



Research briefing

Controversies over intensive poultry unit developments - Dr Alison Caffyn

Briefing 4. Nov 2021 – Water pollution

Introduction

One of the issues which most concerned local people about the increasing numbers of intensive poultry units (IPUs) across Herefordshire and Shropshire was water pollution. Communities felt that the increased numbers of birds and the manure produced would inevitably lead to more nutrients and chemicals getting into streams and rivers. Poultry manure contains high levels of phosphates and nitrates which cause eutrophication in rivers, killing plant and animal life in watercourses.

In contrast, the poultry industry claimed that there were no pathways for extra nutrients to reach watercourses. This briefing, the fourth in the series, explores the issues around water pollution linked to the intensive poultry industry and what these reveal about local power relations

Research briefing 1 presented an overview of the research¹ and the proliferation of IPUs across the area. Briefing 2 focused on issues around odour from IPUs. Briefing 3 explored impacts on the local tourism industry.

Research methods

The research compiled a database of IPUs across Herefordshire and Shropshire from online planning application records since 1990/2000. Details of older IPUs were sourced from environmental permitting records, supplemented by fragmentary old planning records and from studying maps and online satellite imagery.

A wide range of actors involved in the situation were interviewed during 2018 including: farmers and farming bodies; local authority planners, environmental health officers, ecologists and councillors; staff at Natural England and Environment Agency; planning consultants and land agents; objectors and local campaign groups;

local residents; businesses and organisations. In total 59 people were interviewed in 48 interviews. 30 meetings and events were observed including planning committees, parish councils, campaign groups and environmental seminars/workshops.

Most relevant to this briefing is that I observed the Wye Catchment Nutrient Management Board meetings between 2018 and 2021 (9 meetings in total) which enables me to tell the story of how the various partners have individually and collectively been addressing river pollution.

This briefing focuses mainly on the Wye catchment, but many of the issues also apply to the River Severn catchment and indeed other similar areas.



Increasing IPU numbers

The poultry industry originated in the 1950s in both Herefordshire and Shropshire and has periodically expanded when processing companies expanded capacity at their plants. There were 164 successful planning applications for IPUs in Herefordshire and 184 in Shropshire between 2000 and 2020. Only 18 were refused permission (some of these were approved on resubmission).

There was a significant surge in IPU developments in the period between 2010 and 2017. Much of this related to the expansion of the Cargill plant in

Hereford in 2014 which required an additional 90 IPU 'sheds' to be built in a short period of time.

The total number of poultry sheds in Herefordshire and Shropshire has risen from about 600 in 2000 to over 1150 in 2020. New sheds are also almost twice the size they were in the 1980/90s, holding over 50,000 birds whereas older ones had around 25-30,000.

The total number of birds has increased three or four-fold in 20 years and has now reached 33-35 million across Herefordshire and Shropshire at any one time. There are also almost 10 million birds in neighbouring Powys². The collective total is split between the Wye catchment (approx. 20 million birds) and the Severn catchment (approx. 23 million), not including other counties in the catchments.



IPUs and the planning process

Local authorities have had difficulties handling IPU planning applications. There is a policy vacuum in local plans which do not mention intensive livestock developments. The Herefordshire Core Strategy (2011) has several pages on water quality issues in which agriculture is mentioned just once. Local authorities have deliberately avoided developing Supplementary Planning Guidance or taking a more strategic approach to the number or location of IPU developments.

As IPUs are defined as agricultural they avoid policies which would prohibit similar industrial development in rural, greenfield sites. And yet sites with over 40,000 birds must have an environmental permit issued by the Environment Agency (EA) required for industrial premises.

Planners and planning committees were advised to accept an environmental permit as proof that there will be no unacceptable pollution. However, the EA permitting process appears to be a desk-based exercise assessing only technical specifications of the development. Several interviewees said that EA had never refused an IPU environmental permit in the area.

'I probably shouldn't be saying this, but from a personal point of view we're not regulating the farms perhaps as much as we should be. We're just so stretched in terms of resource... I think in our area we've got more than anywhere else in the country - we've got over 200 intensive farm permits.' (EA Officer 1)

Environmental permits do not consider impacts outside the boundary of the proposed site. Planners and committees did not fully appreciate that pollution impacts created outside the site from spreading manure for example, should be considered as part of the planning process. This gap was acknowledged by agents for applicants in interviews and had been exploited in several cases. The situation was clarified in the 2019 Royal Court of Justice *Squire v Shropshire Council* case and planning authorities now require manure management plans for planning applications.

