

## **“The Effects of Acid Rain”**

**Professor Rick Batterbee**

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The speaker said that acid rain was a major issue 40 years ago but has been overtaken in recent years by global warming. From the 1950s complaints were made by Scandinavian countries that acid rain from Britain was depleting fish stocks in their lakes. The UK government denied the charges but decided to fund research into fish stocks in comparable UK lakes. The first problem was to establish a base line for pre-industrial revolution air quality by taking core sediment samples from the lakes in Galloway and North Wales with similar acidity to the Scandinavian lakes. The early focus was on the effects of sulphur dioxide and oxides of nitrogen. The diatom fauna of the sediments indicated increased acidity over time.

Fish stocks in British lakes declined with trout being the first depleted. At issue was whether this was due to acid rain or from nitrate run off from agricultural land. By 1980 Mrs Thatcher's government accepted that acid rain was the cause of the Scandinavian problems and the UK signed UNESCO protocols on reduction of pollutants. General levels of pollution were reduced in the UK although this was already underway as gas replaced coal for electricity generation.

The changes in acidity of the specimen UK lakes have been monitored continuously and the reversion to lower acidity has been slower than predicted by theory, partly because nitrates lodged in soils are taken up by plants during the growing season and re-deposited in the autumn. Climate change with greater winter rain is also contributing to the improvement. However increasing temperatures are adding stress to the system.

In conclusion Professor Batterbee said that future prospects for monitoring the situation were dependent upon funding, which is tending to decrease. The UK and Scandinavian lakes have largely recovered from pollution from sulphur dioxide but recovery from oxides of nitrogen has been slower. There is a real risk that heating effects from global warming could slow the recovery from sulphur dioxide pollution.

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