trap was sited just below the bridge on the A3052 east of Colyford. A short British Pathé film (**https://www.britishpathe.com/asset/36910/**) shows what the trap looked like and gives some idea of how it worked. It was a complex and doubtless expensive structure. It intercepted all movement of fish both upstream and downstream, and kept the two streams separate. It operated continuously and seems to have been permanently manned, seven days a week and 24 hours a day, and was floodlit at night. During big floods it was taken out of action by being lowered to the riverbed. Initially all Salmon and Sea Trout, both ascending and descending, were marked with small external tags.

The main purpose of the trap was to study migratory fish (Salmon and Sea Trout) of which there was a substantial run in the Axe at that time. Both spend much of their lives in the sea but return to freshwater to spawn. The young fish (parr) spend a year or two in freshwater before taking on a silvery colour and migrating to the sea as smolts. Salmon spend at least one winter at sea. Those that return after a single winter are known as grilse, and those returning after more than one winter at sea are referred to as two- or three sea-winter Salmon. Most Salmon die after spawning but a proportion of female (hen) fish survive and return to spawn again. Only a few male (cock) fish survive spawning. Fish returning to the sea after spawning are in poor condition and are known as kelts. A much higher proportion of Sea Trout

survive spawning and return to breed a second or third time; some have even been show to return on up to 13 occasions.

For the first few years all Salmon and Sea Trout were tagged, but after 1966 only Salmon. Various tag designs were used, some attached by silver wire, others variously coloured plastic. A good number of tags were returned. Most Salmon tags were returned from the Axe, but a few came from other rivers including the Tamar, Loire and Tweed. This confirmed that most Salmon were faithful to their natal river. Some Salmon tags were returned from waters off Greenland, and it seems that these records were some of the first that showed where British Salmon go to feed in the sea, for the New Naturalist Monograph on the Salmon, published in 1959, states that 'we do not know where they go to'. Over the years at least 12 Axe tagged fish were reported from Greenland, including some tagged as kelts which would suggest that they made the journey more than once. Sea Trout returns showed that these fish are mostly faithful to their natal river, but many go to other waters. Returns came from many Devon rivers and some further afield including Cornish, Dorset and Hampshire rivers. More remarkably, some moved up the east coast and one was reported from the Tweed on the Scotland-England border.

In the 1960s the runs of both Salmon and Sea Trout were substantial. Between 1960 and 1964 the numbers of Salmon trapped and released ranged between 420 and 248 per year. The run nowadays is certainly below 100 and probably below 50. Sea Trout numbers were in the low thousands but the numbers are complicated because sometimes only 'large' Sea Trout are counted and sometimes both large and small. Nowadays the run is probably in the low hundreds. Causes of the decline are many and probably include the outbreak of the disease Ulcerative Dermal Necrosis (UDN) in the early 1970s, the siltation of the river gravels through agricultural run-off, which makes them less suitable for spawning, and the increased use of highly efficient monofilament nets both offshore and also by poaching gangs on the river.

Other fish caught in the trap included Dace and Roach. Some of the latter were of considerable size, up to two pounds in weight. Neither species is now present in the river; they may have been eliminated by a catastrophic pollution incident from the headwaters in1982 which effectively sterilised the river. (Trout and Bullheads would have survived in unpolluted tributaries). Eels were caught in small numbers, and elvers were also seen ascending the river. A few Twaite Shad – an endangered species in British waters – were taken, but only about one a year. Up to 40 Sea Lampreys were caught annually and most were removed and sent to the University of Exeter for study. This is a

species that spends most of its life in the sea, attaching itself to other fishes with its toothed sucker-like mouth and feeding on their blood. The adults spawn in freshwater and die after spawning. The species is still occasionally seen in the Axe. Flounders moved through the trap in considerable numbers, mainly upstream in the summer and downstream in winter, when up to 70 moved down in a month. They have been recorded as far upstream as Axminster. Grey Mullet were recorded moving upstream in summer but only in small numbers; nowadays many move into the river in summer and travel far upstream, sometimes as far as Axminster. They feed on material scraped or sucked from the sea or river bed and they may have benefitted from the extra sediment that now coats much of the river bed.

Otters were seen occasionally and one or two got into the trap and were released unharmed. It seems that Otters were scarce at this time which was when their numbers were being reduced by poisoning by organochlorine pesticides accumulated in fish. The first Mink was seen near the trap in September 1964 and by the end of September 1965 27 had been trapped and destroyed. The arrival of so many Mink must have had profound effects on the ecology of the river.

The trap was opened during big floods and it seems certain that numerous fish passed the trap on these occasions. There was also high drama in the great freeze of January 1963. The river was frozen to a depth of 13 inches above the trap and near to that below. Because of fears for the safety of the trap, the military were called in and blew up the ice below the trap. The trap was then dismantled as far as possible in anticipation of the thaw, which was just as well, for the river ice broke up spectacularly and thousands of tons of ice poured down the river. At the height of the freeze, because the river flow was so much reduced, the shingle bar extended across the river, blocking the flow. The cold was such that the sea froze onto the shingle, making it even less permeable. The water inside the bar rose by eighteen inches or more until a small breach was made which was quickly enlarged as the impounded water poured out.

The last report available is that for January-February 1976. This report gives the total Salmon run for the year – 224 – still a substantial total, and an incomplete total for Sea Trout of 1036. One wonders what the totals would be today. It would appear that the whole project was terminated in 1976, seemingly rather hurriedly and mysteriously as it would seem that no final report was ever produced and the existing set of reports was rescued from a skip.

I would like to thank Andy Locke for reading the first draft of this article and providing many useful comments, corrections and additions.

Farming in the Axe Valley

Chris & Connie Creeper

Our dairy farm is one of the smaller units in the lower Axe Valley. The core of the farm is 135 acres rented from Devon County Council, and in addition we rent a further 63 acres privately. Much of it is gently sloping land well above river level, but about 60 acres is low lying land close to the river which floods regularly; a single fall of an inch (25 mm) or more often puts this land under water, usually just for a day or two at a time. This lower land is farmed under a mid-tier low input agreement which gives us a payment from DEFRA. We can add fertiliser, slurry and farmyard manure, but only in limited quantities.

The farm and its buildings are quite close to the river, sometimes uncomfortably so. We have been flooded but are now prepared, with all ground level floors tiled. We don't use the Environment Agency's telephone warning system, but we do use their app which allows us to see the river levels at four points up the river (Whitford, Weycroft, Forde Abbey and Winsham) and judge the situation ourselves. Our winter grazier has been caught out once and lost some sheep to a very sudden flood.

At present we are milking 120 cows and there are 285 beasts in all on the farm – more than usual because we are currently TB-restricted so cannot sell surplus stock. The present herd is 50 Holsteins, 50 Jerseys and 20 high-quality Ayrshires. We raise most of our own replacements, serving the best 60% of the herd with high-quality semen from milking-breed sires, and having the calves genetically assessed to ensure we keep the best yielders. The other 40% are served with semen from beef-breed sires and the calves sold on at market to beef raisers. The milk goes to make Cathedral City Cheddar cheese (eat more!). We also have a few Spotted Dutch sheep, more as a hobby than anything else, although the meat from the surplus ram lambs is excellent. Other sheep owned by local graziers come onto the farm during the winter to keep the grass down and provide some additional winter income. They also eat the stubble turnips that follow the wheat.

We do all the routine work (milking, mucking out, washing down, calving, fertiliser spreading, ploughing, baling, etc.) ourselves but bring in contractors for the more specialised tasks like hedge trimming, bale wrapping, seed sowing and harvesting.

The herd is fed almost entirely from materials grown on the farm. We grow 45 acres of maize and 17 acres of spring wheat, with stubble turnips sown after the wheat is harvested. The maize is shredded and made into silage in a concrete pit at the farm and the wheat is combined and the grain crimped (crushed) so that it can be added to the feed mix. The rest of the land is under grass, about half permanent and half short-term leys. These are cut regularly during the summer, baled and wrapped to make haylage and stored round the farm. We tend to keep what may appear to be a large stock of fodder – mainly haylage – but one has to allow for periods when we are TB-restricted and have to feed more stock on the farm than we would like.

