

The Value of the Past

Use of Old Reports, Data and Opinions

Headlines

Why this Might be Important for You

Many catchments today appear to face a complicated mesh of pressures and problems, but how do we find the actual problems amongst this noise? And how do we focus our efforts to solve them?

Knowing when problems started in your catchment, and what was happening at that time, can really help work out the most likely causes from a list of candidates.

If we know where to look and dig hard enough there is a wealth of important information to help. This summary gives some examples from our work over the last 4 years.

Lessons from our projects

Some examples of causes for deterioration and information sources from our projects since 2009:

- Changes to drainage (flood protection) affecting channel course and river beds from the 1950s.
- Fish kill, fish stocking and pollution incident data from the 1960s onwards.
- Land use change e.g. dairy intensification from the 1960s, peaking in the 1980s/1990s (use of EDINA data).
- The opinions of former catchment officers from the 1970s – specifying actions to tackle the fish problem!

Environment Agency Archive Project

As a result of our use of historical archives on the River Petteril in 2009, the Environment Agency has instigated a national project with the Freshwater Biology Association to digitise and make publicly available the historical archives it holds. So far that project has:

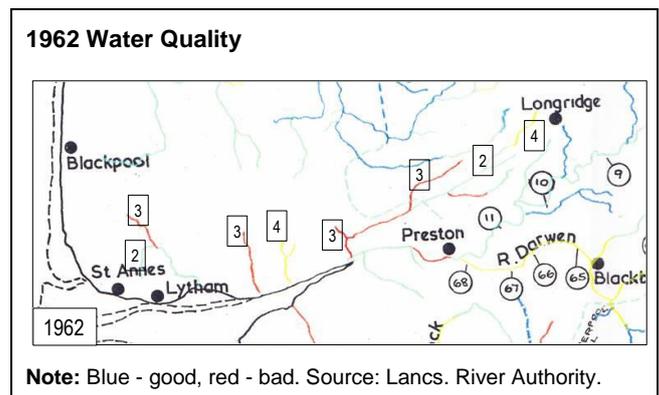
- Mainly fisheries and water quality information (across the UK) from the early 1900s to 2000s.
- Set up a database to allow easier access:
<http://www.fba.org.uk/environment-agency-archives-collection-fba> and <http://ea-lit.freshwaterlife.org/>

Information Sources

The Environment Agency holds reports from the old river boards, water authorities and National Rivers Authority (NRA) and archived databases such as the 1990s pollution incident database. Another example is EDINA, hosted by the University of Edinburgh, which provides information on land use change.

Example from the Tidal Ribble

Maps from old River Authority reports show some water courses which are poor quality now were also poor quality in the 1960s and 1970s. This illustrates how far back we need to be looking at pressures on these watercourses and how they have changed in response to more recent pressures and measures.



Examples from the Petteril

The Petteril Problem

Once described as the “Jewel of the Eden”, for its trout fishery, the Petteril now has far fewer trout than expected by the Environment Agency. But was it really ever that good and if it was why isn't it now?

Information Sources

We examined reports and minutes of meetings of Fisheries Committees from as early as 1910, but the most useful information came from the Cumberland River Board / Authority Annual reports (1952-1974) and Northwest Water Authority / NRA Summary of Fisheries Statistics (1974-1993). For the period after 1990, we found that there was relatively little information on fish kills in the NRA/EA NW Region Annual Fisheries Reports (1994-2000), we did not review the EA's old pollution incident database for 1990-2000 that may have had useful details, but we did examine the EA's National Incident Recording System (NIRS) database of pollution incidents.

We also found valuable fish surveys from the 1970s.

