27 March 1998

RARE NATURAL PHENOMENA KILLED FISH IN KENNET & AVON CANAL AND RIVER DUN POLLUTION INCIDENT

A combination of rare, natural phenomena caused the major fish kill just outside Hungerford in West Berkshire which started on 4 March 1998, the Environment Agency confirmed today.

Environment Agency scientists believe that the pollution incident which wiped out more than 150 tonnes of trout at the Berkshire Trout Farm and hundreds of thousands of coarse fish in the Kennet & Avon Canal and the River Dun was caused by a combination of naturally occurring chemicals associated with algal growth. The Agency is only aware of one other similar incident in New Zealand in 1994.

Commenting on the intensive three-week scientific investigation to track down the source of pollution, Environment Agency Area Manager Stuart Darby says: "Only the fish were affected. The invertebrates and other wildlife were fine, suggesting that the pollutant was not an insecticide or pesticide as these would have killed everything.

"In addition, our analyses of water samples over the three week period since the incident was first reported showed that the levels of toxicity fluctuated. This again would be
inconsistent with a chemical spillage, either deliberate or accidental."

The analytical process has been extremely long and complex as Stuart Darby explains: "Once our scientists had eliminated the man-made chemicals, they had to work out which of the naturally occurring ones was causing the problem. It was not so much a matter of looking for a series of needles in a haystack, but rather finding which one of those needles did the damage."

Now that the source of the pollution is known, the Agency will treat the affected waters with hydrogen peroxide and will then monitor the waters to check this has worked. They will be working in collaboration with British Waterways, which manages the canal. Agency staff are also advising and assisting on the clean-up at the Berkshire Trout Farm.

Agency scientists had tested for the toxic effect of decomposing algae early on in the investigation, as this is a known cause of pollution and unseasonably warm weather in February had led to an increase in algal blooms in the canal. However, tests showed this was not the cause. It was only when even more sophisticated analytical processes were adopted that the potential effect of other, normally harmless, substances associated with algae became apparent.

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The first clue was the discovery of large quantities of polysaccharides (starch-like substances) in the water. These polysaccharides occur naturally and are commonly associated with algae. From closer analysis of the polysaccharide molecules, scientists concluded that one likely cause of death was suffocation, as the fish gills became clogged with this substance.

This is consistent with the findings of the pathological examination of the fish and with records of the fish kill in New Zealand which was attributed to similar causes. Naturally occurring bacteria, present in all river water and which can grow on polysaccharides often produce toxins and these too may have contributed to the fish deaths.

Staff at the Water Research Centre (WRC), who were contracted to assist with the investigation, are confident that this combination of natural causes has caused the fish kill but are continuing their analysis to try and find the exact chemicals concerned.

The whole investigation has been a process of elimination for the scientists, who from the start had to follow several lines of investigation including whether the fish deaths were caused by low levels of something ultra-toxic or by large quantities of something less poisonous. However, tests for hundreds of substances did not provide an answer and other
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aspects such as the fact that only the fish were affected and the fluctuating toxicity pointed the scientists in the direction of an extremely unusual, but natural cause.

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MEDIA ENQUIRIES: 0118 953 5535

NOTE TO EDITORS:
Agency staff plan to dose the affected waters with hydrogen peroxide sometime over the next few days. They will be wearing protective clothing and masks. Please contact the Thames Region Press Office on the above number if you are interested in sending a photographer. Agency staff will be available for interview.

BACKGROUND

Environment Agency pollution officers were notified just after midnight on 4 March by the owner of the Berkshire Trout Farm who reported trout dying in large numbers. An officer was on site within the hour to take water samples and samples of dead fish. By daylight, it was clear that the pollution extended beyond the fish farm to stretches of the River Dun and the Kennet & Avon Canal near Hungerford in Berkshire where hundreds of thousands of coarse fish were also dead or dying. The Agency immediately launched a large investigation and clean-up operation which is still continuing.

Over 20 people from the Agency have been involved with this incident every day over the three-week period, at an estimated cost of £100,000. These include fisheries and pollution prevention people on site, staff involved in clearing away the dead fish and those operating the Area incident room. In addition, the Agency called in external help from its own National Laboratory Service and the Water Research Centre.

Hydrogen peroxide increases the amount of oxygen in the water, kills algae and breaks down naturally occurring chemicals in the water. However, it can be an irritant to skin, which is why protective clothing has to be worn.

Details of what appears to be a similar incident in New Zealand in 1994 are outlined in the New Zealand Journal of Marine and Freshwater Research, found on the internet. In this case a bloom of green micro-algae in Wellington Harbour led to fish suffocation.