One overriding principle we follow is that land should be producing and paying for itself for as much of the year as possible. After all, we pay rent whatever the land is doing (or not doing). Thus maize is sown early, and the variety used is as early-maturing as possible. This means that harvest can be early and a cover crop of grass sown to protect the soil over winter and provide a bite for sheep in the early spring. This is of course weather-dependent but in a good year (like 2024), the maize can be harvested, the hedges cut, the ground cultivated and the grass seed sown, all in one long hard day. While growing maize may have its environmental problems, a typical yield of 25 tons/acre could only be matched by four or five grass cuts per year, which would require many more passes with the tractor and therefore greater emissions than those from the six or seven passes needed during the life of a maize crop.

We add inorganic fertiliser to our land in the quantities recommended by our agronomist, who takes soil samples from our fields at regular intervals. He assesses levels of phosphorus, potassium and soil acidity (pH) and lets us know what and how much to apply. Hopefully this means that the fertiliser is all used by the crop and not washed off into the river. The ever-rising costs of fertiliser mean that there is every incentive not to apply more than is necessary.

The management of the floodplain grass is rather different and is weather-dependent. The ground is often not dry enough to allow more that a couple of cuts each year. It also means that the dairy herd, which graze these pastures, aren't let out until early summer, when the ground has dried out sufficiently. The dairy herd graze close to the farm during the day but are kept in the yard overnight. This allows their dietary intake to be regulated, maintaining consistent quality in the milk. It also means that they drink less from the river, thus reducing the amount of manure deposited into the stream.

A large slurry tank was installed about seven years ago, not long after we took over the lease. Prior to this the slurry was collected into a concrete tank but at that time only about 60 cows were being milked. The new tank gives us six months of storage capacity and means that we are fully compliant with the slurry management rules. The Environment Agency inspected the farm and made two main recommendations. First, we had been storing silage in earth bank pits, but this would allow any arising effluent to drain into the ground. These pits have now been turned over to the storage of round bales which do not constitute a hazard. Secondly, the farmyard was cobbled and difficult to keep clean so that there was always a possibility that waste could spill into the adjacent stream and thence into the river. The Environment Agency helped to fund concreting of the yard with drainage into sumps with sediment traps whence the liquid can be pumped into the storage tank, removing this hazard. We haven't had any contact with any of the current projects that aim to improve the river quality; we may be too small, or too far from their centres of operation.

Under the terms of our lease we must return the holding at the end of our tenancy in the same state as it was when we started. This means that changes in management of, for instance, hedges, are hard to implement as any changes would have to be reversed at the end of the lease. Some improvements, however, would be allowed and charged to the incoming tenant.

What can you, the public, do to help us? Well, first of all, buy local milk, cream, cheese and meat. Use footpaths responsibly, keeping your dog under close control. Don't drive your car into fields and picnic there. Keep a note of the phone number(s) of your local farmer(s) so that you can get in touch if something needs attention.

We are a fairly intensive farm and we keep more stock now than were on the holding before we took over. We don't have much option if we are to have a reasonable standard of living and bring up two increasingly expensive children. Our rents are pretty high and these must be covered and paid. Dairy farming gives us the security of the monthly milk cheque. We try to keep within the rules and generally find that we can do this without too much trouble, but the weather and any TB outbreaks can throw us off course. All in all, floodplain farming is manageable although hard work and sometimes both worrying and alarming.

Chris and Connie Creeper have run a dairy farm in the Axe Valley for the past seven years.

The Projects

Triple Axe Project: Newsletter

Alex Swan

The Triple Axe Project is an ambitious, multi-year initiative aimed at restoring the health of the River Axe catchment, aligning with the Water Framework Directive (WFD) and Habitats Regulations. The project, which started in 2020 and has funding secured until March 2027, seeks to address the significant environmental challenges facing the River Axe, including siltation, phosphate enrichment, and the breakdown of river channel structures. These issues have led to a decline in water quality, affecting fish breeding grounds, invertebrate populations, and the overall ecological health of the river. The project is structured around three core themes: Farming, People, and Nature, each with distinct objectives aimed at achieving a holistic recovery of the river ecosystem.

1. Farming: Farm Resilience Plans (FRPs)

The farming community plays a crucial role in the health of the River Axe, with agricultural diffuse pollution accounting for approximately 70% of the phosphate load entering the river system. To address this, the Triple Axe Project is rolling out Farm Resilience Plans (FRPs), an innovative approach that combines environmental, agronomic, and business advice to help farms transition to more sustainable land use practices.

Objectives:

Support 75 farms over three years, with a focus on reducing sedimentation and phosphate entering the River Axe Special Area of Conservation (SAC). To date, 14 Farm Resilience Plans have been co-created with farms.

Provide one-to-one support to specific farms to understand the Maximum Sustainable Output (MSO), and how this can be rolled out across the catchment. In 2024/25, 10 farms are being supported.

Deliver one-to-many training workshops, farm visits, and webinars to reach 50 additional farms, promoting sustainable practices and sharing best

practices. In 2004/25, 30 farms are engaging in a programme of soil and slurry/silage testing for phosphate and follow-up workshops and capital works.

Coordinate with other initiatives such as the Axe Landscape Recovery Project to ensure a cohesive approach across the catchment.

The FRPs will lead to practical capital interventions, such as reducing sedimentation and phosphate runoff, supported by WEIF (Water Environment Improvement Fund) and Farming in Protected Landscapes (FiPL) funding.

2. People: Rivers Run Through Us (RRTU) Project

A new project, aimed at revitalising the River Axe and its catchment has recently got underway, thanks to funding from the National Lottery Heritage Fund (made possible by National Lottery Players) and WEIF.

The Triple Axe Project recognises the vital role that local communities play in the restoration of the river. The Rivers Run Through Us (RRTU) project aims to engage and empower communities across the Axe catchment to take action to restore the health of their local rivers and streams. The RRTU project will enable communities to identify and deliver capital interventions, such as tree planting, debris dams, and wetland creation, contributing to improved water quality and biodiversity.

3. Nature: River Channel Restoration and Floodplain Reconnection

The physical structure of the River Axe and its tributaries has been significantly altered over time, leading to increased flow rates and sedimentation. The Triple Axe Project aims to restore the natural function of the river through river channel restoration and floodplain reconnection measures.

Objectives:

Undertake river channel restoration on a 1.5 km stretch of the River Yarty, from Case Bridge to Beckford Bridge, to re-establish floodplain connection and function. Four hundred metres were restored in 2024.

Implement floodplain reconnection measures, including the creation of scrapes, wetlands, and floodplain woodland. A scoping report is being undertaken in early 2025, to establish the best opportunities for where to do this.

Build on previous pilot projects, such as the Magdalen Farm and Mosterton interventions, to ensure the longevity and effectiveness of the restoration works. The project will be supported by WEIF funding, alongside FiPL investment, to deliver these nature-based solutions, which will enhance riverbed quality, stabilize riverbanks, and improve habitat diversity.

The Triple Axe Project represents a comprehensive and collaborative approach to restoring the River Axe catchment. By addressing the root causes of environmental degradation through targeted interventions in farming practices, community engagement, and river restoration, the project strives to achieve Good Ecological Status (GES) for the River Axe.

With a total project cost of £962,482, of which £447,760 will be funded by the Environment Agency, the Triple Axe Project is a vital step towards a healthier, more resilient river ecosystem that benefits both people and wildlife.

For more information, please contact alex.swan@environment-agency.gov.uk

Alex Swan has worked in the environment sector for over 10 years, and is currently the East Devon Catchment Coordinator for the Environment Agency

The Triple Axe Project: Supporting Farmers and Improving Water Quality

Sabine McEwan

Since 2022, the Triple Axe project has been making waves in the River Axe catchment, bringing together farmers, conservationists, and expert advisers to create a more sustainable future. This initiative is a collaboration between National Landscapes (Blackdown Hills, Dorset, and East Devon), the Environment Agency, Catchment Sensitive Farming, NFU, and AHDB. With a focus on dairy farming, the project enhances water quality while building resilience in farm businesses.

What is Triple Axe?

The name reflects the project's three core components: **Farming, Nature, and People.** These pillars guide the work led by Sammy, Eve, and Sabine from FWAG SW, who have been delivering farm-focused advice over the winter months for the past four years. Funded by the Environment Agency WEIF programme and the Farming in Protected Landscapes Programme, this work provides hands-on support to local dairy farmers.

