

Research and analysis: A DNA based metabarcoding approach to assess diatom communities in rivers

This project has established a novel, DNA based method to monitor and assess the make-up of diatom communities in rivers. This new approach will mean we can analyse a lot more samples more quickly.

We collect data on animal and plant life in the river to help us to understand, assess and manage the health of the environment. Diatoms, with around 2800 UK freshwater species recorded, are a type of microscopic algae used alongside other organisms to assess the ecological status of a river.

This project is part of a wider programme of research by the Environment Agency and other UK agencies to explore and develop DNA based methods for ecological assessment. This work will help us to approach the development of DNA based methods for other organism groups and water body types. Examples of other work include assessing the feasibility of using DNA based methods for fish in lakes, macroinvertebrates in rivers and lakes, and for the monitoring and surveillance of non-native invasive species.

Research and analysis: Validation of landfill methane measurements from an unmanned aerial system

Landfill gas is made up of roughly equal amounts of methane and carbon dioxide. Modern UK landfills capture and use much of the methane gas as a fuel. But some methane escapes and is emitted to the atmosphere. Methane is an important greenhouse gas and controls on methane emissions are a part of international and national strategies to limit climate change. Better estimates of methane emissions from landfills and other similar sources would allow the UK to improve the quantification and control of greenhouse gas emissions.

This project tested the accuracy of methane measurement using an unmanned aerial system (UAS). We released known amounts of methane and measured these emissions using an UAS. The UAS experiments successfully measured the methane releases. The measured methane emission, taking into account the uncertainty in the measurements, always overlapped with the controlled methane emission release.

Speech: A water industry that works for everyone

The way we as a nation organise our water industry inspires strong feelings.

Because water is our lifeblood – the single most critical resource for the wellbeing of nations and the planet.

It has no substitute; we cannot replace it with anything else.

Those charged with its collection, distribution and supply – all of you in this room – play an absolutely essential role in all our lives which has no analogue in any other industry.

And that's partly because you provide a monopoly service. The pipes which carry water into all our homes are the responsibility of your companies, which operate natural monopolies.

That monopoly position means water companies, at their best, can play a very strongly positive role, from the moment rain falls from the sky to the point at which water flows through our taps, you can hence our environment and improving customer service.

But with monopoly power come special responsibilities – to ensure that your position is not abused, that the environment is not neglected and customers are not exploited.

And, in return for operating a monopoly, with the guaranteed income that brings, water companies have to be transparent and accountable. You make your money from a captive market. So you need to show you're playing fair. You may be private companies, but you have a responsibility to the public – who cannot take their custom elsewhere.

This kind of business – a captive set of consumers, guaranteed income from hundreds of thousands, if not millions of customer accounts, and a certainty that your product will never go out of fashion – is a commercial dream.

The late media tycoon Lord Thomson once said of ITV franchises, like Scottish Television, when they were effective advertising monopolies, that they were a licence to print money.

Well whatever advantages an ITV franchise-holder once had in the 60s and 70s, they would have looked with envy at the commercial position of the owner of a water company.

My priority, as we gear up for PR19, is to support Ofwat and the Environment Agency in ensuring that water companies are now working as diligently, on behalf of consumers and the natural world, as they are for their owners.

It is undoubtedly the case that privatisation, the role of private companies, has brought significant benefits and improvements to the environment and consumer. But it's crucial that we do not let progress stall.

Maintaining a safe supply of drinking water is a capital intensive affair, involving heavily decentralised infrastructure and very significant sunk costs.

Of-course, private companies have shown that since the 1980s we have tackled some of our problems.

In the pre-privatisation days of the 1980s – as now – our decaying pipes, sewers and reservoirs needed serious money spent on them. And you spent it.

Water mains were corroded and prone to leaking. In some places, drinking water quality was poor. Pressure was low and supplies were interrupted.

Reform was required – and the government turned to you, the private sector for solutions.

