HOUSE OF COMMONS

Environmental Audit Committee

Oral evidence: Water quality in rivers, HC 902

Wednesday 21 April 2021

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Watch the meeting

Members present: Philip Dunne (Chair); Barry Gardiner; Mr Robert Goodwill; Helen Hayes; Ian Levy; Caroline Lucas; Cherilyn Mackrory; Jerome Mayhew; John McNally; Dr Matthew Offord.

Questions 65 - 126

Witnesses

I: Professor Peter Hammond, (Retired) Professor of Computational Biology, University College London, Senior Fellow in Medical Image Analysis, University of Oxford Big Data Institute; Professor Rebecca Malby, Co-founder, Ilkley Clean River Group; and Pete Lloyd, Retired water quality expert, Environment Agency.

II: Ben Seal, Places to Paddle Manager, British Canoeing; Feargal Sharkey, Chairman, Amwell Magna Fishery; and Jane Nickerson, Chief Executive, Swim England.

Written evidence from witnesses:

Professor Peter Hammond

Ilkley Clean River Group

Peter Lloyd

British Canoeing

Swim England

Examination of Witnesses

Witnesses: Professor Peter Hammond, Professor Rebecca Malby and Pete Lloyd.

Q65 **Chair:** Good afternoon and welcome to the Environmental Audit Committee for our second hearing on the subject of water quality in rivers. We have two panels today. First we will be hearing from two academics who have taken the lead in water quality campaigning in their local areas using citizen science, in particular, to highlight the challenge posed by raw sewage entering our river systems. They will be joined by a retired scientist who spent his career within the Environment Agency and its predecessor organisations, and is now becoming more of a campaigner for the work that they are doing. Welcome to our first panel. I would like Professor Peter Hammond to introduce himself.

Professor Hammond: I have been a university academic for about 45 years, most recently at UCL's Institute of Child Health but also at the Oxford Big Data Institute. As a resident of west Oxfordshire I have been observing the deterioration of the rivers, and that got my interest initially, and I have been contributing to the WASP, the Windrush Against Sewage Pollution, campaign.

With my academic hat on, I have been developing methods to detect unpermitted sewage spills on sewage works and some of you will have seen the simple chart that we used in the BBC *Panorama* programme last week. More recently I have published some sophisticated approaches using AI techniques, machine learning, and that was published last month in a nature paper in the journal *Clean Water.* My evidence is focusing on the detection of illegal spills.

Chair: I should explain that you and I have been working together on my private Member's Bill over the past several months, and I am very grateful for your support. Secondly, Professor Rebecca Malby.

Professor Malby: Thank you for inviting me. I am Becky Malby, I am the chair of the Ilkley Clean River Group. Our campaign started just over two years ago, preceded by multiple reports of incidents of sewage being discharged into the river and no action taken. Catalysed by a dry day when sewage was being discharged into the river without any rainfall, all over pebbles. Ilkley is a beautiful place. I do not know if any of you have seen it, but we are a great destination centre, if any of you fancy holidays up here. But our visiting tourists and our public were sitting among sewage solids—condoms, tampons, sanitary towels, wet wipes—and human solids without realising it. I was horrified and Karen Shackleton, the founder of this campaign, asked me if we could do something about it. The campaign has taken a number of strands. The first was to find out what was—

Chair: Can I just halt you for a second, Becky? We will get into all the

detail of what you are doing. I just wanted you to give a flavour of the work you have been doing. Your professional work as an academic is in what field?

Professor Malby: Health systems innovation.

Chair: Our third panellist on the first group this afternoon is Pete Lloyd.

Pete Lloyd: I worked for over 40 years with the Environment Agency and predecessor authorities. During that time I covered just about every aspect of river pollution control, but one of the common themes that kept coming to haunt me was the incredibly poor monitoring. The chemical monitoring of water quality in rivers and effluents was so poor, so inadequate and so misleading that I continually struggled to try to improve it. Unfortunately I have not had very much success. The most frustrating part now is that not only is the existing system so bad but there is a proposal by the Environment Agency to introduce a new system, which is going to make matters much worse.

Q66 **Chair:** We will get into a lot of this over the next 45 minutes or so. Becky, you were beginning to explain what got you involved in the campaign at Ilkley, and I would very much encourage you, when you are travelling around the country, to visit Ludlow and the River Teme, which shares many of the characteristics as a visitor attraction that you have just described to Ilkley. I am sure you are going to prompt every colleague to extol the tourism virtues of their constituencies during this session. Could you talk a little more about how you applied public campaigning and citizen science to highlight the challenges in the river?

Professor Malby: The first thing is there were a number of assumptions about what the public knew. We were obviously horrified. We assumed that this was not a regular occurrence. The volume of sewage that we were seeing in the rivers was something that people did not know about, and when we first approached the Environment Agency and Yorkshire Water there was a narrative. The narrative was, "The public know we do this, it is just common." And, "We cannot afford to do anything about it, so what is the problem? You do not want to pay any more money." That was the underlying culture. We said, "The public do not know about this and would be absolutely horrified."

The first thing was to try to understand what was really happening. What the Environment Agency was telling us at the time was the water quality is good, the sewage is not spilling very much. The language is very interesting here, and it is used to tone down the problem. A spill is what you do with a cup of tea; it is not when you discharge volumes and volumes of raw sewage into the river for days. The language toned it down and made it more neutral, so we tried to find out what was really going on.

We did two things. We asked multiple times for data about how often the sewage plant at Ilkley is discharging raw sewage and, in the end, Yorkshire Water gave it to us, not the Environment Agency. What was

striking about that was that Yorkshire Water, at one level, understood how often it was doing it, but it had never been asked about how often it was doing it, so it had not had to declare it.

The storm overflow assessment framework says 40 times a year over three years as an average, or 60 times in one year. It certainly was not on the radar that this was a problem in Ilkley, despite the fact that we as Ilkley residents had been reporting it on a regular basis.

Second was water quality. The EA was saying, "The water is good enough to drink, Becky." I would go, "Is it really? I do not want to drink it." We knew that kids were sick and missing school. We knew that local people who tend to swim, paddle and play downstream of the sewage works were getting ill in the summer. We did a bit of a campaign on Facebook to find out how often, and we had masses of responses. Then Professor Rick Battarbee instigated the first citizen science approach in this country, because the Environment Agency does not measure faecal bacteria. It does not measure the E. coli and enterococci, the things that make humans and animals sick if they go near the river. The stuff that comes out of our toilets.

While the Environment Agency at that time was saying the water quality is good, it now says it is moderate. What we found, and I have sent to you pictures of this, was that there was very significant pollution and, at times of rain or soon after rain, the entirety of the river at Ilkley is a public health risk. In dry conditions, downstream of the main sewage works, when there is not a spill going on, it is always significantly polluted. We wanted to find out both the number, the quality issues, and then we wanted to find out what the public thought of that.

We held town meetings. We invited the agencies to come, to hold themselves to account, and *Look North* televised it. It was a very public exposé, "This is what is happening, what do you think?" Ilkley residents were completely horrified, as was the media. It started the media storm around, "Are we really going to be treating our rivers as if we were Victorians, just opening our doors and throwing our sewage out on to the streets?" Because in Ilkley, if you look at the last three years, the number of times the storm overflow runs in Ilkley: 123 days in 2018, 114 days in 2019 and 120 days in 2020. Way over the storm overflow assessment framework's benchmark lowest level.

We made it visible and we began to get into some of these attitudinal issues, meaning that people thought it was okay. What we have achieved is that it is not okay. But the only way we could get regular testing in Ilkley was to apply for bathing water status, because there was no other way of calling people here to test the river.

The Environment Agency did start testing monthly once we had surfaced this issue and is collaborating with us across the whole of the Wharfe. But the reality is, the only way we could draw attention to it was through bathing water status. Not because we are all fabulous open water

swimmers, much as we like it, but because we want it tested to say, "We have hundreds and thousands of people visiting here in the summer, they have no idea what risk they are running when their kids get their nets out, their buckets and spades, and paddle in the river. They do not know what is happening here."

Q67 **Chair:** We congratulate you on being the first group to have secured bathing water status on any river in England under the current regime. That is a huge achievement. You sent us some examples of the maps that you created while doing the analysis of E. coli back in 2019. You mentioned Professor Battarbee, was this collected by voluntary effort?

Professor Malby: Yes.

Q68 **Chair:** How did you get the Environment Agency to recognise the quality of the data that you were producing?

Professor Malby: We agreed the protocol with the Environment Agency and we used their accredited labs. Professor Battarbee is a professor in diatoms, among other things, and understands water quality and is well respected by the Environment Agency. The protocol was collaboratively developed. It can be used by anybody in this country. The town council paid for the lab testing originally so that we could do the sampling. We taught local people how to do the testing. We used anglers and people who are used to being in and around the river, ran a risk assessment, managed our own public liability, and so on, but we paid for it all.

Q69 **Chair:** What did it cost?

Professor Malby: It is not enormous.

Chair: That is great, that is what I want to hear.

Professor Malby: £5,000. It is not extortionately expensive.

Q70 **Chair:** Thank you very much for that very helpful overview. We are going to get into more of this in our questioning in a moment. I would like to turn now to Peter Hammond. Your story is somewhat similar, but you approach this from a professional data analytics perspective. Could you outline how you got into taking an interest in the Windrush—I have a feeling it is very close to your garden—and what you did about capturing and analysing data?

Professor Hammond: Yes, the River Windrush is about 20 metres from my feet because it runs under the building that I am in now, which is a converted mill. My garden is an island, which the Windrush split into two around. I have observed it very closely for 18 years and I have watched its decline. I have also watched the decline of sister rivers in the same area. That sparked my interest.

When I heard that raw sewage went into the river I was, like many people, very shocked. I did not realise this happened. I started to

investigate the permits that the Environment Agency give to the water companies to give them permission to spill the sewage at various times.

What struck me as unacceptable were two things. The permits typically say, for instance, that raw sewage can be spilled, provided it is due to rainfall or snowmelt, and that when the spill happens the sewage works must carry on treating sewage at a minimum rate. That is specified in the permit.

Both of these have loopholes. The rainfall amount is not specified. When you hear water companies and the agency trying to justify spills to the media and to the public, you hear people use the phrase "heavy rainfall and storms," but the permit does not specify a trigger amount or anything like that. That is the first loophole.

Secondly, the further I have investigated by getting data through environmental information regulations from the water companies, I found that many of them do not continue to treat at the minimum rate when they are spilling. Many such illegal spills are not identified by the Environment Agency.

If you saw the recent *Panorama* programme, there were many examples in sewage treatment works for every company where this particular condition had been breached, and breached on many occasions. There was something like 60 sewage treatment works covered between the *Panorama* team and myself, and half of them were guilty of breaching that particular condition of the permit.