A New Approach to Farm Advice

One of the key innovations of Triple Axe has been trialling a unique advisory model (developed by FWAG SW and NFU) with 14 farms. This holistic approach integrates environmental, regulatory, agronomy, livestock, and business advice into one cohesive plan. Traditionally, farmers receive specialist advice from different sources — often conflicting or incomplete when viewed in isolation. The Triple Axe model brings experts and farmers together at the same table, creating a truly integrated and sustainable action plan. The outcome? A Farm Resilience Plan that helps farmers meet regulations, stay financially viable, and reduce environmental impact.

Project Achievements So Far
The impact of the project has been significant:

- **34 dairy farmers** received detailed 1:1 advice.
- **9 farmer workshops** have taken place, with attendance growing each year.
- **More farms are adopting sustainable practices,** including upgrading yard infrastructure, nutrient management planning and monitoring, growing herbal leys, reducing phosphorus loading and adjusting livestock numbers.
- **Increased compliance with environmental regulations** as farmers act on tailored advice.
- **A 'How-To' Guide** has been produced to help more advisers and farmers embark on their own Triple Axe-style journey.
- **Bespoke grant scheme:** This year's participating farmers will be invited to apply for the project's bespoke capital works that will support the project objectives for improving the River Axe water quality.

Beyond the Farm Gate
The learnings from the Triple Axe project don't just stay within the River Axe catchment. Over the past four years we have continually gathered data, experience and expertise. FWAG SW have summarised our findings (not just Triple Axe but findings across all our work in Devon) and are now getting to the root cause of phosphorus losses from farms. These findings will continually refine our approach and are already feeding into local and national strategies.

Expanding Collaboration

In addition to working closely with farmers, the Triple Axe project is also engaging with the wider food industry, including milk suppliers and feed merchants. This expanded collaboration helps further support farmers and their efforts on the ground, ensuring a more holistic approach to sustainability and water quality improvement.

FWAG SOUTH WEST
FARMING & WILDLIFE ADVISORY GROUP

Sabine has worked as a farm advisor for the Farming and Wildlife Advisory Group since 2014. Before joining FWAG, she completed her PhD research at North Wyke / Rothamsted Research, where she monitored the effects of different grassland management practices on soil and water quality.

River Axe Landscape Recovery

Giles Aspinall

The River Axe Landscape Recovery project unites farmers, landowners and communities in taking collective action to address the ecological condition of the River Axe, while also improving the sustainability of food production and community engagement with their natural environment.

Background

The River Axe is of national significance, designated both as a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The river ecosystem has been modified by centuries of human activity yet remains home to a plethora of threatened animal and plant species including Salmon, Bullhead, Otter, Water Vole, Lamprey, Medicinal Leech and Short-leaved Water Starwort.

Despite 40 years of investment, the SAC is in a downward spiral of declining condition. This is due to both continued biodiversity loss within the river corridor and soil and nutrient accumulation within the river. The latter is associated with dramatic land management changes within the surrounding catchment over recent decades. Radical solutions are needed to provide coherent solutions at landscape scale to reverse this trend.

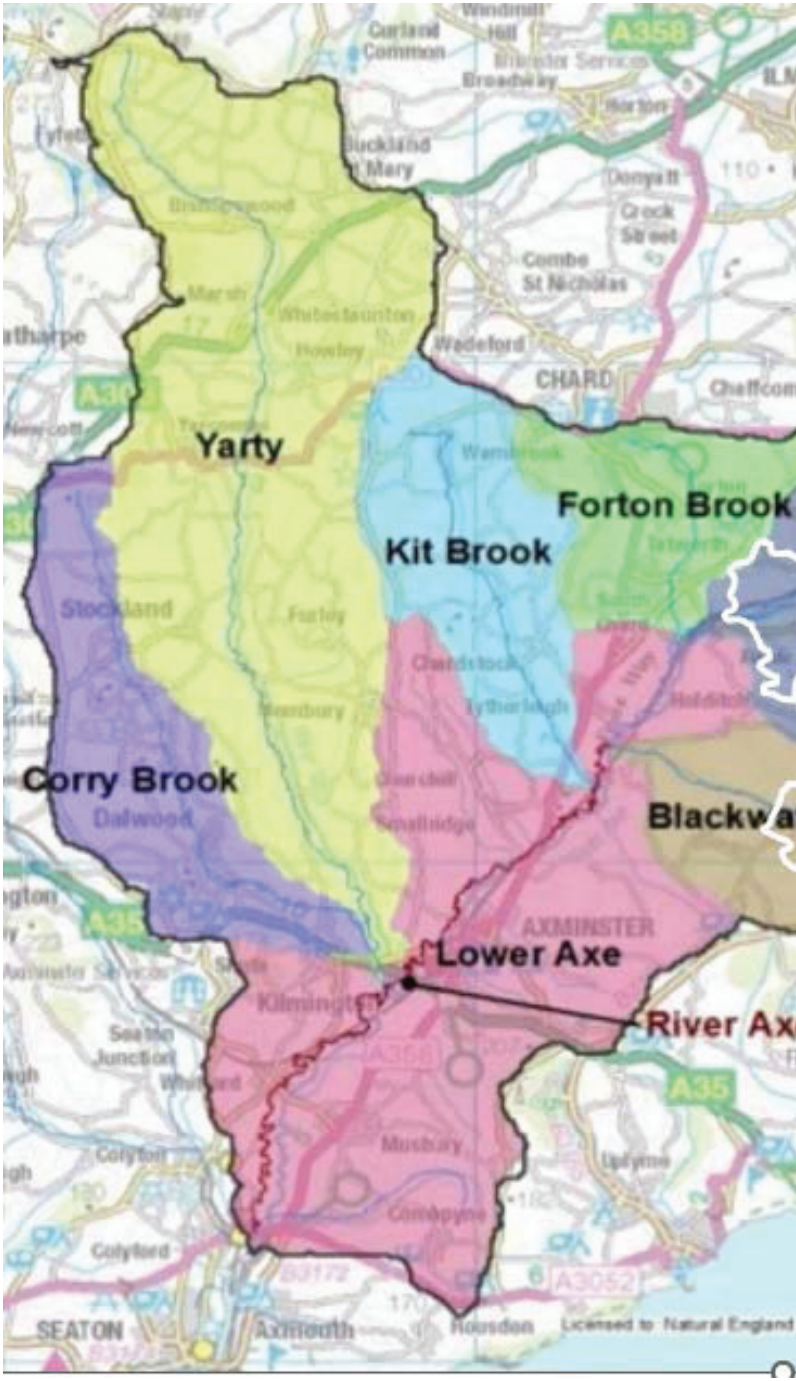
Project overview

We are a partnership of 32 farmers and landowners (including dairy, beef, sheep and arable) within the Upper Axe and Blackwater River sub-catchments, covering 2,760 hectares. The project aims to restore degraded rivers and floodplains to a more naturally functioning, ecologically improved system, taking into consideration catchment scale hydrological, ecological, morphological processes and associated land management pressures.

Riverbed raising through locally harvested coppice poles and hedgerow thinnings.

This pilot project, carried out at Magdalen Farm in the summer of 2024, encompasses ½ mile of river and showcases some of the techniques proposed elsewhere.