Since privatisation, around £140 billion overall has been invested in infrastructure – Leakage levels are down by around a third and two thirds of our beaches are classed as excellent, up from one third pre-privatisation.

Some companies deserve particular praise for their environmental leadership.

The Environment Agency gave United Utilities and Wessex Water 'industry leading' ratings in their 2017 Environmental Performance Assessment.

Yorkshire Water is planting millions of trees to help reduce the risk of flooding and control surges in the flow of water.

Essex and Suffolk Water – part of Northumbria – has done a great job enlarging the Abberton Reservoir near Colchester.

That has meant that customers are not only less likely to suffer drought, it has also provided a habitat for skylarks, goldeneye ducks, common terns and brown hares.

Wessex has been innovative in its use of catchment-based market mechanisms to encourage farmers to reduce nitrate pollution.

And Anglian Water last year issued the first ever public utility sector Green Bond – to meet the three-fold challenges of water scarcity, climate change and better environmental protection.

So, private water companies have contributed to the public good – but public concern about the way the water industry operates is growing. And I understand why.

Three billion litres of water still leak out every day – can the companies really claim they are doing enough to preserve this precious national resource? This figure has barely improved in the past four years.

And while £140 billion pounds have been pumped into the network to repair existing assets, there has been no investment in new nationally significant supply infrastructure, such as major reservoirs, since privatisation.

And although bill reductions are welcome, customers deserve an even better deal in future.

Overall, I believe that despite the undoubted gains in efficiency and investment since privatisation, the system is not working as well as it should.

Far too often, there is evidence that water companies – your water companies – have not been acting sufficiently in the public interest.

Some companies have been playing the system for the benefit of wealthy managers and owners, at the expense of consumers and the environment.

Particularly in the last decade, some companies have not been as transparent as they should have been.

They have shielded themselves from scrutiny, hidden behind complex financial structures, avoided paying taxes, have rewarded the already well-off, kept charges higher than they needed to be and allowed leaks, pollution and other failures to persist for far too long.

And when there has been acknowledgement that change is required – following public pressure or actions by regulators – far too often there has been prevarication and procrastination, ducking and diving and dragging of feet.

Change having been promised in many cases, hasn't happened, or hasn't happened quickly enough.

Change has to come.

Why?

Because the consumer – and the environment – deserve better.

As I mentioned earlier, water companies can be surer of the flow of income from householders into their coffers than householders can be sure of the leak-free flow of water into their homes.

What this translates to is billions of pounds in profits and dividends for those who own these companies.

In cash terms, over £18.1 billion was paid out to shareholders of the nine large English regional water and sewerage companies between 2007 and 2016.

Of course, generous dividends can be justified if they've been generated by the lean and efficient running of an operation – and have been paid out after appropriate capital investment.

But the £18.1 billion paid out in dividends was actually almost all of the

profit made by water companies after tax – the total profit was £18.8 billion over the same period.

95% of the profit went in dividends to shareholders.

And who made those decisions? Well, of course, it's the people in this room – chief executives and board members of the privatised water companies. And you must realise that in the public eye you are very handsomely remunerated.

The chief executive of United Utilities is paid £2.8 million per annum.

Severn Trent's chief executive takes home £2.42 million.

The chief executives at Anglian and Yorkshire get £1.2 million a year.

And the chief executive of Thames Water gets £960,000 a year – five times the Prime Minister's salary.

At least, one might hope, companies making such massive profits, paying out such big dividends and supporting such generous executive salaries, would be big contributors to the Exchequer through their tax bill.

Well some are.

And others not.

Very much not.

Last year Anglian, Southern and Thames paid no corporation tax.

Indeed Thames has paid no corporation tax for a decade.

Ten years of shareholders getting millions, the chief executive getting hundreds of thousands, and the public purse getting nothing.

And water companies have been able to minimise their tax obligations, even as many have failed to minimise leaks and pollution, because some of their best brains appear to be intent on financial engineering just as much as real engineering.

Now I'm all for innovative and ingenious management – but not when it means maximum upside for shareholders of natural monopolies, and not enough sharing of the gains with customers.