More recently, I have been analysing a lot more sewage treatment works and I am finding that similar breaches are occurring in almost every works that I look at. In terms of the agency finding such breaches, I put an EIR request to them to say, "How many times have you prosecuted such breaches?" and in the last 10 years they said 174. In just 2020, between myself and the *Panorama* programme, we found 160. I believe it is an order of magnitude greater. There are at least 10 times more such breaches of that aspect of permits than the agency has identified and prosecuted.

Q71 **Chair:** We have one example in our brief from the work that you have done looking at Stanton Harcourt, which I think is reasonably near to where you live, where it looks as though there has been an almost continuous breach of permit for the period from mid-October until the end of March this year.

Professor Hammond: Yes.

Chair: Are you able to explain—and maybe Pete Lloyd can in a moment—why you are able to identify breaches of permit whereas the Environment Agency does not seem able to, or if it does it does not do anything about it?

Professor Hammond: The agency has lost considerable staffing and funding over recent years, so I would assume that one reason is that it does not have the people power to do it. It perhaps also does not have the computational expertise that I have. I have developed these techniques, so if you give me the data I can tell you in 10 minutes whether such breaches are occurring on an existing works.

The one you mention is a small rural works where for six months, that is six months without a break, it was spilling and breaking its permit. That is totally unacceptable. The little brook that it spills into, which then joins the Thames, has a poor rating from the Environment Agency in terms of its ecological status. I believe that six-month spill has completely wiped out the fish population in the brook and probably damaged other parts of the ecology.

Q72 **Chair:** Have you shown this example or others like it to the EA, and have they shown an interest in your techniques to be able to understand the data they are collecting through the EDMs?

Professor Hammond: I have shown many examples to them. However, what typically happens is that they make a sign of being interested but then, if they pursue them further, when I ask, "Are you pursuing this?" I usually get a response that says, "That is in due process now. It is going to go to court and I can't say." Therefore, unfortunately, you do not really get the feedback.

That approach is using a simple method. More recently I have developed these machine-learning methods, which means we can look at the data retrospectively and detect spills. We have gone back as far as 10 years. In just two sewage treatment works in that 10 years we found 1,000 candidate spills, many of which breached these two conditions in their permit.

I have given the EA a Zoom seminar on how to apply these techniques, and I hope that may be something they will take up in the future. However, I think they need to recruit people who have more experience with big data analysis.

Q73 **Chair:** I can assure you that when we speak to them later in this inquiry we will be asking them what they have made of your data, and we will see what they say to us. Thank you very much.

I move on now to Pete Lloyd, who may be able to help us understand why it is that the EA's monitoring seems not to be able to pick up the true state of our rivers.

Pete Lloyd: I am not sure I can help on those specific examples. However, I would agree that one of the talents that is most lacking in the agency is the ability to understand and interpret data. It is a skill that seems not that difficult but is very seldom practised. People take numbers at face value and are very inexperienced in how to delve into data and really understand what is going on. Coupled with that, it takes a

little bit of knowledge and experience to find your way around a sewage works. I suspect that a lot of people are easily put off asking the right questions and do not quite know the best way to proceed.

As I say, if you do not have the background and experience, if you do not understand sewage treatment processes and you are not quite sure about what the data is showing, then it is all too easy to miss some of the obvious points.

Q74 **Chair:** The event duration monitors will have come in since you left the agency. They have been applied since 2016 onwards, I believe. Do you have a sense of whether they are providing more useful information to the EA and whether it should be in a better position to act on that information?

Pete Lloyd: It is a useful step. However, why have we not been monitoring the impact of these discharges on the river system? Even with the EDMs, we do not know what the real impact is. It is not as simple as just talking about the number of spills that have occurred, because it will all depend on the actual quantity that has been discharged—the EDMs do not give information on the actual flows and the quantity—and nor is it easy to predict the effect that any flow will have on any particular river. That is the whole point of monitoring.

Q75 **Chair:** Therefore the monitoring that the EA has traditionally done has been to monitor the outflows from sewage treatment works rather than monitoring the impact on the river systems of the spills that occur across the network?

Pete Lloyd: I think the problem is that the agency does monitor rivers and will monitor rivers downstream of sewage works, known problem areas, but will do it on a random basis. It will normally take one sample a month, say, but that sample will be taken randomly. The chances of that sample coinciding with a rainfall event are very slim. It might be a one-in-100 chance that any single sample will coincide with the sort of events that we need to know more about.

Chair: I see. I have monopolised you all for too long, more than my share. I apologise to members of the Committee for doing that because we have limited time this afternoon, and I could go on all day. I am going to hand over now to Jerome Mayhew to pursue the monitoring questions.

Q76 **Jerome Mayhew:** Mr Lloyd, we heard in your preamble that the Environment Agency does not actually measure for faecal content. I want to understand why that is.

Pete Lloyd: I probably have to go back in history, and the simple answer is that it has never done it.

The question is really that a lot of rivers have sewage effluent in them, and overflows from CSOs. A lot of rivers will fail any sort of standard for microbiological content. I suppose that has never been considered as

particularly relevant or a matter of concern, rather than the chemical understanding of the content of water.

Q77 **Jerome Mayhew:** Knowing what we know now about the content of faecal matter in our rivers, is it something that you think is important for the Environment Agency to measure as a matter of course?

Pete Lloyd: I think it is important in certain circumstances. However, I suspect the problem will be that the monitoring will show that all rivers have a certain amount of potential danger to public health if people immerse themselves in the water. The agency gets around that by saying that it would not recommend people bathe in rivers.

Q78 **Jerome Mayhew:** Given that answer, can you give an assessment on how effective you consider the current monitoring system to be? Does it give us a clear picture of pollution sources?

Pete Lloyd: No, I can only really comment on the chemical monitoring of rivers rather than the microbiology. As far as the chemical monitoring is concerned, it is absolutely dreadful. The whole of the chemical monitoring that is carried out by the agency is misleading, ineffective and just a complete waste of money. The reason is that, as I partially mentioned in answering the other question, the agency relies almost exclusively on taking random spot samples.

The science of river quality demonstrates, beyond any doubt whatsoever, that rivers are continually changing. The best example we have been dealing with at the moment is that, during wet weather, not only do you get overflows from sewers but you get discharges from urban runoff, which we know can be a great polluter, and discharges of agricultural runoff. The sewage treatment works themselves tend to deteriorate for short times during wet weather. We are not measuring that impact. We do not really know the true condition of the river and what the ecological consequences are of those wet-weather discharges.

Q79 **Jerome Mayhew:** What would you have to do to improve that measuring technique? Rather than having a monthly random during-daylight-hours measurement, what is practical and better?

Pete Lloyd: It is very simple. The answer is there and, ironically, the Environment Agency has been pioneering the use of continuous monitoring for many years. There is a specialist group within the Environment Agency that has developed superb equipment that is used on an ad hoc basis. The agency will not make use of it for formal national monitoring. It still relies on these random spot samples.

Continuous monitoring could be introduced almost straightaway. It is well developed; it does not need to be tested. I was using it and involved in it 20 years ago.

Q80 **Jerome Mayhew:** What is the explanation, in your view? Why is it that the Environment Agency is not introducing this monitoring?

Pete Lloyd: I am not sure I can answer that question. I do not know why. I suspect it is something to do with the status quo, people do not like changing. I think it is certainly something to do with the Environment Agency senior management probably being afraid of admitting they have been doing things badly for the last 20 years and are afraid of admitting mistakes.

I have sometimes heard people dismiss continuous monitoring and say it is too expensive. However, it is not. It is very cost effective. It has to be used properly. Sometimes you can use it in small doses. If there is a particular problem that you want to investigate, you can find out more from continuous monitoring in two weeks than you would probably find in many, many years of random sampling. You can then investigate problems, sort things out and move on.

Jerome Mayhew: That is fascinating.

Pete Lloyd: It is certainly not expensive in the terms of cost-benefit.

Q81 **Jerome Mayhew:** Thank you very much, Mr Lloyd.

Professor Hammond, you heard the evidence just a moment ago. We have event duration monitors being implemented or installed. Is that the answer? How do you think the data we are getting from event duration monitors stacks up compared to the continuous monitoring we have just been hearing about?

Professor Hammond: EDMs are a start. However, the way the data is published, for instance, is just to tell you for how many hours the spills have been taking place. Unless you specifically ask the water companies "When did these spills start and stop?" you do not find out these lengthy periods that they happen for. Typically water companies will say, "Such spills don't happen very often, they don't last very long and they go into a river that is swollen so they are diluted." However, if you get the detail, you can see that sometimes the spills are lasting days or months and, as you heard earlier, as long as six months.

Moreover, just knowing when the spills happen is not enough. As Pete Lloyd just hinted at, you need to know how much is going in. Let me give you an example. Mogden sewage treatment works in west London, right next to the Twickenham rugby ground, is the only sewage treatment works I know that has a volume meter where they publish the data, so you can go online to see how much is going into the River Thames. Five years ago they spilled 0.5 billion litres of untreated sewage. That has steadily increased over the last five years, and last year it was 3.5 billion litres. On each of two days in October last year they spilled 1 billion litres-plus, which is the equivalent of 400 Olympic-sized swimming pools of sewage each day. That is 16 Olympic swimming pools an hour for two days. That really is unacceptable.

You can see EDMs are a start. However, from a scientific point of view, how can we quantify the effect on the ecology of rivers without knowing

how much is going in? In some cases, in some works, it may be dribbling out, nothing, but because we do not have a volume meter we just do not know.

Q82 **Jerome Mayhew:** It is a truly shocking and remarkable situation that you are describing. You have developed, as you have already mentioned, machine learning as a way of making sense of the volume of data that is coming out of these monitoring systems. Has the Environment Agency expressed any interest in adopting your schemes for getting best value from these datasets? Is it showing signs of progress in this?

Professor Hammond: As I said, they did ask me to give a Zoom seminar to some of their staff. They are genuinely interested, I think. However, I have been doing this kind of thing for more than 20 years, so they will need to take on board trained individuals who can set to immediately on the data.

Of course, machine learning, as some of you may know from its use in face recognition in security, is very hungry on data. You need a lot of data to train these algorithms to recognise the patterns you are interested in, like the sewage spills, so you need easy access to the data. When I have been trying to get access to the data, it has been very difficult. The companies are often very reluctant to give me access to this data. Therefore another part of the solution is to force them to publish online all of this EDM data, all of their flow data, so anybody like me or the agency can just go online, download it and then push it through these very clever algorithms so you can do some real detection. That is what we did in our paper.