River Axe Landscape Recovery – map of project area and sub-ca



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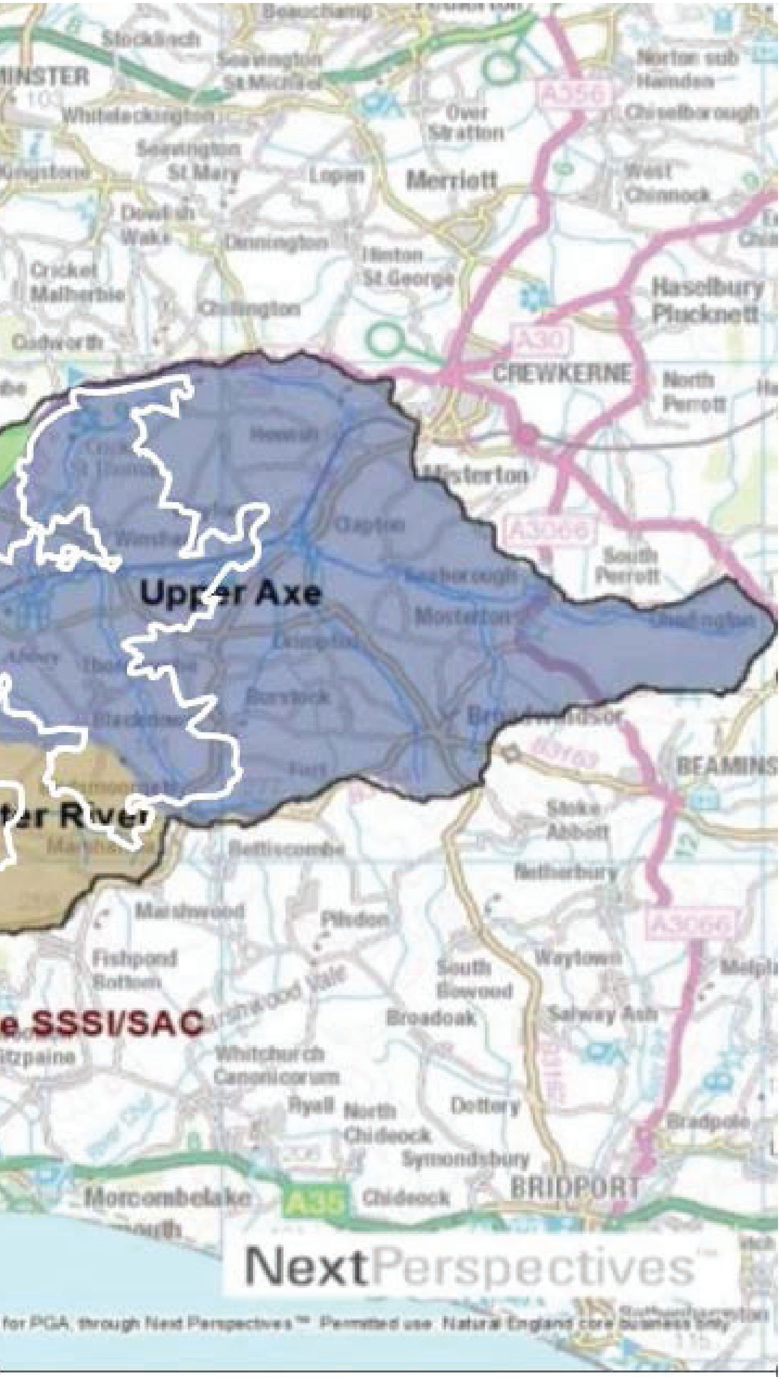


Upper Axe
ter River
e SSSI/SAC
CREWKERNE
Merriott
Misterton
BRIDPORT
Haselbury Plucknett
NextPerspectives
for PGA through Next Perspectives™ Permitted use. Natural England core business only

The Kit Brook running fast and clear with plenty of submerged Ranunculus.
Photo: Vicky Whitworth

The project's aims are to:

1. Restore degraded rivers and floodplains to a more naturally functioning ecologically improved system, previously lost due to geomorphological change
    1.1. Create new sections of meandering river
    1.2. Increase diversity and quality of habitats within the river channel
    1.3. Increase diversity and quality of habitats on bank-faces
    1.4. Restore the hydrological, geomorphological and ecological interaction between the river and its floodplain and the quality and diversity of habitats within the riparian zone
    1.5. Increase diversity and abundance of target species
    1.6. Reduction of invasive non-native species

2. Foster positive change in farming and land use practices to reduce (the risk of) sediment and phosphorus (P) losses, and reduce eutrophication
    2.1. Reduced source of P
    2.2. Reduced mobilisation of sediment and P
    2.3. Disrupt sediment and P transport pathways
    2.4. Reduced delivery of sediment and P to the river
    2.5. Protect and enhance biodiversity in the wider catchment by doing the above

3. Make the catchment more resilient to extreme rainfall/drought events due to climate change
    3.1. Increased infiltration and soil water storage
    3.2. Reduced and slowed overland flow
    3.3. Reduced and delayed peak flood flows

4. Use the Axe Landscape Recovery Project to inspire and empower people and to connect them with nature
    4.1. Stimulate a pro-environmental circular economy
    4.2. Improve sustainability of food production
    4.3. Use the project to educate, benefit and engage local people with nature
    4.4. Use the project to engage and help people living in chronic or acute disadvantage through residential stays with educational/therapeutic content

The project has two distinct phases: The Development Phase (2023-2025) in which a single coherent plan will be developed in partnership with project stakeholders, and an Implementation Phase (2025-2045) of 20 years or more in which river and farm outcomes will be delivered alongside considerable social initiatives.

Working with ecology and farming consultants (Ecologic and Farming and Wildlife Advisory Group South West (FWAG)), we have completed biodiversity and river baseline surveys, full Biodiversity Net Gain (BNG) assessments and land management plans across the project area. Following consultations, the partnership has committed 'in principle' to over 2,000 ha of land management change, and agreements for substantial in-channel restoration works.

The future and how to get involved

We envision a future where the River Axe interacts more naturally with its floodplain, providing clean water, rich wildlife habitats, flood and drought mitigation and enhanced opportunities for people to access nature.

The land will be managed in a way that enhances and connects core riparian and terrestrial habitats, sequesters carbon and supports small farms to produce good food in a sustainable way As a result, people and wildlife will flourish, living in a nature-rich, resilient landscape that sustains viable enterprises and the wellbeing and livelihoods of our communities.

The timescales given to us by DEFRA show that we should enter the Implementation Phase later this year, (2025) and that there may be the opportunity in 2028 to propose an expansion to encompass other farms in the valley. We intend to expand the project from its current size, and certainly will propose an extension, based on targeting areas where we can provide maximum environmental gain, but whether farmers and landowners who are not currently involved can be included down the line is something that waits on Defra's decision.

Giles Aspinall is a Director of the River Axe CIC with 25 years experience in nature conservation and environmental education.

Rivers Run Through Us
A new nature recovery project for the River Axe catchment.

Clare Groom

A new project, aimed at revitalising the River Axe and its catchment has recently got under way, thanks to funding from the National Lottery Heritage Fund (made possible by National Lottery Players) and the Environment Agency's Water Environment Improvement Fund.

The project aims to engage local communities in the restoration of the River Axe, its tributaries, and surrounding valleys.

Rivers Run Through Us is a collaborative effort led by Blackdown Hills National Landscape, in partnership with Dorset and East Devon National Landscapes, and supported by the Axe Landscape Recovery Project.

The National Lottery Heritage Fund has awarded £250,630 to Blackdown Hills National Landscape to fund this 18-month development phase and prepare for a full grant application to deliver a five-year project focussing on the Axe. The development phase will involve collaboration with community groups, schools, and farmers to trial activities and create action plans for key habitats and species.

Addressing environmental challenges

The River Axe, once celebrated as a pristine trout stream, has faced significant environmental challenges in recent years. Nutrient enrichment and sediment pollution have led to the river's decline, placing the River Axe Special Area of Conservation in an 'unfavourable condition'. The project aims to reverse this trend through an approach that fosters better connections between farmers, local communities and the organisations involved with the health and conservation of the river and its catchment.

River, soil, and people

The project is structured around three interconnected themes: *river, soil, and people*.

Planned activities include:

- Supporting community action by empowering and equipping residents to monitor river health and work alongside organisations to address identified issues.
- Educational and community activities to engage people with the river and its heritage.
- Building understanding relationships between farmers and the wider community.
- Exploring and celebrating the river's historical context, by documenting and presenting the natural and human history of the landscape.
- Supporting high-profile conservation projects that inspire community involvement and broader action for heritage.

The project encompasses the whole of the River Axe catchment, including the Lower Coly, Upper Coly, Offwell Brook, Umborne Brook, Corry Brook, River Yarty, Kit Brook, Forton Brook, Blackwater River, and the Upper & Lower Axe.

Getting the project underway

Jane Robertson started work as Project Manager in early February, with Emily Hobson-Martin starting as Development Ranger at the end of month. Both will be based within the Blackdown Hills National Landscape team. The project board is now in place, and consultants have been brought in to help shape the plans for community engagement, river quality monitoring, and improving soil health.

This is very much a partnership project, so the team has already been out and about, meeting with individuals and organisations to kick-start the project.