Four water companies – Thames, Southern, Anglian and Yorkshire – make particularly keen use of sophisticated financial engineering.

They have set up multi-layered corporate structures of dizzying complexity involving multiple subsidiaries, some based offshore. The use of these offshore entities makes company affairs more opaque and their financial activities less transparent, and customers have an absolute right to question their use.

As well as Thames, Southern and Yorkshire – have also set up offshore

financial structures in the Cayman Islands.

The stated reason was to enable smoother access to global bond markets. But the rules were changed, yet the offshore firms continued to exist. The companies concerned have maintained the structures that enable them, among other things, to avoid proper scrutiny.

And scrutiny matters because these companies have used their complex structures to play the system, and – further – they have also used the way they manage debt to arrange matters in their favour.

While an efficient capital structure for an asset-intensive business like water must always involve a significant amount of debt, these companies are carrying far more than others in the sector – and more than most companies outside the sector, would think wise.

In setting bills, Ofwat asks customers to pay water companies an amount that lets them maintain a prudent balance sheet divided on a 60:40 basis between debt – which is cheaper for the companies to service – and equity.

This 40 per cent is designed as explicitly as a ‘buffer zone’ – to protect companies from financial shocks and to ensure they have enough money to innovate, and push ahead on service and performance. But there are owners of individual water companies who have decided to play the debt game differently.

The banks and funds which own these companies have increased their debt levels to nearly 80% – or 83%, in the case of Thames.

And because the debt levels are higher than those assumed by Ofwat – and the repayments are cheaper than they would be on equity returns, and are paid out before tax to boot – the companies have made supernormal gains.

And low interest rates in recent years have boosted these still further.

And some in the sector have further leveraged the equity by borrowing again at parent company level, thereby diluting the true ‘equity’ even more.

So, the Thames buffer zone is down to just 17% and it has the highest gearing in the sector.

Yorkshire’s gearing is 75%, while Southern and Anglian are at 78% and 79% respectively.

Now this may be good news for the investors in these companies but it is less so for customers and for investment in the environment.

Compared to the other water companies, whose gearing remains around 60%, these companies now have less capacity to cope with risks and shocks.

And all the time this financial engineering is going on, it’s left to the tax-payer and bill payer to continue to bear a heavy burden.

It's not as though the customers of the privatised water companies have exactly had it easy over the years.

Yes there have been recent price reductions. But between privatisation in 1989 and 2015, water bills rose by 40 per cent more than inflation.

And it is still the case that operational performance remains concerning.

The three billion litres lost to leaks every day is more than a fifth of the total supply. Action to prevent these leaks could help bring bills down, as well as benefit the environment and improve resilience.

This is why I so enthusiastically endorse the view of Sir John Armitt, chair of the National Infrastructure Commission, that a twin-track approach to improving resilience against drought is necessary.

Water companies need to be investing in new infrastructure, increasing water transfers and also working, critically, to bring down leakage.

Barring United Utilities, each of the nine large water companies suffered more mains bursts last year than in the one before. People and the environment alike have suffered: ruptured pipes, rising floodwater, interrupted supplies, and homes and businesses losing out.

In 2016-17, Thames Water suffered 265 bursts for every 1,000 km of mains pipe.

And in recent months, as has been reported in the Evening Standard and elsewhere, there have been three major incidents in West London alone.

Homes, shops, offices and restaurants have been inundated. Streets have been closed for weeks. One major route has been closed as a result of a Thames Water leak at the end of January, and it still isn't open as we speak.

The failure to deal effectively with that leak has caused traffic chaos, disrupted commerce, and infuriated residents and commuters alike.

And of course this problem of leakage is not the only blot on the sector.

On pollution, too, improvement has stalled. Every year water companies are responsible for around 60 serious incidents of pollution – that's more than one a week – and notably the tally has barely changed in a decade.