Cumulative impacts

Local authorities, Natural England and the Environment Agency failed to recognise and address the accumulating impacts caused by increased volumes of manure until relatively recently. None of the bodies appear to have been monitoring the increasing numbers of poultry in the area, let alone the increasing manure produced as a result. This was evidenced recently (2021) when the Nutrient Management Board action plan referenced 9 million birds in the catchment (instead of 20 million). No agency could provide an accurate figure until animal health records were accessed.

Cumulative ammonia emissions were also overlooked; Shropshire Council issued guidance only in 2018. There has been no apparent assessment of cumulative water pollution risks until very recently.

It was not until 2021, when the RePhokus study work led by Lancaster University used a systems modelling approach, that partner bodies began to acknowledge publicly that the volumes of manure produced were relevant to nutrient levels in the rivers.

A narrative was repeated regularly in public meetings that poultry manure is valuable fertiliser, that no farmer would waste such a valuable commodity and that increasing volumes were simply substituting for artificial fertiliser brought into the area from elsewhere. Only very recently (2021) has this narrative shifted to allow that manure is a waste product and many operators pay manure brokerage companies to remove the

waste, as they and neighbouring farms do not have enough land to accept the volumes produced for spreading. Many farmers send manure to anaerobic digestion (AD) units – there are 30 AD units across the two counties, mostly on poultry units. The disposal of liquid and solid digestate from these units (containing the same levels of phosphate as manure) is another disconnect in the process, and not taken into account in cumulative impacts.

One poultry farmer admitted;

'These farms are exporting it and it's going up into Wales and various places. The problem we don't know is where it's going, whether it's causing a problem there, which may be, because (...) sometimes you do see enormous stacks of stuff which is running down the tracks.'

In interviews, EA and NE staff acknowledged the problems caused by excess manure, but in NMB meetings they rarely challenged the forceful narrative of local councillors and farming bodies who held several seats on the Board.

'we've had loads of poultry, especially in Herefordshire in the last few years, and obviously we've got concerns around the number of units (...) because obviously all the muck and the litter and everything leaves the site and stays somewhere relatively local-ish because most of the poultry sites don't have a lot of land of their own to spread on. (...) the litter's high in nutrient value so it's a good product but it's going onto land that might well not need it. (...) lots of chicken farms; lots of muck - where's it all going...? is it being spread on land where it doesn't need to be spread?' (EA Officer 2)

Nutrient Management Board

The Wye and Lugg Nutrient Management Board (NMB) was established in 2014, as directed by the Planning Inspectorate, to give reassurance that the growth proposed in the Herefordshire and Powys Local Plans would not further increase the nutrient levels in the Rivers Wye and Lugg, designated Special Areas of Conservation and then (and still) failing to meet legal phosphate levels. The Board was chaired until 2019 by a senior Herefordshire councillor and livestock farmer.

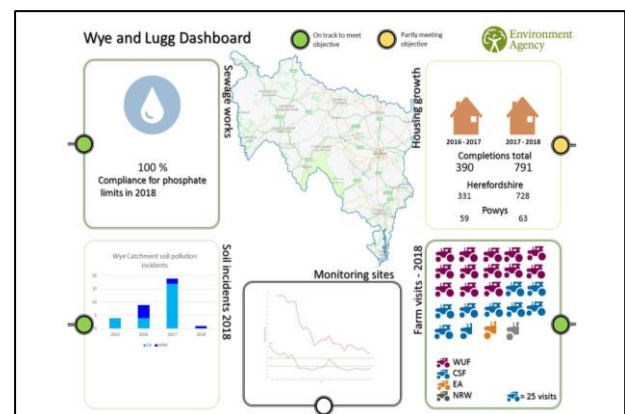
Initial modelling in 2014 apportioned the sources of the nutrients equally to agriculture and sewage treatment works (STWs). The NMB focused its attention on pressuring Welsh Water to upgrade STWs, whilst increasing numbers of advisory visits to farmers. There was an assumption that

voluntary, often grant aided, action by farmers to improve manure management, install better slurry stores etc would resolve the agricultural pollution. Questions from members of the public about the impacts of increased poultry units and manure were dismissed as not relevant to river nutrient levels. In 2019 the EA announced it was reducing the monitoring points on the catchment from about 30 to just 8.

'I think it's pretty feeble stuff to be honest. ... (the Nutrient Management Plan) appears to get the council off the hook in terms of responsibility for the water quality. If they have a plan in place it means they're doing what they can, but I'm not sure it's achieving a great deal to be honest.' (Local councillor)

Nutrient dashboard

Considerable time and energy went into creating a 'nutrient dashboard' to monitor the phosphate levels, the numbers of reported pollution incidents and numbers of farm advisory visits. As long as the number of farm visits kept increasing all was deemed to be well, despite no information being available on what proportion of farms had been visited or outcomes of visits.