Rivers Run Through Us represents a significant step towards restoring the natural heritage of the River Axe and its catchment. By fostering community involvement, supporting farmers, and addressing environmental challenges, the project aims to create a sustainable future for the river and its surrounding areas. With the support of The National Lottery Heritage Fund, the Environment Agency, and local partners, this initiative promises to make a lasting impact on the health and vitality of the River Axe.

Clare Groom is communications officer for Blackdown Hills National Landscapes, a nationally important protected landscape.

Axe Vale Rivers Association

Mike Kent

Axe Vale Rivers Association (AVRA) was formed in 1961 with the original aim of reversing the damage caused by a fish-trap that had been placed across the lower part of the river Axe some five years earlier by the Ministry of Agriculture, Fisheries and Food (MAFF) to study the Salmon population for the benefit of the country as a whole. In 1963 the MAFF study shows that 747 Salmon had passed through this trap, with numbers declining until some twenty years later Salmon were almost extinct in the river – a situation that continues to this day. AVRA is currently involved in the following activities:–

Hatchery – we maintain a hatchery operation in the catchment, to rear approximately 40,000 swim-up fry annually from River Axe native Sea Trout broodstock. The broodstock fish are caught humanely in agreement with the EA in the autumn at a dedicated trap in Weycroft and are later returned to the river unharmed after eggs are stripped from the hen fish and fertilised by the cock fish. The purpose of the hatchery is to provide a boost to natural Sea Trout spawning numbers, helping ensure their future survival during these difficult times of poor water quality and river habitat destruction

River Corridors – We are committed to improving the whole river system and believe that tackling the headwaters and tributaries first are absolutely key to this objective. We are working with a one mile stretch of the main river at Seaborough to be used as a sanctuary for spawning and young fish and to set a model example of what can be achieved to improve and restore the river and bankside habitat. This stretch has been surveyed for us by the Wild Trout Trust who have set a plan for the habitat improvement and restoration that needs to be done. AVRA also participates in a similar project called the "Landscape Recovery Project" (funded by DEFRA) which is linking the landowners adjacent to the Blackwater, Synderford and Purtington tributaries, and will form a flagship project for habitat management along a sizeable and continuous section of river corridor.

Schools Education Programme – In 2024 there were nine participating schools in the local area who have all helped to rear (from the egg stage originating from AVRA's hatchery as above) and to release a small number of Sea Trout swim-up fry back into their natural environment. Introductory

educational presentations to the students and all the in-class equipment is provided by AVRA. Each year AVRA receives commendations from the participating schools for this programme, exampled by OFSTED including the statement that it was "a fantastic way of engaging children with nature" in their report on Chardstock Primary School in 2023, and Stockland Primary School including "What a lovely week we've had! Class 3 had an amazing time releasing the Sea Trout into the local stream. A huge thank you to Andy from AVRA who enabled us to do this." in their March 2024 Newsletter. Our intention is to increase this programme to more primary and secondary schools across the catchment in the future.

Mike Kent has been AVRA's Vice-Chair for 10 years and has organised and participated in a number of restoration and conservation projects across the Axe catchment.

Seaton Wetlands and the River Axe

James Chubb

Seaton Wetlands is a network of publicly accessible wetland habitats owned and managed by East Devon District Council's Countryside Team, on the western side of the Axe Estuary, stretching from the town of Seaton towards the A3052 at Colyford. A county council-maintained cycle route connects the individual parcels of land and in 2024 the site welcomed over 110,000 visitors.

All of the nature reserves lie landward of a sea wall, on top of which runs the Seaton Tramway, and all but one area is shielded from the effects of the tide. This exception is the bridged section of the sea wall at Bobsworth Bridge, which was built to allow the Stafford Brook to empty into the lower estuary. This feature means that at the northern end of the reserve complex Colyford Common is a tidally inundated salt marsh habitat, while the areas to the south, seaward of Colyford Common are, in the main, freshwater habitats.

A brackish lagoon was created in 2008 at Black Hole Marsh, and this is controlled by means of a regulated tidal exchange valve and a sluice chamber which allows for the salinity and depth of the lagoon to be managed to some degree. The original range of water levels controlled by the sluice was over 36 inches, from brim-full to very low, but due to sediment accretion in the lagoon

this range has reduced to just four inches, representing the difference between full and empty.

Despite this, in 2023 a pair of Avocets successfully fledged three chicks from an island in the lagoon, a first for both the reserve and Devon! To the south of these two tidal features, the site is of freshwater nature, and its extensive ditches and reedbeds act as a filter for water passing through the site on its way into the estuary and then out to sea. But at Black Hole Marsh and Colyford Common estuary water is brought onto site either naturally or under manual control and the water quality of the lower Axe directly affects the nature reserve.

The regulated tidal exchange valve which allows water to be brought on to the brackish lagoon is designed to allow most of the fresh water from the river to rise above the water inlet on a rising tide before the valve opens fully and allows the underlying salty water to flood onto the lagoon. However, at Colyford Common the open nature of the inlet means as the tidal levels rise, the water of the estuary fills saltmarsh ditches and eventually covers the site, with no such regulation of the salinity of the incoming water.

And so, for the health of the nature reserve and appreciation of its 110,000 visitors, the water quality of the lower Axe is of critical importance. While the freshwater grazing marshes of Seaton Marshes will be providing a little filtration for water passing into the river, it is the impact on the site itself for which I am most concerned.

Each year we collect estuary water and temporary aquatic specimens to house in an aquarium in our interpretation hub of the Discovery Hut. I attempted to collect water at Easter 2024, but such were the obvious pollutant levels and turbidity of the water that I was unable to do so in a way that was safe to bring into our engagement facility.

With breeding Avocet, Oystercatcher, Sand Martin, Otter and Water Vole as well as reedbed specialists such as Water Rail, Reed Warbler and Cetti's Warbler, the site is of huge significance ecologically. A newly installed Osprey nesting platform has been invested in because of the increasing sightings of this magnificent wetland species; the increase in interest this bird would have to the site cannot be underestimated.

James Chubb is Countryside Manager for East Devon District Council, with responsibility for the Seaton Wetlands complex of sites.

Riverfly: Freshwater Invertebrate Monitoring

Paul Spearing

Introduction

The ecological status of our rivers and watercourses in the UK is well known and much has been written about the topic. Most are in poor ecological condition, due in the main to pollution from agricultural practices, sediment runoff and discharges from sewage treatment works and combined sewer overflows (CSOs).

Although the Environment Agency (EA) and Water Companies carry out water quality monitoring they do not have the resources to monitor enough locations on a waterbody to give a true picture of how it is performing for cleanliness and freedom from pollution.

Some years ago the West Country Rivers Trust began a programme to develop and introduce a relatively simple procedure that volunteers could use to monitor river water quality. The programme relied on individuals and groups measuring phosphate, dissolved solids and water temperature to give a score that indicates the overall health of the water body. Although water quality monitoring is a vital tool for assessing pollution events, it is only part of the waterbody monitoring that volunteers can carry out.

Rivers (with the exception of tidal/saline estuaries) and other waterbodies such as streams and ponds are the home of freshwater invertebrates, and riverflies are part of this group. They, along with other freshwater invertebrates, are at the heart of the freshwater ecosystem and are a vital link in the aquatic food chain. They have common characteristics: limited mobility: living in the riverbed; relatively long life cycle from a year to two or slightly longer; presence throughout the year; and specific tolerance to changes in environmental conditions which make them useful indicators of water quality, pollution, sedimentation and low water flows.

Riverflies form the bottom end of the food chain, and their importance cannot be under-estimated as a food source for fish and other aquatic fauna, birds and many other creatures. It is perhaps not an exaggeration to say that without these invertebrates much of the animal world would cease to exist and their loss could even threaten human existence!

The Riverfly Partnership was set up many years ago to co-ordinate and provide information on all aspects of riverflies, thus recognising the importance of these creatures. The Partnership offers advice and training for

riverfly volunteers so that they can monitor waterbodies to a verified level of competence and ability.

What are riverflies?

Riverflies are freshwater invertebrate larvae which eventually emerge as flying insects, which are seen regularly in the air during the summer months, although some species occur throughout the year.

What riverflies do we monitor?