Drainage Works (to reduce flooding)

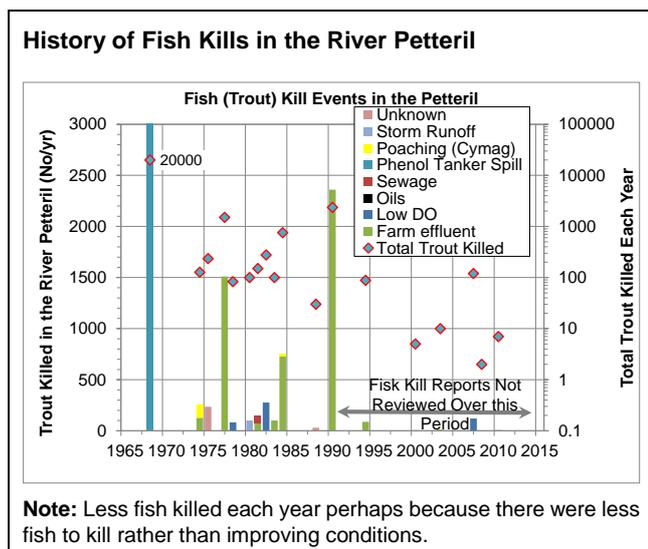
During the 1950s and 60s and continuing into the 1980s, there were significant efforts to reduce local flooding. With those efforts came loss of habitat (straightening), increased risk of siltation (deepening) and loss of trout hatcheries (gravels removed). Here are some examples from the Cumberland River Authority annual reports:

Examples of Drainage Works in the Petteril

Year	Reported Works
1952-1965	Plumpton: Weed cutting, gravels removed, channel straightening, bank repair
1953-1966	Carlisle: Flooding, gravels removed, new channel constructed, weirs and cascades added?
1962-1973	Wreay: Tree clearance, planting, gravels removed, weir removed

Trout Numbers impaired by Fish Kills

The old reports highlighted that the trout fishery had been healthy through the 1950s to the mid to late 1960s. In October 1968, a tanker spilled phenol into the river killing about 20,000 brown trout. As a sad consequence, we know from the numbers killed that the Petteril supported very good trout numbers at that time. In the 1970s and 1980s there were repeated fish kills; mainly related to farm effluents.



Fish Stocking

The archives also showed that the Petteril was stocked with fish after the phenol tanker spill until 1993, when the anglers gave up stocking the river.

The fish stocking information explained why fish kills were high in 1990 and why trout numbers reduced after stocking ceased. It also helped us interpret 1995 fish survey data compared to that in 2005.

What our Predecessors Thought

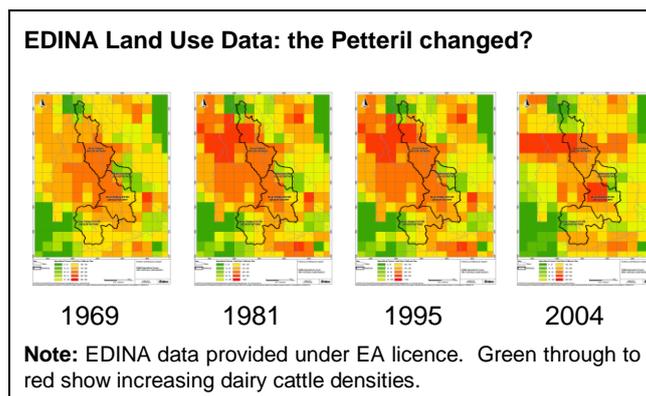
We also found comments from the catchment's fisheries biologist in the 1970s when the river was really suffering:

"The river receives effluent from innumerable septic tanks together with that from three small sewage works in addition to runoff from the agricultural land." (NWWA, 1974 Brown Trout Survey).

"It should be stressed, though, that any attempt at restoring a viable trout fishery in the middle reaches of the Petteril is not ultimately dependent on restocking or improvement of spawning facilities, but on a radical re-appraisal of the organic pollution situation, in terms of the relative biological and chemical effects of the numerous contributing discharges, and establishment of a programme of priorities for the controlled upgrading or the nutrient enrichment status of the catchment." (NWWA, 1975 Brown Trout Survey).

EDINA Land Use Data

We also examined the EDINA dataset. Edinburgh University have processed the Defra June agricultural census data dating back to the 1960s. This information can help show where in a catchment e.g. dairy cattle densities have changed and is available under licence.



Closing Statement

We believe looking back over time really helps work out when things went wrong and why; an invaluable tool when trying to identify which of a multitude of current pressures is / are responsible. Looking back also helps include a wide range of stakeholders.

Find out More?

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Evidence and Measures Projects

Evidence and Measures is a programme of work funded by Defra and the Environment Agency which has been working in a variety of catchments since 2008. It uses readily available evidence to help stakeholders identify locally-targeted measures aimed at delivering ecological improvements.