This research concluded the dashboard was a mechanism for avoiding blaming the poultry industry and for displacing action, while the impacts of increasing volumes of manure being produced were ignored.

Monitoring

Several interviewees said that the main processor in Hereford, Avara (previously Cargill), had done its own modelling of nutrient flows associated with its business but this research (2017/18) was never made public. In mid 2020 the EA's revised modelling changed the apportionment of nutrients to two thirds coming from agricultural sources.



Citizen scientists had begun to mobilise to monitor river pollution and helped raise awareness of the issue in the absence of official action.

Planning moratorium

In July 2019 a legal case in the Netherlands, known as the Dutch Nitrates case, caused Natural England to block any further development in the Lugg catchment (most of North Herefordshire) until there is 'certainty' that the Nutrient Management Plan will reduce the nutrient levels in the river to legal levels;

'there remains reasonable scientific doubt as to whether the NMP can provide appropriate mitigation (based on how much certainty this currently demonstrates)'. (Herefordshire Council Position Statement, 2019)³.

This means in effect there is a new moratorium on all housing and other development which would increase nutrient levels in the Lugg catchment. Hundreds of planning applications have been held up. The Council is currently urgently seeking ways to speed up nutrient reductions at a potential cost of millions of pounds of tax payers' money. House building companies are exerting intense pressure for the moratorium to be lifted, jobs are at risk, and there are implications for the county not meeting its housing allocations, invalidating the Core Strategy.

Current situation

Various factors brought the issue to a head in 2019/2020: the revised apportionment, the RePhokus research, the new administration in Herefordshire Council and the planning moratorium on the Lugg catchment. The previous complacency was replaced by a slow realisation of the situation that had been allowed to develop and of how difficult it now was to address the causes. Interestingly Cargill/Avara had by that time just achieved its target of 90 extra IPU sheds.

Impacts of the moratorium on the local housing industry has also thrown the spotlight on how the intensive livestock sector had previously been shielded from blame, and how regulatory action against agricultural pollution has been minimal.



In 2021 there has been considerable media coverage⁴⁵⁶ and key partners are focused on how to address the situation. There has been belated engagement with the main poultry processor and manure brokerage businesses and an injection of resources into better monitoring, support for the citizen scientist projects and additional resources for regulatory action by NE and EA.

NMB partners asked that farming bodies be removed from the officer working group as they were slowing down progress. There is acknowledgement that farmer compliance with water rules is sometimes poor. Introducing a Water Protection Zone has been raised. The action plan proposed to date is, however, far from giving the certainty required by Natural England to remove the Lugg planning moratorium.

At the last NMB meeting in September 2021 it appeared the poultry industry is looking to technical fixes as a way out of the situation it has created, sending most manure to AD units or to incinerators – for which six planning applications are about to be submitted in North Herefordshire. Manure incineration is a relatively new technology and little is known about the environmental impacts of such new industrial facilities.

Recommendations⁷

Planning

Nationally, consideration should be given to whether the definition of agriculture from the 1990 Act is still sufficient to apply to major modern industrial facilities such as large intensive livestock units. Would an additional category of intensive livestock facility – perhaps at the threshold of an environmental permit (40,000 chickens) – be more appropriate? In some parts of the world, such as China, massive, multistorey livestock raising facilities have been built⁸ – would we still define these as agriculture just because they involve raising animals?

Given the multiple recommendations that as a nation we need to eat less meat, there is an argument that no new intensive livestock facilities should be given planning permission anywhere currently. The UK is at least 75% self-sufficient in chicken and 85% in eggs⁹. If consumption falls by 30% over the next 5-10 years there will be many large buildings lying redundant in rural locations. The focus could instead be on redeveloping older sites to improve standards without further proliferation.

Section 106 or Community Infrastructure Levy payments should be applied to intensive livestock units. Local communities experience the negative impacts from an IPU with no contribution back to the community in contrast to many housing or energy developments. In fact, as agricultural businesses, they do not even contribute to local business rates. Residents are understandably annoyed about their taxes paying to clean up rivers, mend roads and treat health impacts from the intensive livestock industry without the industry itself contributing back (a typical IPU only employs 1 or 2 people).

A more strategic approach should be taken to planning and permitting intensive livestock units. Local Plans should be required to include policies addressing intensive livestock operations, spelling out under what circumstances they might be appropriate – this would provide clarity for farmers considering building units as well as local communities. Catchment plans, National Park and AONB Management Plans and Neighbourhood Plans might also need to include policies. In particular, no sites should be given approval on or close to river flood plains.