I would suggest they could do this at least weekly. A lot of this data is generated electronically and is sent by telemetry from each individual sewage works to some central location. That could easily be uploaded to some site, maybe even with password protection. I do not know who you would give access, it should really be the general public. After all, the 2004 Environmental Information Regulations obliged water companies to start publishing their data electronically 17 years ago, and it is only just happening.

Q83 **Jerome Mayhew:** You might wonder whether they might be interested in understanding this information themselves.

Professor Hammond: There is some evidence that they are getting interested in artificial intelligence They have been applying it, I think, in investigating and projecting the failure of some of their sewage pumping stations. I know Thames Water, for instance, has been working with IBM on that.

Most of the companies have not been publishing, but I would say that Wessex Water, in particular, has made a big effort. If you wanted a horseracing analogy, it is like Red Rum racing against a load of donkeys—the rest of them really are way behind. For one or two of them I would

even use the analogy of a velociraptor, because they are fleet of foot, but they very quickly find ways to block your request for information and to slow it down. Sometimes it takes three months to get data when they are supposed to provide it within 20 working days.

Q84 **Jerome Mayhew:** I need to pass back to the Chair but, before I do, one brief explanation, please. In the data, which you demonstrated so ably on the *Panorama* programme, you showed that during spill events on most occasions sewage treatment plants were not treating to the minimum level they are required to. My question is: why? Is there a connection between a spill event and reducing your treatment levels? Why would they not carry on treating?

Professor Hammond: That is a question you must put to the water companies themselves. Why would they not do it? For instance, it may be that they can more easily satisfy the conditions on the effluent testing. They might be lightening the load of what is going through the treatment process. I think really that is a question you need to put to the water companies.

Jerome Mayhew: That is a tantalising way to leave it, but I hope that one of my colleagues will pick it up later in the session.

Q85 **Caroline Lucas:** Yes, it is a shocking, shocking picture of an industry that seems, frankly, out of control.

Professor Malby, I apologise for asking this because what you have already told me, in a sense, tells me it is not working. How well are regulators fulfilling their responsibilities in terms of setting standards, monitoring compliance and enforcing permits to discharge pollutants?

Professor Malby: We have felt summarily let down at every level, both as consumers and as taxpayers. Trying to get the agencies to understand that, as a taxpayer, they are all on my payroll was a considerable challenge. They are accountable to the public, and certainly it did not feel like that. To Yorkshire Water at the time, "We are consumers and we pay for this. We pay for your salaries. We pay for our sewage to be treated. We had no idea you weren't doing it."

There is a sort of conflation at the top of the system of, I suppose, undermining the value of the public as the payers because there is not a clear intent for the future of the system. Because we do everything in five-year cycles, everything is a bit short term. Everybody is just saying, "There is just this much money, we can't possibly do it." It is all a "can't do" rather than a "can do". It is just getting the attention of the agencies. It took about a year to get in front of the chief executive of the Environment Agency to share the data. It was very, very hard.

What we found was that, all the way through, there are all the things in place that you need. I know, Philip, you have a lovely private Member's Bill, but the reality is that there is legislation in place now to stop this happening. The Urban Waste Water Treatment Directive is in our national

legislation now post-Brexit. We were not complying with it as a country in 2012.

It is not just the regulators' fault. The context was that the Government were not pursuing the legislation that was available to them to clean up rivers either. At every level we had a failure to the public of our natural resource. When you look at the attitudes across the whole, the Environment Agency was saying, "We're passing the buck. When is a pollution incident a pollution incident? Our consent level was set far too low." It was in the Environment Agency's power to lift it. There is legislation under the guidance to alter companies' permits for storm overflows that meant, in the conditions we were experiencing, they could raise it. They did not because, "It's difficult here. It's really, really difficult." Why is it difficult? Because the solution is de-combining.

What we are seeing is lots of data about the problem. The problem is horrendous. At one level we know what the problem is now. Solution finding needs to happen. Now we are back into doing masses more understanding of the problem, and I still do not see any solution finding, because the solution finding is de-combining.

Rainwater, as a resource, needs to be used much more productively in households, and then it needs to go straight into rivers, and sewage needs to be taken away and treated in sewage works. From my simple perspective that is the solution, and I am struggling to get people's attention on that solution. There is lots and lots of, "It's not illegal". "It is illegal." "It's not illegal." "It is illegal." "It is not illegal, Becky, because we're in the storm consent." "Why is the consent level so low?" "Because that's what SOF says it can be." "Why does it say that? What about the European Urban Waste Water Treatment Directive?" "We don't use that in this country." "Why don't we use that in this country?"

Culture is set at the top, Caroline. If you ask Ofwat, "Okay, the Environment Agency's not regulating it. What are you doing? You tell me how much of my bills are being used to maintain a decent sewerage system in Ilkley?" They just said, "They are supposed to do a good job and they are supposed to put enough assets aside to maintain it, and we check they've put enough assets aside." I said, "How much is enough for Ilkley? Because now they're telling me that, if we're going to de-combine it, the public's got to pay. How come we've got to pay? We paid. We've definitely paid. Someone is sitting on a yacht in Cannes on the back of my money that I've paid because they've taken their dividends." You have a system where it is not, in some ways, the company's entire fault because their job is to serve their stakeholders. Their job is to pay dividends out to their shareholders. Their job is to do that. They have this data. They know what is going on, but they have never been asked.

In the Environment Agency, no one has really been that bothered about rivers and the environment. They have been bothered about flooding. Ofwat, I do not know what they think. They are regulating around prices,

but they are trying to keep prices low so they do not want them to spend money on a hugely—

Caroline Lucas: Can I just stop you? I am sorry, I am going to stop you because there is so much more that we have to cover, but that was a beautifully eloquent answer. Thank you so much. If we ever needed a little encapsulation of a fragmented system that is designed to fail both the environment and the people, I think you have just described it, so thank you very much.

Professor Malby: You are welcome.

Q86 **Caroline Lucas:** Professor Hammond, water companies are supposed to self-report to the Environment Agency, as you know, any breaches of their permit. Your analysis suggests that, as you have said, many of those breaches go unreported.

Could you say again, I think you might have touched on it before, what the response was from the water companies and the Environment Agency on that specific issue of unreported breaches?

Professor Hammond: As I said, I have had great difficulty in getting such information from the water industry. They obfuscate and often provide me with incomplete, inconsistent and incorrect data. It is difficult to know whether that is deliberate, but you will find some sewage companies, for instance, will provide you with data where the dates are sometimes text, sometimes proper date numbers, sometimes they use an American system of month/day and sometimes they use the British system of day/month. The whole process, I feel, is designed to delay and obfuscate any detailed analysis.

Q87 **Caroline Lucas:** That is helpful, thank you.

Peter Lloyd, again, you have answered much of this, but it is about the monitoring of sewage works by the Environment Agency. Is it adequate? To the extent it is not, is it a question of the rules or is it a question of resources?

Pete Lloyd: I do not think it is anything in connection with either of those. It is certainly not a resource issue, because monitoring can be done properly and, at the moment, the Environment Agency is squandering all its money.

Q88 **Caroline Lucas:** It has had its budget cut by about a third, has it not, in the last 10 years?

Pete Lloyd: Yes, but the point is that it is still necessary to make best use of the money that is available. The money that is available is not being used well. Sewage works are a very good example. It is well known that in many sewage works the effluent quality is worse out of hours, during the evening and overnight, yet the Environment Agency's method of monitoring is random samples during working hours. They will never tell you the true quality of the effluent.

We also have the wet weather problem, which I mentioned before. If you do not sample during wet weather, you will never know what happens. Many sewage works struggle during wet weather, and this is part of the problem with the overflows.

The monitoring is telling us that most of the things are probably okay when they are not.

Q89 **Caroline Lucas:** Is self-monitoring itself the problem? Do you think self-monitoring by water companies is fit for purpose?

Pete Lloyd: It is a dangerous thing to have. The agency does not seem to have any proper method of auditing the sewage works and the results they obtain from the self-monitoring.

It is still a question of this concept of random sampling. The monitoring and the sampling should be targeted to the conditions when we know that the works is struggling, otherwise we will never find out what is really happening.

Q90 **Caroline Lucas:** Thank you. A final question to all of you. What are the key steps you would like to see the regulator and companies taking in order to achieve greater transparency?

Professor Hammond: I would go back to what I said about publishing data. It is crucial to any future monitoring of what the water companies are doing about spilling or even treating the effluent that they produce. Publishing the data is very important.

The other thing I mentioned was the volumetric metering. We need to know much more about not just when it happens but how much is going in, so we can study what the effects are on the rivers.

Professor Malby: Three things. Longer-term planning: this short-term stuff, just fixing things that fail, is hopeless. There has to be a longer-term view about what we want and how we are going to get there.

We have to use the legislation that currently exists. We do not need loads more legislation, just properly do it, which for us means that our consent limit would be raised. It would mean that, with 8 millimetres of rain, we would not be getting sewage in the river.

The third thing is that there has to be clarity about what water companies are supposed to do, and then hold them properly to account. It is too vague. There is too much nuance. Everything is open to interpretation, and it is interpreted very differently by the middle of these organisations than it is by the tops of these organisations. There is no commonality of understanding across the three.

Q91 **Caroline Lucas:** When you hear, for example, that the CEO of Southern Water earns £1 million a year, do you think there is a more fundamental problem when you have profit built into the system?

Professor Malby: If you are going to have a monopoly, you have to treat it like a monopoly. You have to have very clear boundaries, you have to use legislation, you have to hold people properly to account and you have to prosecute. We are not doing any of that. I can understand why. Part of it is because of what Peter was saying about the difficulty with the data. At the moment, we have so underspent on the sewage system, I can't imagine why anybody thinks they can make any money out of this. It is ridiculous.

Pete Lloyd: I think it is essential that we have continuous monitoring at sewage treatment works. It is ironic that a lot of water companies are being very responsible, installing continuous monitoring for their own purposes, but the Environment Agency is still allowing random spot samples. We need continuous monitoring. It does not have to be expensive. It would tell us exactly what is happening, and then we can take action where necessary.

Chair: I suspect the next set of questions will be focused on Yorkshire, because they are from Robert Goodwill.

Q92 **Mr Robert Goodwill:** Indeed, I would like to ask Professor Malby some further questions. Thank you very much for the way you have introduced the problem and how you have raised awareness. It was a big surprise to me. As you can probably see from the constituency map behind me, most of the sewage outfalls in my constituency used to go straight into the North Sea, but because we monitor bathing water quality in the sea, Yorkshire Water spent shedloads of money on a new treatment works. When that could not cope with storm flows, they put a massive tank right on the sea front, enough to get 20 double deckers in, and even that has not addressed the problem. It seems from what you have been saying that the rivers have not been treated in the same way.