The Riverfly Partnership have focused on a key group of three types of riverfly as well as one non-flying invertebrate. This grouping, with subdivisions not dealt with here, gives eight types to monitor. They comprise the following :- up-wing flies or mayflies (*Ephemeroptera*), caddisflies or sedges (*Trichoptera*), stoneflies (*Plecoptera*) and freshwater shrimp (*Gammarus*).

How do we monitor and collect the riverflies/invertebrates?

The riverfly and invertebrate samples are collected by using a technique called ‘kick sampling’. Briefly this involves agitating the upper layer of the riverbed using a kicking action with one’s foot; any invertebrates dislodged float into a net held downstream of the kick sampling area. The kick test should last approximately three minutes and cover as much of the immediate river area as possible including parts adjacent to river/waterbody edges. This sample is cleaned of as much unwanted debris as possible and then the net is emptied into a large shallow tray of water to keep the creatures alive. The riverfly monitor then examines the sample and counts and identifies the groups of invertebrates present. Only those that fall into the eight defined groups (see above) are recorded on a dedicated form.

The numbers of each group are then transferred from the form into a national database (Cartographer), which allows experts to monitor overall river health and pollution incidents. The Riverfly Partnership and the Environment Agency collaborate in assessing the data.

The interest being shown in volunteer riverfly monitoring is growing at a most encouraging rate both locally and nationally. Figures reported in The Riverfly Partnership’s recent newsletter show that numbers of monitors are on the increase. I trained twenty-five volunteers in 2024 of which eighteen monitor in the Axe catchment, four in Somerset and three in Dorset. A further eleven volunteers monitor in the Axe catchment but under a different Riverfly co-ordinator.

What should I do if I'm interested in volunteering to a Riverfly Volunteer

If you would like to know more about volunteering or would like some further information before making up your mind, then contact your local Riverfly Tutor and Co-ordinator.

For the Axe catchment which includes the R. Axe and all its tributaries please contact Paul Spearing (**paul.spearing1@btinternet.com**) who will be pleased to help and advise.

Paul Spearing is a retired civil engineer and now co-leads the Axe Vale Riverfly team surveying freshwater invertebrates within the Axe Catchment. He is also a co-founder of Chardstock Eco Group and Friends of the River Axe.

Experiences on Tributaries and Other Rivers

Improving the Kit Brook

Vicky Whitworth

Human faeces. Sewage. Road run off. Livestock in river. Straightening and canalisation. Superfast flows. Eroding riverbeds and banks. Eutrophication. Litter. Too much phosphate, nitrate, sediment and silt. Antibiotics, hard drugs, dog flea treatments. Algal blooms. Water temperature too high. Weirs. Obstacles to fish passage. Too much shade. Too little shade. Himalayan Balsam. Mink. Climate change. Increasing flashiness. Flooding. Forever chemicals. Drinking water abstraction. Low flows. Disturbance by Humans. And dogs.

The list of problems facing our UK rivers and riverbanks goes on and on. And the Axe is no stranger to these. Described by the Environment Agency as in unfavourable ecological condition and declining who'd have thought that much of the river has high-level environmental protections being a Special Area of Conservation and SSSIs. But it's going to hell in a handcart. And there is only so much one person can do. So better to sit on the sofa and sip champagne.

Not so in the Kit Brook Valley where a river restoration project has been underway these last couple of years. The Kit Brook is a tributary of the River Axe, just six miles long flowing through the Blackdown Hills National Landscape and disemboguing into the Axe just below Tytherleigh. The Kit Brook River Restoration is a community-led project to bring the Brook back to good health. Classified by the Environment Agency as in moderate ecological status - where moderate in EA-speak means poor - our brook suffers from all the usual problems of a rural, lowland river, but she clings on as a Sea Trout spawning river, with mazy margins overhung with Alders. And we love her.

Because what every river needs to get well again is love. We all need someone to watch over us. And the Kit Brook team have been dishing out love in dollops. Funding from the Blackdown Hills National Landscape and the

Environment Agency has paid for a farm adviser and a river technical expert to visit landowners and farmers.

Leaky dams have been installed to slow the flow and hold water on the land. Cooperative farmers have fenced livestock out of the river, opened their wildflower meadows to the public, installed owl boxes and a hot box for bats. Hedge surveys are underway led by volunteers working with the farmer to create hedge management plans. Community events bring everyone up to speed with what's going on, what the challenges are and how people can help, and a community survey Nature Matters found out about people's priorities and their stories about the river.

Volunteer-led river monitoring is a big part of the work with teams of locals assessing water quality, ecology and freshwater invertebrates in collaboration with Westcountry Rivers Trust and the Riverfly Partnership.

Member of the group Paul Spearing says, 'we were fed up waiting for things to change, and tired of being kept in the dark about what was going on. We made the case that we are the people of the place and we know what's best for our river. We don't want to abdicate responsibility or disempower ourselves. We wanted to make a difference. To make rivers better. Of course, we need experts to help us but we can do stuff too'

Simple things raise awareness about the plight of rivers such as river walks. One such visit was to the local water meadows to see what how water was managed in Victorian times, and to discover what is hidden in plain sight – the infrastructure, sluices, carriers and drains of the most complex type (bedworks) of water meadow. How does this help the river? It affords the opportunity to restore a 'soup of habitats' alongside the river with wet and dry areas - but just as importantly it gets the farming and non-farming communities together.

Recognising that a divide does exist between the farming and non-farming communities, the team set up a panel of farmers who faced an audience of mostly non-farmers for a Q&A about the challenges facing farming these days and what we can do to help our farming neighbours. Called Over the Farm Gate it was an opportunity to chew the cud and make new friends. And this was followed a few months later by a similar debate about food and farming.

The group is trialling an app for the Environment Agency making it easier to report pollution incidents. Every child at the village primary has a riverside lesson in river health, and the Kit Brook team support Axe Vale Rivers Association with its Fish Eggs in the Classroom – a superb project to

breed Sea Trout for reintroduction, and placing a couple of hundred fish eggs in local schools so the children can watch the eggs transform into fry and then release them into the river.

And the Kit Brook River Restoration acted as a pilot project for a National Lottery Heritage Fund bid made by the three National Landscapes that serve the Axe Catchment. The bid was successful and the Rivers Run Through Us project – to engage the community with their rivers – is now up and running.

As the proverb says you need a village to raise a child. And in the case of rivers it takes a community to save our streams. So, what can you do? You could join your local river group. A great new group is just getting underway called Friends of the River Axe. Sign up at **vicky@essenceconsulting.co.uk** to be kept in the loop.

Or if you want to get hands-on join one of the river monitoring teams of volunteers and become a citizen scientist. You'll learn about water quality, freshwater invertebrates, riparian mammals, riverbank ecology and have an active role in making things better. It's free and training is always provided.

And think about everything that ends up in our rivers. I used to pop my used 'disposal' contact lenses down the loo and flush. Now I realise that's a sure-fire way to send plastic to our rivers. It's the simple things that can make a difference. Change your habits – and turn off that tap while you're cleaning your teeth!

Contact: Vicky Whitworth **thekitbrook@gmail.com**

Improving the River Lim

Vicki Elcoate

River Lim Action group

The River Lim is only 5 kilometres long from its source, just south of the A35, to the sea. It bubbles out of the ground crystal clear and by the time it reaches the mouth, just to the west of the newly designated bathing beach at Church Cliff, it is often contaminated with *E. coli* and other pollutants.

It took one pipe spewing out brown and smelly effluent that prompted the formation of the River Lim monitors as a group in 2021. A notice had gone up warning people not to paddle in the river. Local residents refused to accept

this warning about a much-cherished river and decided to take action to clean it up. The River Lim Action group (RLA) was formed with this aim.

Monitoring

The work of the group is evidence based and has been carrying out its own monitoring programme for two years.

