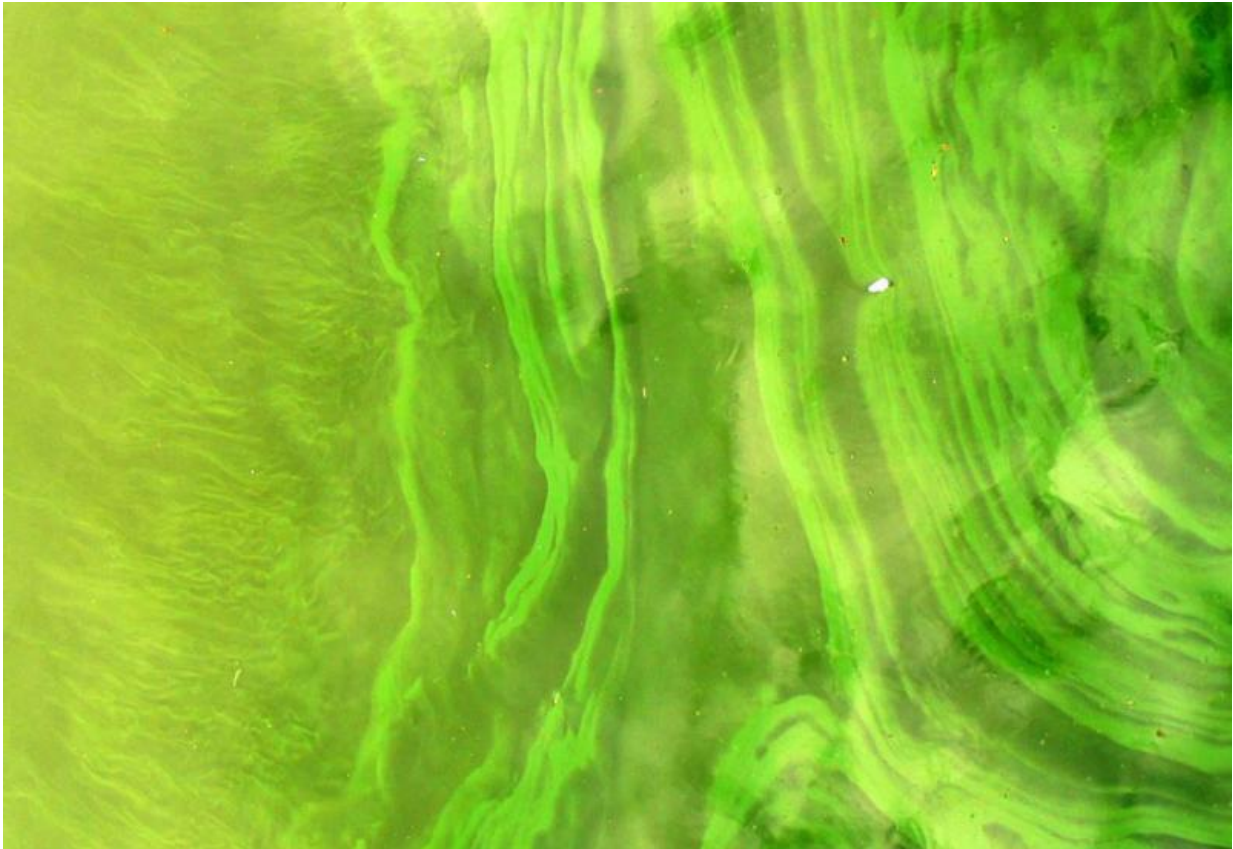


Algal blooms reveal their poisonous past

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A cyanobacterial bloom. Credit: Lamiot, Wikipedia Commons.

A poisonous, "hairy efflorescence" in a 17th century Polish lake is likely to be the first recorded example of a toxic blue-green algal (cyanobacterial) bloom, according to environmental scientists at Flinders.

The description, discovered by environmental sciences senior lecturer Dr John Hutson, was found among the earliest volumes of scientific papers published as the *Philosophical Transactions of the Royal Society*, the august British scientific body founded in in 1660.

The lead was followed up by UK and adjunct Flinders researcher Professor Geoffrey Codd, who, in addition to researching cyanobacterial toxins and what to do about them, has an interest in their history.

The original paper, given to the Royal Society by English merchant, traveller and gentleman scientist Christopher Kirkby in 1672, recounts the deaths of cattle, dogs and poultry after drinking from "an hairy efflorescence" at the edge of Tuchomskie Lake, which is part of a large system of freshwater lakes in the Polish province of Pomerania, near Gdansk.

It was noted that dogs that came into contact with the greenish growth in the shallows of the lake died suddenly, but that horses which were led further out to drink in clear water were unaffected.

"While an element of conjecture necessarily remains, the account is consistent with our understanding of [cyanobacterial blooms](#)," Professor Codd says.

Professor Codd said it is fascinating to contemplate that Kirby's paper is likely to have been read by some of the greatest scientific figures of the age; Isaac Newton, for instance, was elected to the Royal Society in the same year that the paper was published.

As their annual occurrence in Australian waterways reminds us, cyanobacterial blooms are an ongoing problem here, as in Europe, and Professor Codd has been in contact with the Polish scientists who currently monitor and investigate the blooms and their toxins in

Tuchomskie Lake.

Professor Howard Fallowfield, who leads the environmental health specialty in the School of the Environment at Flinders, said the discovery is a novel piece of scientific detective work.

"In effect, the discovery pushes back by 200 years the first report of toxic blue-green algae causing animal deaths," Professor Fallowfield said.

Professor Codd's interest in the history of blooms has also led him, with colleagues at the SA Water Corporation in Adelaide, to research the life and work of George Francis, a 19th century South Australian chemist and assayer who became one of the pioneers of blue-green algal research.

Francis, who lived in the growing city of Adelaide in the 1870s and onwards, was asked by the authorities to investigate widescale livestock deaths along the River Murray and shores of Lake Alexandrina which he correctly attributed to drinking shoreline blue-green algal scum.

His publication of his findings in 1878 in the scientific journal *Nature* became a milestone in the understanding of blue-green algal blooms and their risks to health.

Recent investigations of archives by Hayley Morton and Dr Peter Baker at the SA Water Corporation, with Professor Codd, have revealed that Francis was eventually called upon by Adelaide's health authorities to assess the safety and quality of the city's Adelaide's drinking water supplies in the early 1880s. .

Professor Codd says Francis was an inspiring and exemplary figure.

"He did physical and chemical analysis, he did microscopy, he did the biology; he reported his results rapidly to the health department, he interpreted them and gave recommendations about what to do.

"He did everything right, and did everything that we look for today."

Professor Codd, who is on an annual visit to Adelaide, also pays tribute to contemporary research and education on algal blooms by South Australian universities and agencies.

"South Australia is a world leader in addressing the ongoing problem of blue-green [algal blooms](#), and we know now that the problem has been recognised in the scientific literature for several hundred years."

Provided by Flinders University

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