First, how have you managed to attribute the pollution you have found in the rivers to either Yorkshire Water assets, to private septic tanks, to livestock and agricultural pollution, or diffuse wildlife pollution? How can you pin it on the water companies?

Professor Malby: You will see in the paper. We have given you a little summary. We could certainly send you more about it. This is a collaboration called iWharfe between the Environment Agency, Yorkshire Water, ourselves and the Yorkshire Dales Rivers Trust. We have been testing all the way up the whole length of the Wharfe, from source to end. We also did some immediate work on our area, upstream, and we looked at tributaries. The Wharfe is a very fast-flowing river. It goes up and down very quickly. What happens is that there is stuff in the tributaries. There are unmonitored septic tanks, for sure. There is some E. coli in livestock. But when we looked at it, it was dissipated very quickly from the tributaries. From our data—it is not massive, but we have been doing some spot checks—you can attribute it to the CSOs. When we see a spike at Ilkley at 8 millimetres of rain, which is the point at which our so-called bathing status area upstream of the sewage works

becomes unsafe for people to picnic, paddle or play in, that is attributed to sewage.

Q93 **Mr Robert Goodwill:** I was very surprised that you had pollution incidents when the rainfall was low. I don't know whether you have done any assessment of the housing in Ilkley and how many are putting their roof water and their drive water into the same sewer, and how many possibly more recent properties have a separate soakaway for their roof water. I know we are very keen to blame this all on Yorkshire Water, but you pay your water bill for the water they pump into your house and then you pay a sewage rate on the proportion of that that will go down the sewer, but nobody pays for the rainwater. To what extent have you analysed what more could be done about the housing stock? Or would this be an even bigger problem than the Grenfell insulation issue, if we made householders pay to put in a separate top water system as well as sewage?

Professor Malby: You are right to point to the public needing to play a part, for sure. However, one of the pieces of data that we have asked Yorkshire Water for—and they are collaborating with us on how we can have more open source data—is about the constituency of the storm overflow, so how much of it is coming from people's houses, how much is groundwater. We have the lovely Ilkley Moor here. A lot of this is to do with climate change—a lot of this is about dryness, then rain, then water runs off—but the major culprit is the combined sewerage system. You cannot get away from it. If everything is going into the same place and all of that is going to the sewage treatment works, we cannot possibly treat it all, especially if you get these changing weather patterns.

Obviously housing contributes, climate change contributes, population growth contributes. All these things contribute. We are absolutely rubbish at sustainable urban development. We don't do anywhere near enough about ensuring that the stuff that comes off our roofs goes into our gardens. We tarmac. There is all of that. Absolutely, you are right. There is all of that, and it is all contributory. My worry is that we are going to get very diverted by the 101 little things we could do. You are right that we should be doing all those things, but there are some fundamental issues here about combined sewage overflows that need to be addressed. We have to start with those, while we try to engender some public responsibility about what they put down the loos and how, in building developments, they handle runoff. But of course, as you know, the water industry does not really have a say in how buildings are developed so it is quite hard for them. It is in the hands of local councils. As Caroline was saying, we have a very fragmented system. The responsibility for this is so distributed.

Q94 **Mr Robert Goodwill:** One of the measurements that the Environment Agency takes when they are looking at bathing water in the sea is how many people they observe on the beach and how many people are on the sea. That becomes a factor in the cost-benefit analysis. How many people

are swimming in the River Wharfe? Just looking at it purely from a cost-benefit analysis perspective, if we are going to have to spend several million pounds on a stretch of river where maybe only a few dozen people swim regularly, is that a factor that needs to be taken into account? Or is it fundamentally about how clean the rivers are, regardless of the number of people who swim in them or use canoes or whatever?

Professor Malby: We have not done this for people. It is a factor that, on a sunny day, the great British public packs its picnic, its bottles of wine and beer and heads off to the river. It is a free thing for people to do. We all own the river. This is a public resource and people are able to completely mess it up. It has an environmental impact. We are not doing this just to allow a few open-water swimmers to have a nice time and put their heads in the water. We are doing this because it has a very deep environmental impact on our rivers. It is killing our rivers. It has an impact on fish and wildlife. You only have to look at the *Panorama* programme. There is fungus at the outsource.

We found a way into this through bathing status. It is not because we predicate that open-water swimmers are the most important thing; we don't. I think kids paddling in the river are an important part of a river's ecosystem. We have to pay attention to all these factors. When you look at what we applied for—on a sunny day in Ilkley, on the very hot days, there are over 1,000 people down there. That is a lot of people, a lot of people whose health is being put at risk without them knowing.

Part of the issue is that they just don't know. There are no signs up. We know, and everybody knows, how polluted that river is, but there is nothing publicly available. The signage that is going to go up for bathing status will tell them, for some areas, but we are already hitting blocks on the bits around the sewage works where they just want to put a sign up saying, "Don't swim," because it is not designated.

This is back to the rules and regulations. We applied for a stretch of Ilkley, which is a one-mile stretch of the river. The locals use downstream of the sewage works; the tourists tend to use upstream. The upstream bit is easier and cleaner because, on dry days, it is okay, so the Environment Agency has picked that bit to test. They are saying that we are only designated at the point at which they test. We had to give the geographical location of the bit we were applying for, and Defra said to us that we have been awarded designation. We assume and understand that it is for everything we applied for, because it did not say just for the 1 millimetre around the testing bit, which happens to be the nice bit of the river. What about all the bits that other people are using? So we said, "Why aren't you testing down there as well?" "We can't afford to." How much does it cost to run one more test, a lab test, two minutes down the road? You just walk there and put your feet in. It does not cost very much. There is much obfuscation around whether we really want to know, whether we really want to clean these rivers up, and whether we

are really interested in our ecological environment. That is the point of bathing status, to improve the environment.

Q95 **Mr Robert Goodwill:** I am very pleased to hear you say that. I was playing devil's advocate a little in my question.

I have to say that there is one beach in my constituency where the pollution is diffuse and, the way the harbour is, stuff gets trapped in there. They have delisted that beach because they were worried about the negative publicity of having to put signs up, saying don't go in the sea, when it is not a bathing beach at all.

Professor Malby: You cannot have people picnicking there without knowing. It is just not right. We all know, and how come we are not allowing people? We won't go. Yorkshire Water and the Environment Agency aren't down there with their picnic. It is some local person with their kids. There is something about public accountability here. It has taken us two years, and we still have not agreed wording for signage that properly informs the public. It is disgraceful. There has been complete reliance on everybody going to the seaside to have a nice time rather than the rivers. I am really glad that the public's usage of the river is a way off getting into the fact they are such a valuable resource for this country.

Q96 **Mr Robert Goodwill:** I certainly would not want to dissuade them from going to Scarborough or Whitby, even from posh places like Ilkley.

What advice would you give to other river users, other communities, to make themselves and their communities aware of the problem? It sounds like you pretty much have a formula. You have learned the hard way. Do you think it will now be easier for others to do the same thing?

Professor Malby: I think the problem is very public. I think you have to hold people to account. We all have full-time jobs and this has become another full-time job, an unpaid job, basically doing everybody else's job for them. On the whole, I think that town councils and local authorities need to start holding their local agencies properly to account for the work that is going on. We run seminars and support loads of other people to apply for bathing status. You basically have to count the people who turn up, and a lot of people use the river. It is quite surprising how many do. When you take lovely photos, you will see, and it is great that they do.

Q97 **Helen Hayes:** We heard evidence in our first oral evidence session about the appalling impact of plastic pollution on wildlife. Professor Hammond, you have observed a decline in the numbers and diversity of wildlife in the River Windrush over 18 years. Have you observed changes in the levels of plastic pollution over the same time period, and what is the current situation?

Professor Hammond: That is not my area. I have been looking at the sewage works, whether they are declaring what they are doing and whether it has been illegal. I have not been monitoring.

I am not an expert in this area, but there is evidence, for instance, that the content of sewage going into rivers is affecting reproductive systems. I don't know whether that includes plastic pollution. It may do. There is no doubt, for example, about the poor old otter. The baculum, the penis bone of the otter, is shrinking. The shrimps have a reduction in their sperm counts. That is the freshwater shrimps, as well as the sea shrimps. The dolphins have shrinking testes. Reproductive systems are being affected by what is in rivers and what is in the sea. That could prove to be from plastic pollution, but we do not know.

Q98 **Helen Hayes:** Professor Malby, again, your focus has very much been on sewage discharge into the river in Ilkley. Do you have experience of plastic pollution? Is that something you have observed as part of your work, and is it impacting on the users of the river in Ilkley?

Professor Malby: I have become a licensed sewage works visitor as part of this whole experience, which I never thought would be one of my CV requirements. When you go there what you see, of course, is the amount of stuff that gets caught on the grilles, and those are the things we put down our loos.

Back to holding people to account, there is an increase in things like wet wipes that people are flushing down the loos. First, you should not be flushing them down the loos. Secondly, I do not know whether the wet-wipe industry is paying for the clean-up of sewage but it jolly well ought to be because it is making profits on the back of polluting our rivers and causing phenomenal problems at sewage plants. I am no expert, but from an amateur's eye you can see the direct impact of some of that. Certainly those companies should be making a contribution, at minimum.

Q99 **Helen Hayes:** My final question is to all three witnesses and is staying with the theme of wet wipes. We all saw in the *Panorama* programme the revolting reef of wet wipes in the River Thames. Do you think that a polluter-pays approach is the right approach, or do you think there is a case to be made for an outright ban on plastic wet wipes?

Professor Malby: We all know that our behaviour can be phenomenally modified by how things are arranged around us. If I did not have recycling bins at the end of my street, I would not be recycling at the level I do. The way we have managed smoking in this country as a major contributor to our health has been to ban smoking in public places. There are definitely times when that is called for.

However, I do not think we should use it as an excuse not to make sewage treatment works do their absolute utmost on things like UV stripping and phosphate stripping so that our treated sewage is properly treated before it goes into the river.

Pete Lloyd: I do not think it is really my subject. However, I would like to mention the monitoring aspect of all this, whether we are talking about plastics, dangerous chemicals or whatever. We need to have information

about the sources of these and how we can control them. In order to devise the best schemes for improvement and to understand what is really happening, we must have proper, effective monitoring. This does not involve just taking random spot samples. Microplastics tend to get disturbed by higher river floods, so you will pick up more microplastics under high-flow conditions. If we are not sampling at high-flow conditions, we will not be picking up these things.

Professor Hammond: Going back to what you said about polluter pays, if we had volumetric measures on what is coming out we could be fining and we could move away, perhaps, from the adversarial criminal prosecution. We could be fining by the litre spilled, which would make a very big contribution to the cost of improving the situation.