1. Citizens' Science, West Country Rivers Trust – the group has around 22 volunteers looking at water quality in terms of phosphates, turbidity, temperature, ammonia. They make observations and take photos of the general health of the river. They monitor at 7 locations on the Lim every month and upload their findings to the Westcountry Rivers' Trust data platform. The results indicate general water quality but are not very effective at finding point source pollution issues and might miss significant pollution incidents.
2. *E. coli* monitoring: – 5 RLA volunteers have been involved in regular testing of *E. coli* at 6 sites. Environment Agency (EA) and South West Water (SWW) use *E. coli* (and Intestinal enterococci) testing as an indicator of bacterial pollution. Initially the RLA samples were cultivated and measured at home. Now they are sent off for pathology lab testing. This provides hard evidence and consistency with the EA's and SWW's methodology.
3. The group has also been trialling some Hanna testing this year for ammonia and phosphates. This is a more robust system than that provided by West Country Rivers Trust, but more expensive and time consuming.
4. Riverfly – the group has 11 volunteers involved in monthly invertebrate monitoring from spring to the autumn. This provides a good long-term indicator of ecological health.
5. Continuous, real time monitoring of Combined Sewer Overflows (CSOs) with software developed for us.

Lyme Regis Town Council has provided much needed funding for testing equipment, processing of samples and training.

One of the campaign's successes has been to get the EA and SWW to monitor all year round. The EA would normally only monitor at the designated bathing beaches (Church Cliff and Front Beach) during the bathing season from May to September. Their data has been instrumental in helping us reach conclusions about what is causing the pollution in the river.

The RLA decided early on to seek re-designation of Church Cliff as that brings with it monitoring, better public information and resources for improving water quality. It was un-designated in 2015 because of poor water quality which seemed unacceptable. It was very good news to secure re-designation in May 2024. Unsurprisingly after one season the beach has been classified as “poor” (Front Beach remains “good”). The group has pledged to keep the pressure on to get the problems sorted.

The RLA has produced a report on its first two years of monitoring and crunched that together with all the available data. The group has asked question after question to get vital environmental information into the public domain in an accessible format – this has not proved easy even though the law requires it.

Other work

An important part of this campaign has been the regular round table meetings between the RLA, the Town Council, Dorset Council, the EA and SWW. Instead of shifting the responsibility, having everyone in the same room has helped identify problems and seek solutions. The local SWW team have been supportive in seeking out problems. The company’s business plan promised investment, then the offer was changed so there is an important job in holding them to account and securing the necessary investment to reduce discharges and fix leaks from other parts of the system.

The next steps are to work on issues in the catchment that cause other problems: invasive species and agricultural pollution are just two of them. The group is looking forward to the challenge and clear about its vision for a clean river, brimming with life and once again the preserve of the Trout and the Kingfisher.

https://www.turnlymegreen.co.uk/river-lim-action-group
Contact us: **riverlimaction@gmail.com**

Vicki Elcoate is a retired charity director, working in the environmental voluntary sector at a national level, and still campaigning on environmental issues.

The River Sid Catchment Group

Charles Sinclair

The group was founded in 2023 out of a concern for the health and ecology of the river. This tied with the interests of members of the Sid Valley Biodiversity Group, from which our group emerged and of which we are still part. Almost simultaneously a very generous member of the public came forward with the offer of funding for improvements to the river. This has been a catalyst and support for much of our work.

One of the group's first tasks was to clarify our aims and ambitions. This led to a six-month period of intense scrutiny, leading to the publication of the River Sid Catchment Plan in December 2024. Divided into three categories of Water, Land and People, it explores the natural and unnatural characteristics of the river throughout its catchment. The river has a unique geographical profile. It is only 6.5 miles long. It lies entirely within the Sidmouth Town Council boundary. Within this short distance the river falls 675 feet, energising the flow of water. In the headwaters a clay-based cap of soil full of flint and chert feeds the river with its gravels. Into the valley the water cuts deep goyles into the softer greensand deposits. The river then flattens out over the Mercia Mudstone that covers the valley floor. Some sections of the river retain wonderful meandering pathways through wet woodland.

Man-made interventions in the river abound, many dating back centuries. The most significant of these for the catchment group are the barriers that make fish passage and migration difficult throughout the river system. We have recently successfully negotiated a project with the West Country Rivers Trust to assess the impact of these barriers throughout the valley. The most prominent of these is School Weir, a visually iconic structure at the entrance of the park running through the town called The Byes. At 3m tall, this is apparently the tallest weir in the south-west and is totally impassible to migrating fish. The main task of the West Country Rivers Trust project is to open up the river to migratory species. Sampling the fish population is important both to get a clear understanding of the baseline from which we are working and also to ascertain the success of the project on completion. We have therefore collected as much historical data as we can, and have commissioned two years of electrofishing surveys. Thes indicate good populations of adult Brown Trout, but low fry numbers unlikely to support future populations.

We are attempting to deal with two other significant problems. One is the intensely flashy nature of the catchment. Its short length and steep sides means that the river responds to rainfall very quickly, causing problems of flooding, erosion and agricultural run-off. With the help of Simon Browning of the West Country Rivers Trust, and in conjunction with one of the valley's landowners, we have identified problem areas within the valley, and Simon has succeeded in gaining generous Environmental Agency funding for control measures.

Two citizen science initiatives are used to examine the chemical and ecological health of the river. Using the West Country Rivers Trust system for analysing phosphates, turbidity and dissolved solids in the water, we have been able to identify one tributary within the catchment that is of serious and repeated concern. We are currently assessing the best way to address this problem. There are approximately a dozen citizen scientists involved in monthly testing for water quality throughout the catchment. Apart from the one tributary, we assess the river to be clean.

Riverfly is the second CSI we use. This quantifies the invertebrate life within the river and about another dozen volunteers work at sites across the catchment on a regular basis. We sample eight different invertebrate species. The typical range of score for the attachment is from six up to 13. Although the score gives an immediate value to the ecology of the river, several factors create difficulties in drawing conclusions from the data. These include seasonality, recent weather conditions – especially rainfall – and thirdly the life-cycle of each species. We aim to deepen our knowledge in this area.

The public's relationship is the third element to the catchment plan. In formulating the plan, we went through an extensive consultation process with the public and this is now being extended through an outreach program with under-represented groups within the original consultation. The involvement of volunteers in all aspects of our work is encouraged. Outreach to all stakeholders is key to smooth progress. Sharing knowledge of the ecology of the river is important to generate public interest and support.

This gives a brief overview of the work of the River Sid Catchment Group which continues to work hard for the river and to elevate people's understanding of its importance within the landscape.

For the majority of his career Charles Sinclair taught Art and Design in Axminster; in retirement he has pursued his interests in ecology and the visual arts.

What Needs Doing

Cry me a River – what can I do to help?

Vicky Whitworth

Do you have a river you are hefted to? A river you call home? Asked to say where you hail from do you name your river with pride? Do you shout out Temple – Synderford – Purtington Stream – Forton Brook – Kit Brook – Blackwater – The Yarty – River Coly – Offwell Brook – Corry Brook – Umborne Brook – Stafford Brook - Branscombe Stream – The River Lim – The Axe – or the Estuary. If not, ask yourself why not? Water is the source of all life, and a river runs through us all.

Take the Kit Brook – the place I call home. A neighbour recently got the collywobbles on a country walk as she and her dog picked their way through something that – let's just say – wasn't very nice. Did she shrug, did she just go with the flow, and carry on regardless? No, she reported what she'd seen. Unbeknownst to him the farmer had sprung a leak. Not him personally but his silage, and it was spilling into the brook. She called the Environment Agency Hotline – 0800 807060 – 24/7 and free, in case you want to know. Out popped the farm adviser to help resolve the problem.

The Axe catchment is one of the most protected rivers in England. And yet it is officially classified by Natural England as in an unfavourable condition and declining. Let's not play the blame game - to be honest, if we go down that route, we are all to blame. And as we are all to blame, then we do all have a part to play in making things better for rivers. And it's not that hard to do.

But it is hard to cherish what we don't know. So first off – fall in love. Yep, fall in love with your river. Go find her. Spend time with her. Walk beside her – if you can. Play with her – pooh sticks is great. Eat with her. She loves you picnicking on her riverbank. Admire her friends. The little critters who live in her. The trees that shade her. The animals that call bankside home. Bring your friends to meet her.

Now you've fallen in love, you'll want to protect and nurture your river.

The upper reaches of the Axe and her tributaries are spawning grounds for the increasingly scarce Sea Trout. Not many people know that. Sea Trout

lay eggs in nests called redds on the riverbed in the late autumn. If doggo is in the river crashing about having fun over the winter months the fish nests and eggs are destroyed. And if Rover's fleas have recently received a topical treatment, then all the more reason to keep him out of the river. Many flea treatments contain highly poisonous substances that kill the freshwater invertebrates living in the love-of-your-life. Those invertebrates would have been lunch for the Sea Trout.