There needs to be a more joined-up approach between Wales and England to ensure full consultation with planning applications and

environmental permits, coherent monitoring and to prevent anomalies such as the Lugg planning moratorium only applying to the English part of the catchment.

Free range egg IPUs, while generally smaller and producing less manure, are a particular risk as some manure falls on open ground. These should not be permitted in many of the upland locations where they have been proliferating in the borderlands and mid Wales. Polluted runoff on steep hillsides is thought to be a significant factor with the Wye catchment problems.

If permissions are given for IPUs, more conditions should be attached. These could include tree planting on free range ranging areas, river quality monitoring before and after, upstream and downstream on an ongoing basis and set protocols for emptying attenuation ponds. Such conditions must then be monitored by the authorities.

The role, make-up and operation of bodies such as Nutrient Management Boards should be reviewed. Key partners have often avoided scrutiny by not attending and issues are delayed for considerable periods of time.

Regulation

Environmental permitting for such large facilities should involve more than just a desk exercise. It needs to include proper consideration of cumulative impacts from other intensive livestock units in the area.

NE and EA need more resources to enable them to undertake thorough assessments of planning applications. It would also be advantageous if they joined up the thinking between where their public money is being spent on restoring river quality in vulnerable catchments and proposed new IPUs. An example is the River Clun, on the Herefordshire/Shropshire border, where millions have been spent in trying to save the freshwater pearl mussel but where EA and NE made no objections to new IPUs close to the protected river.

Existing regulations need proper implementation and action. Smarter ways of monitoring pollution could be adopted, for example using drones or simpler reporting mechanisms for local people or citizen scientists. Too many significant pollution incidents and over-application of manure currently escape regulatory action.

Research

More research should explore pollution pathways. The industry denies there any pathways other than manure spreading but do aerial ammonia deposition, run-off from IPU roofs/yards, attenuation pond leaks, etc play a role?

There should be more research into whether chemicals or other substances used in poultry raising and IPU shed cleaning reach watercourses and into whether antimicrobial resistance reaches the local environment via water pollution.



Other

The most useful way to address the situation with existing IPU's appears to be a manure tracking

system, as with other hazardous waste products. Broiler chicken units usually have eight crops a year, so reporting where each load of manure goes would not be particularly onerous. AD unit operators and manure brokerage businesses would be key actors. Arguably the poultry and egg processing companies which control all the inputs into the IPU's should also take responsibility for the outputs and fund the establishment of this system. This might form part of a wider nutrient budget system across a catchment.

Concerned citizens and organisations are suspicious of the building of numerous further industrial units for the incineration or pyrolysis of manure, when they are relatively untested. Better surely to use the manure where it is genuinely required and factor in the transport costs to the price of the products – both chicken and fertiliser. Perhaps some nutrient matching service, linking farmers that require the manure with those who have excess might have potential, plus additional support for those farmers who are using manure more sparingly and responsibly.

In summary, urgent action is required to address the pollution caused by the intensive livestock production system and encourage a transition to more sustainable farming practices and land use.

¹ Caffyn, A. 2020 Creating a stink, Cardiff University PhD thesis, supported by ESRC grant no. C110866K

² [Herefordshire, Shropshire & Powys: Intensive Poultry Units 3 Counties Map – Brecon & Radnor Branch of CPRW \(brecon-and-radnor-cprw.wales\)](#)

³ Herefordshire Council, Current Development in the River Lugg Catchment Area Position Statement 15th October 2019.

⁴ <https://rivercside.tv/>

⁵ <https://www.theguardian.com/environment/2021/feb/18/river-action-targets-agri-businesses-in-campaign-to-stop-pollution>

⁶ <https://www.herefordtimes.com/news/19651344-pollution-hereford-times-launches-save-wye-campaign/>

⁷ These recommendations were submitted to the Environmental Audit Committee Inquiry into River Pollution by the Food, Farming and Countryside Commission in October 2021.

⁸ <https://www.theguardian.com/environment/2021/sep/18/a-12-storey-pig-farm-has-china-found-a-way-to-stop-future-pandemics->

⁹ AHDB 2018, more recent figures have not yet been published but are likely to be higher.

Further research briefings and information

This is the fourth in a series of briefings on various aspects of the research. Each briefing links to an academic journal article being published in tandem.

My article published in the journal *Land Use Policy* 2021 Broiler battles: contested intensive poultry unit developments in a policy void. Summarises the pattern and timing of the proliferation of IPU's across Herefordshire and Shropshire.

Please get in touch if you would like more information on any aspects of the research or would like to discuss future research opportunities:

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