It is perhaps not so much the wet wipes themselves; it may be what is on the wet wipes. For instance, if you use wet wipes to clean your kitchen, you are using cleaning products that have surfactants in them. Those surfactants then get into the sewerage system and, for instance, they damage fish's lungs, the mucous membrane can no longer function properly so they do not get oxygen. It is not just the actual presence of the wipes, it is what is on them.

Q100 **Chair:** Just before we conclude this panel, I would like to ask Peter Hammond whether there is anything you would like to point the Committee towards in relation to data monitoring from the work that you have been doing with WASP and looking at real-time monitoring of a much wider range of criteria, both chemical and biological, than is available through the monitoring of the EA and its mechanisms, and certainly the EDMs.

Professor Hammond: Pete Lloyd mentioned these multi-parameter sonde devices that you can put in rivers, which do multi-parameter monitoring. They could be useful in the future. In fact, you could use artificial intelligence techniques to analyse and link the data from those monitors with what is coming out of the sewage treatment works. Then maybe at some point you would just use the sondes themselves to detect what is happening at the sewage treatment works. If you can learn the pattern of effect in the river with what is coming into the river, maybe you do not even need the EDM data, you can actually look at the results from the monitoring devices.

However, even they do not address a very important issue that we have not mentioned, which is antimicrobial resistance. If you think about what is going into the sewage treatment works—all the drugs and the bugs that we have are going in, all the effluent from hospitals, the chemotherapeutic drugs and all these chemicals from cleaning products—it forms a kind of soup that is very good for encouraging genetic mutations in the bugs, which helps them resist the effect of the antimicrobials we have now. The prediction is that in 10 years' time there may be as many as 50 million people dying every year from conditions

that we now have drugs to control. Should they gain resistance to the drugs we have, we are going to be in trouble.

Chair: That is a very sombre note on which to end this session. I would like to thank Professor Peter Hammond, Professor Becky Malby and Pete Lloyd for your evidence, both written and this very interesting session. Thank you very much indeed.

Examination of Witnesses

Witnesses: Ben Seal, Feargal Sharkey and Jane Nickerson.

Q101 **Chair:** Now we are going to move straight over to our second panel where we have representatives of river users and campaigners to clean up our rivers. I will introduce each of the panellists and ask them to say a few words about their role and the reason they have wanted to give evidence to us today, and then I will hand over to Cherilyn Mackrory to ask the first set of questions.

First of all, I would like to welcome Feargal Sharkey, who is the Angling Trust ambassador and a noted campaigner for improvement of river quality. Feargal, welcome.

Feargal Sharkey: Thank you, Chair. Can I say thank you, to you and the Committee, for the invitation and the opportunity?

I quickly want to express my utter applause and admiration to Professor Malby, Karen Shackleton and all those involved in the Ilkley clean river campaign. It is a tour de force and an example for all the rest of us.

If I could clarify, Chair, I am very much here in a private capacity as chairman of the Amwell Magna Fishery. We own two and a half miles of the fishing rights and two and a half miles of the River Lea in Hertfordshire.

My involvement began, very much like Becky's, by simply approaching the Environment Agency and asking what I thought was a very innocent and very straightforward question. That was some five years ago, and I am still here working on the answer.

Chair: What was the question?

Feargal Sharkey: Where has our water gone? What little water we have, why does it smell on occasion?

Chair: You are still waiting for the answer. Thank you. Hopefully you will have some answers shortly.

Secondly, Jane Nickerson, the chief executive of Swim England. Welcome, Jane.

Jane Nickerson: Thank you very much, and thank you for the opportunity.

I am CEO of Swim England, which is the national governing body for all swimming disciplines in this country. Our mission is to ensure that swimming, indoor and out, is available to everyone. It is one of the most popular activities, 14 million adults swim every year, and 1 million children go through our learn-to-swim programme every single year. In 2017-18, the last data we have, we know 2.1 million people swam outdoors, which does not include the people Becky talked about who just go to paddle, play and have a picnic around and in the river. These are the people who actually go swimming, totally immersed in rivers, lakes and the sea. We are expecting that number to be hugely increased when we get the next Active Life survey in the next couple of weeks. We know that last summer a lot more people went swimming outdoors. My concern is that we are trying to get everybody swimming, we are trying to get them swimming outdoors because it is a really great activity, but is it safe to do so?

Chair: Thank you very much, Jane. We are also joined by Ben Seal from British Canoeing. Ben, welcome.

Ben Seal: Good afternoon, everybody. Thanks ever so much for having me here to give evidence on behalf of British Canoeing. I am the Places to Paddle manager, and my responsibility is to look after things to do with access and the environment. I also manage our Clear Access, Clear Waters campaign.

I was absolutely fascinated to listen to the evidence in the first session, and it was incredible and disturbing in many ways. I hope during the next hour I can bring some colour to the impact the pollution in our rivers is having on recreational users and, specifically, my field of paddle sports.

Chair: Thank you very much. We know a lot of members of your organisation are instrumental in doing some of the clean-up. We have seen some photographs and imagery of that in our brief.

Q102 **Cherilyn Mackrory:** I am very grateful to the Chair for letting me open panel two. Welcome to Feargal, Ben and Jane.

It is funny, I grew up in Robert Goodwill's constituency in Scarborough. We used to joke that our immune systems must be brilliant. We never get ill because we swam in the North Sea in the late 1970s. Listening to what we have just been hearing, this is not a funny subject.

I live in Cornwall now and we are very lucky that we have Surfers Against Sewage in my constituency. Not only that, I am married to a fisherman, a very keen angler, who has been fishing the Cornish rivers and the Cornish sea and teaching other people how to do it his whole life. In the 10 years I have been going with him to the rivers, we have seen a sharp decline in salmon and sea trout.

Feargal, as someone who also spends an awful lot of time fishing, can

you give an overview to the panel of the health of the rivers of the UK and what evidence you have seen of the impact of this pollution?

Feargal Sharkey: The topline figure—as we all now know—is, according to the last set of data released by the Environment Agency, there is not a single river in England in good overall environmental health, not one. That is normally measured using two criteria. One is the ecological condition of the rivers and, as we know, 86% of rivers do not meet good ecological condition. Every single river fails the chemical test. Every single river is polluted. That is a damning indictment on all of us as a nation and on the claims that we make of our interest and our desire to safeguard the environment.

As the Committee knows, I did a little exercise last week looking at the rivers within the constituencies of each of the members. There is not a single river in any of your constituencies in good overall environmental health. One of the main sources for the failure, according to the Environment Agency's data, is sewage discharge from the water industry and, predominately, elevated phosphate levels within those rivers.

Phosphate is a particularly pernicious chemical. It lasts long term. It does not run down a river into the sea after a heavy storm, it stays around. It elevates the nutrients in the river, which leads to algae growth. That algae in turn reduces the oxygen levels, which physically strangles anything in that river, including fish. Depletion of oxygen levels is one of the main sources of fish kills in this country. In effect—I am oversimplifying this slightly—it will turn your local river into a stagnant pond. As we know, there is not a single river in any of your constituencies that is not suffering from long-term phosphate poison.

Q103 **Cherilyn Mackrory:** I am grateful for your answer. Could you tell me a little more about the wild populations of trout, sea trout particularly, and salmon in the UK and how they are being affected? Anecdotally we can see they are declining, but I would be grateful to hear, from the work you have been doing over the last few years, what you have found.

Feargal Sharkey: The north Atlantic salmon, I think it is fair to say, are on the cusp of the endangered species list. They are in desperate need of our protection. There have been any number of strategies over decades trying to ensure their safe passage in and out of the rivers in England.

To give you an example, one of the heaviest polluters of sewage into rivers is United Utilities. Last year it managed a staggering 700,000 hours' worth of sewage being dumped into rivers in its service area. That includes the River Ribble and the River Calder, two of the last remaining salmon rivers on the west coast of England. Here you have an endangered species in one of its few remaining refuges, and we are spending hundreds of thousands of hours per year dumping sewage into those environments.

To give you a very specific example, it relates to a Committee member, if you look at the River Avon catchment in Hampshire, not only is it made up of five chalk streams, some of the rarest habitats in the country, but it is also afforded designation as a special area of conservation, some of the highest legal protection we have in this nation. It has its own subspecies of salmon, unique to the southern chalk streams. Last year Wessex Water spent in the region of 26,916 hours dumping sewage into five of the rarest ecosystems on the planet, afforded the highest level of environmental legal protection we have and home to not only one of the rarest species in the north Atlantic but a subspecies of an endangered species that only finds refuge in the Hampshire Avon. All of that has happened on our watch, in our generation.

Q104 **Cherilyn Mackrory:** It is all highly depressing. Thank you so much for that.

Jane, again, outdoor swimming is something that we do an awful lot in Cornwall and, of course, it has spread throughout the UK during lockdown. Could you tell the panel a little more about why you are concerned, what outdoor swimmers should be concerned about, the risks of illness and what particular illnesses we are finding?

Jane Nickerson: The first point is that most people who go swimming in the water, in the open water, do not realise the risks they are taking. They talked a lot in the earlier session about constant monitoring and that sort of thing, but unless you are in that world you do not even think about it. You see a stretch of water, if you are a swimmer, and you go into it. Especially last year when swimming pools were closed because of lockdown, people who really wanted to swim went outside and found somewhere to swim, winter and summer. The time of year is irrelevant.

We know that swimming is an activity that makes you happier, from the research we have done. It makes you 4.3% happier, but swimming outdoors makes you 8.9% happier, so out in the open air, out in the freshness, out in nature. It would not make you that happy if you knew what you were swimming in. It really would not, and people do not know, and that is what worries me. We know that it causes mild and serious illnesses. It is difficult to prove. You go swimming, you get a funny tummy. Is that because you went swimming or is it something you ate, the Chinese you had the night before? It can always be referenced back to something else, but we know it does.

The issue about antibiotic resistance, the one Peter talked about earlier, is growing. We know that research has shown that a massive amount of antibiotic-resistant bacteria is found in surfers. If it is in surfers, it is going to be in swimmers because they are immersed all the time in water, constantly immersed in it.

We have to find a way through this. For me, this is not about monitoring and just saying, "Do not go in the water there. It is not clean. Do not go swimming outdoors because it is not clean." I cannot do that. I have to

find a way. We have to find remedies, short term and long term, to make sure that there are safe bathing areas and rivers that are safe places to go in and enjoy the water.

Q105 **Cherilyn Mackrory:** Surfers Against Sewage have said that poor water quality is now a public health issue. They have had some success in lobbying Members of Parliament in the past, and hopefully this is something we can help take forward.

Ben, what evidence have you had from your members about sewage pollution affecting the rivers that they are using?

