How £4 chicken is killing one of Britain's biggest rivers

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There was a time when princes travelled to the River Wye to fish for salmon. Thousands were caught each year from a waterway that winds its way south for 155 miles, from mid-Wales to the pastures of the Severn estuary. Those days of plenty are over, however. In 2021 only 326 salmon were caught from the Wye, down from nearly 8,000 in 1967 and the smallest number since records began.

Local anglers believe the fish population has collapsed because of demand for another dish — the £4 supermarket chicken. There are now estimated to be more than 20 million chickens in the Wye catchment, up from about 13 million ten years ago. The intensive farming methods are the reason Tesco can sell a whole bird for less than the cost of a fancy coffee.

But this cheap protein may have a hidden cost. The chickens reared in the Wye catchment emit, in their droppings, more than 2,500 tonnes of phosphorus a year. Most of this manure is spread on the land, which can result in the phosphorus it contains entering the river.

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The Wye is a site of special scientific interest and a special area of conservation, but high phosphorus levels in the water have fuelled thick algal blooms in recent years. Rotting algae sinks to the riverbed and starves salmon eggs of oxygen. It also kills off ranunculus, a plant used by juvenile fish to hide from predators.

“When people visit the River Wye they expect to see crystal clear waters teeming with wildlife like spawning salmon and diving kingfishers,” Jamie Audsley, chief executive of the Herefordshire Wildlife Trust, said. “Instead they’re greeted by a river that’s murky, polluted, dying. This is the result of years of intensive agriculture, driven by increasing demand for chicken.”

Stuart Smith, chairman of the Wye Salmon Association, said: “We have reached a crisis point. If we don’t do something there won’t be salmon in the river in ten years’ time.”

The manure mountain

Professor Paul Withers, of Lancaster University, has investigated the origins of the region’s “manure mountain”. He has calculated that each hectare of agricultural land in the Wye catchment is accumulating about 17kg of “surplus” phosphorus each year, more than double the national average. His analysis suggests that the soil is saturated, and the largest single source of new phosphorus is the waste produced by chickens.

He also emphasises, though, that it took decades for the soil to become overloaded. Cow, sheep and pig manure have contributed, as have septic tanks and sewage systems.

Industrial poultry units are a relatively late addition. “They’re not the sole source,” he said. “But they are the only industry that’s increasing in the Wye catchment.”

Individual farmers concede that there is a problem. “It’s not solely a poultry problem,” said Richard Corbett, of Corbett Farms, which has about 190,000 laying hens. “But without doubt we are producing too much phosphate.”

He and several other farmers believe they have a solution. It involves what amounts to a giant compost heap where chicken litter — the birds' droppings and the bedding on which they live — are digested by bacteria.

A system in northwest Herefordshire already provides heat to a factory next door that produces insulation. There are plans for a plant that could take in about 100,000 tonnes of poultry manure a year. This would be mixed with other farming by-products and could generate enough natural gas to supply about 6,000 homes, or more than 8 per cent of Herefordshire's housing, a planning application says. The chicken manure would be transformed into a residue rich in phosphates (substances that contain phosphorus) that would be taken out of the Wye catchment to other areas of the UK, such as East Anglia, to be used as fertiliser.

The same logic is behind a scheme at Whittern Farms, where Jo Hilditch, the managing director, has spent £3 million on a special incinerator. Every eight weeks, 180,000 birds are sent to be processed. The 200 tonnes of litter they have produced is burnt to provide heat that warms the next generation of chickens. This leaves behind about 15 tonnes of grainy, grey phosphate-rich ash.

Again, it is transported out of the area and used as a fertiliser by farmers who might otherwise be buying phosphates mined overseas.

The true cost of cheap food?

The largest company involved in chicken farming in Herefordshire is Avara Foods, which is half-owned by the American commodities giant Cargill and whose customers include Tesco. About 120 farms in the county send chickens to an Avara plant in Hereford, which processes two million each week. John Reed, a director of Avara, said it was committed to finding solutions to the phosphate problem. "We're not monsters," he said. "I accept there's a deterioration of the river."

Climate change is expected to make algal blooms more common. “Clearly, as we see warmer temperatures, we’re going to see this situation potentially get worse,” he said.

However, he added that chicken farmers were not the only cause, and suggested that their role had been exaggerated. “[The media coverage of this issue] has been naive, at best,” he said. “It’s been ignorant and a little bit malicious as well.”

The one point on which farmers and environmentalists agree is that the very low price of chicken makes it tougher to manage the land responsibly.

The price of poultry plummeted in the mid-1950s; in a decade it went from being the most expensive meat to the cheapest. Prices have increased recently, but supermarkets still sell a whole bird for £3.50. The price of an oven-ready chicken has halved since 2009 in real terms, and Reed argues that the days where consumers can buy one for less than £4 pounds “should be over”.

He would like more farmers to buy incinerators to burn their litter, but admits that few can afford the millions of pounds that the equipment costs. Only seven of the 120 farms that supply Avara in Herefordshire have them.

He said: “If you’re saying to a farmer, ‘I want to buy chicken — or anything else for that matter — and it’s got to be as cheap as it possibly can’, then where is the money to reinvest in the non-productive parts of the production, like the environmental [parts]?

“If you’re not making money or if you’re on a real knife’s edge [and you’re then asked to improve standards] — it doesn’t work.”

Withers, the Lancaster University professor, believes that the time when a quick fix might have been possible has passed because there is such a big store of phosphorus in the soil. “Even if you stopped all phosphorus going into the

catchment tomorrow, it would be decades before the river recovers," he said. "Whenever there's warm weather, you're going to get algal blooms."

Tesco said: "Protecting and maintaining water quality and biodiversity in our supply chains is an important priority within our supplier partnerships, and we're committed to playing our part in ensuring the protection of the Wye, alongside other actors across the food industry."