Thames Water was recently guilty of one of the most egregious lapses. The company was fined £20.3 million for having polluted the river Thames with nearly one and a half billion litres of raw sewage in 2013 and 2014.

The penalty inflicted reflected the 'death of wildlife and distress to the public' at six sites in Oxfordshire and Buckinghamshire. It was a record fine. But it was also just ten days' worth of Thames's operating profit.

So what does the public see? An industry slow to stop leaks, slow to repair them, slow to stop pollution and slow to say sorry.

Customers are justified in wondering why water companies have also proved slow to clean up their financial act.

In recent months, under pressure from the regulator and consumer groups, water companies with offshore financial structures have agreed to close them in an effort to rebuild public trust.

But the companies – people in this room – have said it will take up to two years to wind up the Cayman operations because it is claimed it will take that long to contact international bondholders who may have made their investments a decade ago.

That sort of excuse-mongering just won't wash, I'm afraid.

The people in this room – the companies you run – must change. And you must show the public that at every stage you are putting the environment and your customers first.

That's why I support the critical work being done by Emma Howard Boyd and the Environment Agency to get water companies doing more to protect and enhance the environment, and make the nation more resilient to flood and drought.

From a regulatory perspective, as you know, I have also asked Ofwat's chairman, Jonson Cox, to have another look at strengthening governance, at helping to improve performance and making sure bill-payers are getting the best possible value for their money – a government manifesto priority.

The reality is that privatised natural monopolies bring with them specific challenges and temptations that must be addressed by a strong and energetic regulator.

Jonson and his team are I know committed, to finding the right balance between returns to shareholders and costs to customers. Earlier today, he gave you a first steer about Ofwat's plans to deal with many of the issues I have raised. I want you to know that I will give Jonson and his team whatever powers are necessary, and back them in any action they need to take, to get the water companies, all of them, to up their game and further lower consumer bills.

As we move towards the third decade of a privatised water sector, I believe there is much more that should be done to we get the balance right.

Unless we see change, the pressure for renationalisation will only grow.

Renationalisation has significant and growing public support. I believe that renationalisation would be a terrible backward step. It would cost the taxpayer, not save them money. It would reduce investment in the environment, not increase it. It would stifle innovation, not encourage it.

I strongly believe that private markets are the optimum way to meet the ongoing needs of water customers and the environment when backed by strong regulation. And real behaviour change.

Should companies continue to drag their feet, I have already said I am prepared to consider changes to the regulatory framework to ensure that consumers receive the service they deserve – and the natural world is better protected in line with our 25 Year Environment Plan.

This government's priorities are clear: securing long-term, resilient water and wastewater services, protecting customers from potentially unaffordable bills and also making sure that we have a cleaner, greener country for the next generation.

That's why I want to see businesses starting to invest now in order to meet the significant and complex challenges ahead.

This country is blessed with regular rainfall and occasional snow fall. But the drier conditions last year proved we should not take this for granted.

Climate change is causing more extreme weather. Extended periods of drought punctuated by intense rainfall will become the normal.

A growing, wealthier and more urban population will require more water.

Tackling all these challenges will require imagination, tenacity and creativity.

The people in this room have all those qualities.

Now is the time to deploy them more energetically than ever in the public interest. Or face the consequences.

Thank you.

Notice: BS14 9BE, Highcroft Pet Care Limited: environmental permit application advertisement

The Environment Agency consults the public on certain applications for Radioactive Substances Activity. The arrangements are explained in its [Public Participation Statement](#)

These notices explain:

- what the application is about
- how to view the application documents
- when you need to comment by

The Environment Agency will decide:

- whether to grant or refuse the application
 - what conditions to include in the permit (if granted)
-

Notice: HU15 2PG, Brocklesby Limited: environmental permit issued

The Environment Agency publishes surrenders that they issue under the Industrial Emissions Directive (IED).

This decision includes the partial surrender notice, decision document and site condition report evaluation template for:

- Operator name: Brocklesby Limited
- Installation name: North Cave FAME Plant
- Permit number: EPR/JP3931SG/S005