Ben Seal: Paddlers have always been very conscious of the potential hazards posed by water in our rivers. Concern is increasing as more data and more publicity becomes available. People generally understand it is not wise to ingest river water in general, but given the nature of our sport, and swimming of course, it is sometimes unavoidable.

What we are starting to see is that people are beginning to change their behaviours, either by taking extra precautions through their own personal hygiene or by changing the way they enjoy the water. We saw a massive spike in activity during lockdown last year, and between May last year and last week we have risen from around 38,500 members to 68,000, which is fantastic. It is great to see participation growing, but what undermines that growth in participation is the perception that our rivers, the places we play, are not safe.

Turning to plastic pollution, it is quite a visual type of pollution. To some extent it is easier for paddlers to see and do something about, but it is very unknown as to what the harm of microplastics is on the body. Sewage pollution is something that is far more sinister, and there have always been anecdotal stories about the impact that poor water quality has on humans.

I wanted to share a few stories with the Committee, because in the last week I have heard from paddlers I have spoken to down on the River Leam who have stopped playing certain games with their youngsters because of their fear that the quality of the water is likely to make them poorly. I have heard from paddlers in Burton who train every morning in their race boats, but they are paddling among brown foam and solids. I have heard from paddlers on the Yorkshire Derwent who have become seriously ill, on a river that is supposed to be a SSSI.

I am a trustee of a local canoe club just 200 yards up the river, and I found out that it is one of the worst-performing CSOs on the network, some 8,000 hours of discharge just a couple of kilometres above the canoe club where I paddle with my children and where we have an active youth session. There are two rowing clubs, two canoe clubs, there are open water swimmers and there is a very busy park. That is quite a shocking reality.

I guess the other dimension is that one of the legendary things around Nottingham and the Trent is the "Trent belly" or the "Trent trots", as some people call it. The name might bring a smile to your face, but it is pretty bad and a lot of people do not paddle there. This is where our athletes are training today to go to Tokyo. They train on the flat water course there, the regatta lake, and we know that the course has been closed through time because of water quality issues. We know that with our freestyle world championships, one of the things that is of high concern on our risk register is water quality, because we know that the Trent can get pretty bad. It is deeply frustrating.

We accept that human health is being put at risk by the transmission of viruses. We do not know much about microplastics, but what we do know is that millions of people use our waterways to relax and unwind, and we would never in a million years accept this on our football pitches, our cricket pitches, our tennis courts or our footpaths, but we seem to be able to accept it is okay to tip raw sewage into the places where millions of people play. I personally find that quite frustrating, especially as it has an impact on where I paddle with my children. It is a real frustration for a lot of paddlers, and concern is growing.

Cherilyn Mackrory: Thank you, and thanks to all of you. I wish I could talk longer, but I know lots of members want to get in, so I will hand back to the Chair.

Q106 **Ian Levy:** Jane, could you expand a little on the increased popularity of wild swimming? What are the health benefits between wild swimming and swimming indoors? Before you answer, I would like to be honest with everybody on the panel that I cannot swim, and I am taking swimming lessons as soon as I can. I thought I would get that one out in the open before someone finds out.

Jane Nickerson: We can arrange those swimming lessons for you, Ian, and then you can enjoy the benefits of open water swimming.

We know that swimming is a fantastic activity for everyone. It is also good for people who have limited land mobility, because the water supports your bodyweight. Swimming itself saves the NHS and social care system over £357 million every single year by managing a number of health conditions. That is a proven figure. If we extrapolate that and take people outside, for some reason the great outdoors and wild swimming has an even greater impact on your mental health. That has been proven time and time again. There is something about swimming, whether it is cold water or warm water it is irrelevant. It is being out in nature, being out in the open, which makes you happier and seriously impacts your mental health.

Those are some of the real benefits of this, of getting people to swim outdoors. It was incredibly popular during lockdown, because you could not swim indoors anyway, so the pool swimmers ended up going

outdoors because it is almost addictive. If you are a swimmer and you are told to stop swimming, you have to find somewhere to go to swim.

Q107 **Ian Levy:** I can imagine, and hopefully once I get those swimming lessons under my belt I will be able to give it a try.

Ben, can you tell us a little about paddling? I know you do canoeing as well. In the Blyth Valley, off the Northumberland coast, we have a lot of people who kayak and paddleboard on the sea. Can you expand a little on the paddling side?

Ben Seal: I am sure that any member of the panel who has ever been paddling, canoeing, kayaking, rowing, sailing, angling or swimming, or if they have simply sat by the river, can attest to the amazing sense of peace that you get when you are close to the water. I am going to quote *Wind in the Willows*, because it resonates for me, "there is nothing—absolutely nothing—half so much worth doing as simply messing about in boats." Something that got me through lockdown was being able to go out in my boat and walk next to the river. I know millions of people said the same thing. Like I said, we had an incredible membership increase last year and people were telling us that the three top reasons for going paddling were to enjoy nature and the outdoors, because they just loved being near the water, and simply to relax and destress.

We have seen a massive increase in stand-up paddleboarders, which you mentioned. One of the witnesses on the previous panel mentioned that they got a stand-up paddleboard, and we have seen a 173% increase in stand-up paddleboard members. Some 40% of our members are now families, and we saw an increase of 7 percentage points in our total proportion of female members, which is fantastic.

The joy of paddle sports is that it combines the ability to be immersed in the environment with journeying and that sense of exploration. It does not have to be in a remote location. People have an image of kayaking on whitewater rivers, but I have spent a lot of time paddling in and around the canals of Birmingham. That sense of adventure is quite special even in an urban environment. It is low impact, it is good for your cardiovascular system.

There is a good reason why many of us travel to the seaside, a river or a lake on our holidays, and that is because water makes us happy. There is lots of research that goes into that. Water does make us happy, and it does not matter whether you are on a canal at a leisurely pace or going down a whitewater river. Water can be a real escape for people, and I think that is one of the reasons why we saw such a growth last year, because people wanted that escape. They wanted to go to a different place, and we saw so many people buy stand-up paddleboards and inflatable kayaks.

It is important to remember that we are an island nation. We are surrounded by water, but we are latticed with rivers, streams and canals

everywhere. Our towns and cities are built on waterways, if you think about our great cities. Water is so important to all of us, and what concerns us as a national sport governing body—and I know Jane with swimming and rowing and sailing—is the degradation of our environment. The thing that makes our sport so unique and so attractive stands to undermine all the hard work that has gone into encouraging more people to take to the water. That is why we are really concerned about the state of the water quality, and we think there needs to be a great improvement.

Q108 **Ian Levy:** Touching on the state of water quality, how are you going about informing your members of the risks of pollution? Are you using Facebook or social media? Do you have a traffic light system? Down at the beach we have red flags for when it is safe or not safe for people to swim or to go out into the sea.

Ben Seal: Traditionally it is very hard for us to be able to provide that information on water quality, because we have not had that information. We can provide general advice and guidance, and we do, around avoiding water ingestion and making sure you wash your hands, general hygiene-type things, but we have not had the ability to tell people information about where water quality is poor. That is one of the things we want to see changed. We need real-time data. We need to be able to present people with information that enables them to make good decisions. I use the analogy: I don't check the weather report from last year to see whether I want to go walking on the mountains tomorrow. I need the information now. That is why paddlers and water users are so disadvantaged, because we do not have that information to hand. We do not have that real-time data. That would be helpful, to help us make—

Q109 **Ian Levy:** Do you think monitoring and the provision of monitoring, the information, should be made mandatory?

Ben Seal: Yes, I do. The Secretary of State could act straightaway, this afternoon, to make that real-time information available. Make it compulsory for those water companies to work with us to make that data available, and in a format that is accessible to recreational users. That would be a small step forward in the very long journey that we have to take.

Jane Nickerson: I totally agree. My worry is that, if all we get agreement on is monitoring, all we are then doing is telling people not to go swimming, not to go paddling, not to do something, because the state of the rivers, the lakes and the sea at the moment means we have to put a red flag on everything to say, "Do not go," and that cannot be right. Constant monitoring is absolutely right, but we have to have implementation to put remedies in place very quickly, short term and long term, so at least we have some designated areas that we can point people to, and eventually the rivers are a safe place for people to go to. Monitoring alone is going to be completely worthless, in my view. It would just say, "Stop, don't go."

Feargal Sharkey: In terms of participation, according to the Environment Agency, sales of angling licences increased by 230% last year. That possibly gives you an indication of what people are prepared to pay for an angling licence to get out in the open and be next to our rivers.

As Professor Hammond touched on earlier, we are now all aware that water companies have had a statutory obligation to provide this information since 2004. That idea was examined and upheld by a High Court upper tribunal decision in 2015. As we now know, they have been collecting that data on their monitors. I am led to believe those monitors are all fitted with telemetry systems and that the water companies do actually have the data. In fact, there is nothing to stop them. In fact, the Information Commissioner actively suggests—and I am going to quote to you from their website—"Make environmental information available proactively, using easily accessible electronic means whenever possible."

We know the water companies have the data. They know they have a statutory obligation to proactively make it available. I can give you one example. You have to go no further than the Government website and look at the river-level data, which is updated in real time from the Environment Agency's own monitors in rivers in this country. There is nothing to stop the water companies passing that information to the EA and the Government. The technology is there. The systems already exist and there is no reason why that information should not be made available in real time within days, weeks, if not actually hours.

Q110 **Chair:** Thank you, Feargal. That is a very good segue into the questions I want to put, and that wasn't prearranged.

On the subject of data availability to the public, where we have coastal bathing water status, it already happens in some water company areas and is increasingly happening in others. I think Wessex is the first water company to make the information available in real time, that there may have been a spillage in a water system that might affect a beach where there will be coastal swimmers. People can go and see that, just as Ben checks the weather to see what it will be like when he goes paddling. He can check in coastal waters. Would you agree that there should be no reason why that cannot also apply to rivers, where the monitoring equipment is there?

Feargal Sharkey: Not only is there no reason, under the Environmental Information Regulations water companies have a statutory obligation to make it available. What I am suggesting is that the Environment Agency and the Government website already have all the backend, all the software and technology, to make it available in real time, in a very easily digestible, understandable format. Simply add the two things together.

Q111 **Chair:** Can we turn to the whole issue of regulation and the adequacy, or otherwise, of the regulators to monitor water quality? The Environment

Agency has the primary responsibility, and over the last six years we understand that it has brought 48 prosecutions against water companies, which led to fines of £35 million. I think that includes the Thames Water fine, which was about £20 million, so the average level of fines is going to be somewhere around the £750,000 mark for the others. Do you think that the Environment Agency does enough to bring breaches to the attention of the water companies and then prosecute?