And who's to blame for the sewage in the river? Well of course we all are, and we can't help ourselves. But there are things we can do – and they make a difference. For starters, if you have an old septic tank, make sure it's in good nick. You may also be lucky enough to benefit from a new scheme to replace septic tanks with modern domestic treatment packages as part of nutrient neutrality measures in the Axe catchment. Worth asking East Devon District Council about this one.

And what are you putting down the loo and sink? Just the 3Ps please – pee, poo and paper. No wipes. No contact lenses. And in your bath? A lot of the products we use in our homes – and which go down the plug hole – are high in phosphates. And phosphates are really not good for your precious one. So check the labels. But the easy answer is to use less gunk – on your hair, in the bath, in the washing machine and dishwasher. It'll save you money too.

What else can you do to make your new sweetheart feel special? Tell your friends about your new love – the river. Spread the word. Encourage others to fall in love.

Look at you now. You and your river. Joined at the hip!

Summary and Conclusions

Lesley Clarke, Mike Lock, Vicky Wentworth

Our contributors have covered many aspects of the possible management and improvement of the state of the Axe. Some aspects have, however, not been covered, perhaps because they are too far in the future, or just because they are too complicated and speculative. We mention a few of these here.

Beavers are well established in the adjacent catchment of the River Otter and have now spread throughout its length. It is probable that they will eventually reach the River Axe or be introduced now that introductions into the wild are to be permitted (and there are always those who introduce them illegally ('Beaver bombing')). Their effects, at least at first, will be felt most on the smaller tributaries. Their impacts will be on riverside trees and shrubs, and, if they repeat their behaviour on the Otter, on maize crops although these are likely to be small. Their dams can also be a problem at times. Some people will be excited, indeed enthralled, but others will be concerned and possibly hostile. The relevant people, probably Natural England and the Environment Agency, will need to have a plan for managing the relationship between Beavers, riparian owners and users. Experience on the Otter has shown that their activities create new wetlands, trap sediment, reduce flooding by slowing the flow and providing places that store floodwater, and that they have minimal effects on fisheries.

Riverside Alders have been dying along the River Axe, probably because of *Phytophthora* infection. There are presently virtually no riparian woodlands along the Axe, at least in the lower reaches.There is surely scope for establishing willow-alder woodland on some of the wettest riverside pastures. I can think of at least two small fields by the river that could easily be planted. Willow (mostly White Willow *Salix alba*) is easily established from large cuttings ('walking sticks') while alder can easily be raised from seed and planted out. Some worry that floods will wash away young plantings but although this is a risk, it is likely that enough will survive to establish a wet woodland.

Most of the projects described herein concentrate on reduction of phosphate/phosphorus inputs to the river. But what about nitrogen? Nitrogenous fertilisers are applied in large quantities in the valley to stimulate grass growth and increase yields. Many of them, such as ammonium nitrate

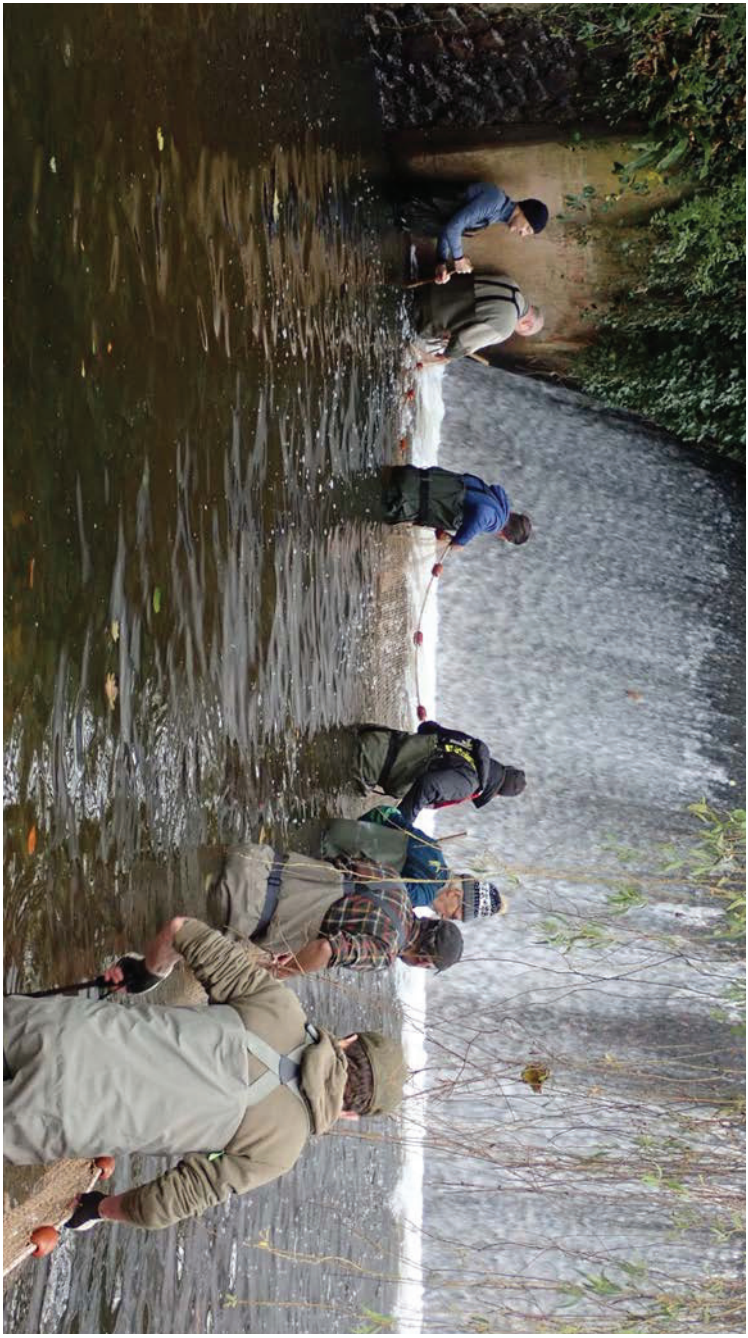
and urea, are highly water-soluble and therefore likely to wash into the river where they potentially increase growth of both macrophytes and bottom-living mats of filamentous algae and diatoms. Do we perhaps need more monitoring of nitrogen alongside phosphorus?

These are just a few thoughts for the future. But coming back to the present and the articles in this Newsletter…

There we have it … lots of fantastic work underway to make things better for our rivers. But how do we know if things are actually getting better – or worse for that matter? There's lots of people monitoring the Axe rivers. The Environment Agency – Natural England – Westcountry Rivers Trust – South West Water – big projects like the River Axe Landscape Recovery – and small-scale projects such as individual farms within the FWAG programme. And of course, masses of citizen scientists who give up their time freely to monitor water quality, and freshwater invertebrates which are considered the 'canary of the river'.

But what there isn't, is an Axe IMP! Yep, we need an IMP. No, not a mischievous little hobgoblin but an Integrated Monitoring Plan for the whole Axe Catchment. You'd think there'd be one but there isn't, and so different organisations monitor different things in different metrics, with different gizmos, on different scales, under different conditions, with differing degrees of accuracy, with different motivations, priorities and time. The upshot of all that diversity and compartmented working is that different data streams are not brought together. So, no-one has the whole picture, and no-one really has the evidence they need to do what needs to be done.

But what we want is a way of simply, clearly and consistently monitoring to track improvement against a set of agreed metrics. If you set out on a journey – and turning the Axe around is an epic journey - you have to know where you are starting from, and you sure need to know whether you are getting there. What you need is a cunning plan, and an IMP to hold your hand along the way. So, what are we calling for? A strategic and integrated monitoring plan. And when do we want it? NOW!



Netting below school Weir on the river sid to move fish over the Weir.
Photo: Charles Sinclair


Yarty
Forton Brook
Kit Brook
Upper Axe
Corry Brook
Blackwater River
Umborne Brook
Offwell Brook
Axminster
Lower Axe
Upper Coly
Lower Coly
Lim
Branscombe Stream
Chard
A358
A3052