Feargal Sharkey: Quite simply, I have reached the conclusion, somewhat sadly, that the Environment Agency, in terms of its regulatory functions with regards to conservation and the environment, has now simply failed and has become a discredited organisation.

As I said in my opening remarks, not one river in this country is in good overall environmental health. I am aware that, for example, there were 243 recorded breaches of the farming regulations over the last two to two and a half years. I am led to believe that there has not been a single prosecution or a single fine levied. As we know, water companies have spent over 3.1 million hours dumping sewage into this country's rivers, and we talk about a small, paltry handful of cases that have been brought. I remind the Committee that the water industry has paid out almost £60 billion in dividends to their shareholders while filling our rivers full of sewage.

Q112 **Chair:** I was going to come on to dividends in a moment. If I could just stick with the Environment Agency's role, it has this permitting system. We heard from our first panellists that many of the permits are breached but the Environment Agency—

Feargal Sharkey: Takes no action.

Chair: —either ignores the breach or allows them to breach, either because it does not know the data that is available and the water companies are pulling wool over its eyes, or it is choosing to ignore it. Are you aware whether the Environment Agency could fine water companies for breaches if it chose to do so?

Feargal Sharkey: It certainly can. My interpretation—perhaps some of the Committee are aware—is that the UK formally acknowledged that there was a breach of the Urban Waste Water Treatment Regulations in 2003. That went back and forth between Whitehall and Brussels in 2012, when the Commission took the UK to the European Court of Justice. The European Court of Justice was very clear in its ruling on this argument about heavy rain. It specifically did not uphold the UK's argument that this should be allowed to happen during periods of heavy rain. The Court ruled, in my interpretation, that there should be a prohibition on spillages into rivers save for exceptional circumstances.

I might argue that everybody knows what the case is and has known, certainly, since 2012. They have not acted on it. As you know, the former Minister for the Environment, Richard Benyon, wrote to the water companies in 2013 telling them that he wanted the vast majority of CSOs

to be fitted with monitors by 2020. This is 2021. We know where we are up to. We are nowhere near that number yet.

Behind it all you have things, by way of example, like the River Chess, where the Chess sewage plant has been continually discharging. I think last year it was for 35 days, one continuous discharge. That had nothing to do with heavy rain. It was ground water ingress into the sewage system overwhelming the system, and I am led to believe the Environment Agency acknowledges that is not permitted. It is illegal, and yet it has refused to intervene and take any action.

Q113 **Chair:** Why do you think the Environment Agency seeks to rely on the courts before it will levy fines on water companies for persistent breach?

Feargal Sharkey: I have simply reached the conclusion that it has neither the ambition, the willingness nor the desire to act as an effective regulator of the water industry. Bearing in mind, while we talk about water, the other big question in this is agriculture. That accounts for an equal amount, if not slightly more, of the pollution in our rivers. Between agriculture and the water industry, we are looking at 60% of all the pollution in rivers.

When you bring that into the equation, I struggle to understand what exactly it is the Environment Agency now does. It has simply become dysfunctional in actually taking action, investigating and inspecting the people it is trying to regulate.

Q114 **Chair:** You have given us some good food for thought for questions to put to the Environment Agency when it comes before us in this inquiry.

Can we turn to the other regulator for a moment? Ofwat regulates the prices that water companies can charge customers and the amount that they can invest in capital expenditure during their five-yearly pricing review periods. How effective do you think Ofwat is in allowing charges to be set, which allow the water companies to invest in water treatment?

Feargal Sharkey: It has clearly been ineffective. I will repeat again, we now know that water companies in 2020, on over 400,000 occasions, spent over 3.1 million hours dumping sewage into rivers. By my estimation, about half of all the available CSOs are not currently fitted with monitors. The true extent of the problem may be biblical in proportion.

From what I am told, Ofwat has made water companies sweat their assets to ensure that the minimum levels of investment will be made, so as to try to artificially, I would suggest, deflate the price of water charged to customers. That was more of a political decision, with a small 'p', about the potential impact on customers. Clearly, if Ofwat's ambition was to create what may look like the price of water in a competitive market, while controlling state-granted monopolies, it has clearly failed to do so.

I can only repeat the mantra: water companies have been authorised to pay out almost £60 billion in dividends to their shareholders, and clearly not enough of that was invested in infrastructure, maintenance and upgrading of those systems.

Q115 **Chair:** We have been told that about £140 billion has been spent on capital improvement by the water industry over a similar period to the one you are describing, and in the current five-year review I think £4.8 billion is being allowed to be spent by Ofwat on WINEP, the Water Industry National Environment Programme, so that is a little under £1 billion a year. Perhaps I should ask the same question to all this panel: do you think there is an appetite among consumers, the customers of the water companies, to accept that they may have to pay a little more to improve water treatment?

Feargal Sharkey: You may perhaps want to probe with some vigour the exact breakdown of that supposed £1 billion a year investment in infrastructure over the next five years or, indeed, the past levels of expenditure. Might I suggest, somewhat flippantly perhaps, if someone was making that scale of investment, they would have had a fairly bad return if they were still operating systems that mean they have to spend over 3.1million hours dumping sewage into the nearest river. It does not sound to me like a particularly efficient way of making or maintaining an investment.

In terms of the consumers, again, one of the issues here is the research that is done to certify and qualify customers' willingness to pay for increases. I think when you probe, Chair, people have been asked to make a blind decision without any context of what has been talked about or what has been discussed. That relates both to our chalk streams and to the amount of sewage going into rivers where, from my own experience—I have reason to believe some water companies have now tested this idea—when it is explained to focus groups that there is 10 times more coral reef on the planet than there are chalk streams, would people be prepared to see an increase in water bills to safeguard those rivers the answer is invariably yes. As you know, Chair, it always depends on the question you are asking and how you ask that question.

Ben Seal: Becky said something in the previous session, and her words were that we feel let down to some extent. We feel let down by the industry. Regardless of who is to blame, how did we ever get to a situation whereby people are telling us that we should not swim or paddle in the rivers? How did we get to that place? This is where our ancestors grew up swimming, hunting, fishing and travelling, but we are being warned away from the water. How did that happen? I feel quite let down by that. I do not think the EA is solely to blame; at the end of the day, there is a whole range of people, and us as consumers need to take responsibility for the things that we put down the toilet. It is frustrating.

On the matter of regulation, it feels like there is no incentive for the industry, at the moment, to be proactive on this agenda. Nobody seems

to want to be the cleanest or the most proactive, or to use this as something that they can hold up to show us they are the best. Everybody is trying to do the least, almost. In future, there has to be some responsibility on the likes of Ofwat to incentivise water companies to up their game. The EA has to be far stronger on punishing those who do not. On who pays, ultimately, the sad thing is that it is probably going to be the billpayers who are going to have to pay to fix this long overdue problem.

Jane Nickerson: There are a number of factors here. At the moment, around 50% of people do not even know that untreated sewage goes into the water. Once they are asked to pay, they would know why. If they were asked to pay more and they are educated on the reasons, there would need to be an awful lot of trust and confidence in what that was going to do and what difference it was going to make. Is that the only place that money can come from, or is there already money around in those water companies, who should be using it to make a difference? It is about what difference they make and how they do it, giving people the confidence that that money is being used wisely to make the difference and to clean up the water.

Q116 **Chair:** Feargal, you mentioned the point about dividends. Three of the water companies have suspended dividend payments in the last couple of years, I think. Do you think that is an appropriate response?

Feargal Sharkey: I would question some of that, Chair. One I saw in the newspaper the other day made a very carefully worded statement that they had not paid any dividends to external shareholders, which was the right and correct thing to say, because when I personally checked their accounts, I found that in 2019-20 Thames Water did indeed pay a £56.5 million dividend—that is their word, not mine—to an internal shareholder. Yet again we have more smoke and mirrors and subterfuge, none of it getting to the real cause and root of the problem. I would suggest there has been far too much of that going on over the last 30 years.

Q117 **Chair:** The Government have made some statements of intent over the last year or so. They have set up the Storm Overflows Taskforce to get advice on how to tackle this problem. They have made a commitment, following my private Member's Bill running out of time, to introduce some additional legislation. Do you feel that the Government are changing their tune on this issue? Do you trust them at this point?

Feargal Sharkey: When you take it that the announcement was to place a statutory obligation on water companies to publish CSO data once a year, I was somewhat puzzled. As we have already explored and confirmed, I have had the right as a citizen to have that data within 20 working days for the last 16 or 17 years. I am not too sure what Government were bringing to the party.

In terms of tabling a report before Parliament to highlight the data and progress with CSOs, there was I thinking that the likes of the BBC, *The Guardian*, the *FT*, Channel 4 News, ITV News and every national newspaper in the country were doing a rather fine job of exposing exactly the horrendous thing that has become the regulation of pollution of rivers in this country, primarily because of the water industry and agriculture. Again, I am not too sure what the Government want to bring to the party that we do not already have.

Q118 **Barry Gardiner:** Can I just say how fascinating and enjoyable I have found today's session, with the level of skill and expertise? Professor Malby, I see, is still with us. Whatever it is you are drinking in that mug of yours, please can we bottle it? The enthusiasm, the determination and the drive that you showed in the earlier session were absolutely wonderful.

I want to look primarily at the designation of bathing water. There is monitoring in the season, which goes from 15 May to 30 September. Jane, can you tell us how often that monitoring takes place?

Jane Nickerson: I do not know the detail of that—Feargal can probably answer it better than I can, to be honest—but I would say it is not enough. If it is only that small window, for the summer, that is completely pointless because people swim in the sea all year round. It is not a summer sport. Yes, there are more people at the coast because there are more people going on holiday, but you need to be safe all year round.

It is certainly not enough for inland. We have a massive number of inland rivers and lakes, and we need some designated spaces as a very first part of making our waterways safe for recreational use. If every single water company was tasked with doing two designated, approved bathing and recreational spaces per year, we would soon have a network. Poland do it. Poland opened 101 new inland bathing sites in 2019. If Poland can do it, why can't we?

Q119 **Barry Gardiner:** That is helpful, because I was going to ask you whether there were examples from other countries that we could adopt here. I was thinking about the Netherlands, which has Aqualarm, a warning that goes out to river users. If there are other examples that you think we should be learning from, please do let the Committee know.

Jane Nickerson: I will absolutely do that.

Feargal Sharkey: In terms of testing, I believe it is done on a weekly basis using the new, modern water samplers, all of which come fitted with telemetry systems. I believe they can be set to sample every two minutes and provide that information pretty much in real time, albeit the industry standard seems to be about 15 minutes to update. Effectively, it is one of those things. At a minimum, on a weekly basis, but the technology is there and it is reasonably cost-effective these days to make it available at real time at an interval of your choosing.

Q120 **Barry Gardiner:** What do you think is the potential for getting other areas and inland waterways designated, as well as the one that we spoke of earlier, the River Wharfe in Ilkley?

Ben Seal: There is massive potential, and it is something we need. In my opening answer I talked about the massive concern people have around water quality undermining their desire to be out on the rivers. Designation of bathing-standard water is going to help build that confidence to enable people to take their children out in the water or on the water. For paddlers, we do not need water to be bathing water to paddle it, but we know that thousands and thousands of families and young people take to the water each year and this is going to be a concern to them. We would love to see more. As Jane said, there should be some targets for at least two per water company per year to be designated in future. There is massive scope for it, and it has to be a benchmark to hold the water industry to. We are hugely supportive of it, and it is deeply frustrating that we are so far behind other European nations. It is quite shocking.

Q121 **Barry Gardiner:** I want to focus attention a little on the Bathing Water Regulations, because they define "a bathing water" as surface water where, "the Secretary of State expects a large number of people to bathe, having regard in particular to past trends and any infrastructure or facilities provided". If we have to rely on where he or she expects people to bathe, yet our rivers are in the state that we have just been discussing this afternoon—or just been disgusted by this afternoon—then the probability that people are going to want to bathe in those rivers is extremely low. Is there not a perverse cycle operating here within the Bathing Water Regulations that means that concern about pollution and safety keeps potential users away from enjoying the river and reduces, therefore, the number of potential designations?

Jane Nickerson: It sounds completely archaic, to be honest. It sounds like something that has been there for the last hundred and goodness knows years and needs to be looked at.

To me, we start off at accredited sites with: are they safe? Can you get in and out easily? Is it a place that families can go to without hidden dangers underwater and things like that? We have a whole raft of things that we would look at for an accredited, safe site. Surely that is the thing to look at, and then make sure the water quality matches everything else you have around there. Is it an area where you know people would go if the water quality was right? Are all the other factors in place? Then make sure the water quality is right, rather than depending on whether or not somebody has been there in the last 10 years.

Q122 **Dr Matthew Offord:** Back in the 1980s when I was not only a lifeguard but a member of Surfers Against Sewage, we were very keen as people working on the beach to ensure that those who had any kind of medical problem—particularly things like gastroenteritis, ear infections and that kind of thing—after having swum on the beaches not only went to their

GP but the GP recorded it. The idea was that we could then outline when there was a problem and if that was a case of sewage being discharged. I wanted to ask all the witnesses if they feel that we should be taking the same kind of approach when people are bathing, paddling or taking part in any activity on the rivers of the United Kingdom.

Jane Nickerson: I have not really thought this through, but with all the technology we have today it does not necessarily have to be a visit to a GP to clog up a GP's surgery if it is something that can be self-treated. There could be an online system that allows you to record if you have suffered any of a dropdown menu of ailments from open water swimming or recreational pursuits in water. We should be able to gather the data that way much more easily, I would suggest.

Ben Seal: I cannot add to anything that Jane has said. I completely agree. It is difficult to collect that sort of data and prove that it has come from water quality, but if there is a means of collecting it digitally that would be a definite way forward.

Feargal Sharkey: I can only offer, as someone who in the past has had the joy of contracting Weil's disease and leptospirosis, I can assure you it was a fairly nasty experience and if we could record that event and safeguard someone else from having the same experience that I did, I would be only too happy to record, monitor and have that data available for someone else to make use of. It is a great idea and, of course, we should do it.

Q123 **Dr Matthew Offord:** Mr Sharkey, I should say for the reasons of transparency, used to attend my public meetings when I was deputy leader of Barnet Council and he was always positive and a great contributor. It is a pleasure to see you here today.

Feargal Sharkey: Indeed. You too, sir.

Dr Matthew Offord: It is interesting that you say you have suffered Weil's disease. For me, it has always been one of the biggest concerns I have ever had about wild swimming. I am sure you are aware that pollution does not just enter rivers from untreated sewage overflows but also from other sources such as livestock, rats and water birds, and even things like poorly maintained septic tanks that are leaking. In your role, who do you think should co-ordinate the identification of all these sources and lead the way on remediation? We are all aware that not every risk can be eradicated.

Feargal Sharkey: Sure. Ironically enough, it is work that the Environment Agency has already done. Simply quoting their data, according to them, 31% of pollution in the rivers comes from agriculture and rural land management, a further 28% is the result of the water industry, and 13%, I think, from urban settings, road runoff and that kind of thing. If you simply deal with those three sources, you have almost gone up to 75% of all the pollution in all the rivers in the country. It is a big problem, there is a long list of people involved in this, but simply

starting with the water industry and with agriculture, if we can get on top of those, you have dealt with pretty much 60% of all the pollution in our local rivers to begin with. You can then have a good, solid foundation to move forward from.

Q124 **Dr Matthew Offord:** That is an interesting point, because where there are things like unlawful sewage discharges or even grey water discharges, that information would provide a background. You could piece together that information and it would be easier to find where any kind of overflow was coming from. Yes, I like that. Does anyone else wish to contribute to that one? I will take that as a no.

I am sure many members watched the *Panorama* programme. It has been a particular concern of mine when I have been assisting in clean-ups on the Thames with Thames21, and even on the Silk stream in my own constituency. I have seen a huge number of wet wipes on the riverbank, and a lot of those, perhaps, are unlawful discharges or have just been discharged by people putting wet wipes down their toilet. Do all the panel believe that plastic wet wipes should be entirely banned, or do you believe there should be a greater drive to ensure that they are biodegradable?

Feargal Sharkey: Personally speaking, I think they should be banned. The thing should be tackled at source. Even increasing the price of them, like plastic carrier bags, I do not think would have the required effect. The things just simply should not exist in the real world in any way, shape or form.

Ben Seal: I would agree, as somebody who has pulled his fair share of wet wipes out of trees. If you look at the briefing, there should be a picture of me and my son out paddling and there is a sanitary towel draped over a tree. These things are an absolute scourge. It is grim to see trees festooned with wipes, so we should do anything we can to stop them getting there in the first place.

In 2019 the water industry launched the Fine to Flush specification, and legislation could be introduced that allows the terms "flushable", "disposable" and similar to be used when the wipe has been proven to pass the Fine to Flush specification. There are further measures: establishing a regulatory standard for flushable products, prohibiting the use of plastics in sanitary products and wet wipes, reducing the use of microplastics in other flushable products. Anything we can do to stop these things appearing in our rivers has to be done, because it is not a nice place to be, on the river, when these are festooning the trees either side.

Q125 **Dr Matthew Offord:** I can assure you it is even worse when you come face to face with them as a scuba diver, when you are 30 feet underwater and suddenly they are right in front of you. As you say, it is incredibly grim.

Finally, what would it take to ensure the cleanliness of our rivers by

2027? What do we need to do?

Feargal Sharkey: We may want to qualify this, because I guess the reference to 2027 is the Water Framework Directive and its original objective that, by 2027, 100% of our rivers would be in good overall environmental health. You may find that is no longer exactly the position. If you check the 25-year plan for the environment, you will find it has been slightly revised, if not significantly rewritten. It has now evolved into 75% of our rivers in a natural state, for which I can find no definition whatsoever, but none of that matters because the timeframe is "as soon as is practicable." Indeed, that objective and statement was repeated by Ministers in the House of Commons only a matter of weeks ago. Somehow or other—I do not have the detail—we have gone from 100% of rivers in good overall health by 2027 to 75% in a natural state, which does not mean anything, at some point possibly, maybe, in the future.

The biggest thing we could do with right now, if I could be honest, is not legislation. What we need is a regulatory system that is fit for purpose, that is willing, ambitious and capable of delivering what is already on statute, what already exists. That in itself would be a significant and progressive step forward.

Ben Seal: I am nodding away, because I fully agree with what Feargal has just said. In the *Panorama* documentary the Environment Minister, Rebecca Pow, said that the legislation exists and the due process is there. The biggest thing is that we simply enforce what we have. That has to be the simplest, quickest route through the problem. We outlined a number of things in our written evidence, and we have supported a lot of things that Surfers Against Sewage have put forward as what the future might look like, but I think the simplest route forward is simply to enforce what we have as a start.

Q126 **Chair:** I would like to follow that up with one final question. We have guidance due to be given by the Secretary of State for Defra to Ofwat by the end of this year to govern Ofwat's next pricing review principles, which it will adopt for the next five-year period after the current period that we are in. Do you have any items or advice that you would like to give to the Secretary of State as something that you would like to see change in that guidance?

Jane Nickerson: If we are going to ask the consumer to pay more to clean up the river, there has to be a mechanism to make sure the consumer understands what that is going to be spent on, the effect it will have and if that is the only real way to make a difference.

Going back to the earlier question, I agree with everything Feargal said but we need to be able to take steps forward. This is a mountain we are climbing now, and we need to set out steps to base camp. If we just keep looking at the mountain, we will never get there. It is about steps forward that will truly make a difference. If charging the consumer more is the only way, that is what we will have to do, but I am not convinced that is

the only way. There is a big educational programme here, but I also think there are other places where that money is already available and it needs to be diverted. What happens to the fines? What happens to that money when they are fined? It could be put back into the infrastructure, made to be spent on infrastructure. A root-and-branch inquiry is needed to determine where the money comes from and how it is spent. If we are going to ask the consumer to pay, they need to be educated on the reasons why, to understand that and to be confident it will be spent to make a difference.

Feargal Sharkey: For me, one of the big vacuums in all of this has indeed been political leadership, throughout the whole process. Making that direction, which we all know the Secretary of State can do with nothing more than the stroke of a pen, that he now demands that the water industry and the regulators deliver a plan that is fully costed, deliverable, timetabled, scheduled and delivered with a sense of urgency and ambition to it, that, in itself, would be a massive political step and a significant, positive step forward. It is time for everybody to put on their big boy pants and start taking this seriously.

Chair: You have neatly encapsulated the task. Both of you, Jane and Feargal, have said this is something that requires a number of steps to be taken over a period of years, frankly, if not decades, given the scale of the challenge ahead of us, the number of CSOs that need to get fixed. It cannot be done overnight.

I really appreciate, as does the Committee, all of the evidence that this panel and the earlier panel have given to us. Thank you particularly to Ben Seal of British Canoeing, Jane Nickerson of Swim England and to Feargal Sharkey, wearing your various hats. You are all very active campaigners in this area, and you have all been incredibly supportive of the work that this Committee has been doing and I have been doing in my private Member's Bill, and I am grateful to you all from both panels, in particular the last ones we have just heard. Thank you very much indeed. I would like to thank members of the Committee for joining us today and our supporting Clerks, in particular Nick Davies, Laura Grant and our special advisor, Ian Barker, who has helped prepare the brief.