



Report 06.12
Date 23 February 2006
File ENV/17/02/01

Committee Environment Committee
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Toxic algae in the region's rivers - summer 2005/06

1. Purpose

To provide a summary of the causes, severity, extent and consequences of toxic algae blooms in the region's rivers.

2. Background

In November 2005, a dog died soon after contact with the Hutt River, and an autopsy confirmed neuro-toxins as the cause of death. Sampling by Greater Wellington confirmed the presence of toxic algae (*Oscillatoria* sp.) in the Hutt River. This led territorial authorities to install over 80 warning signs along a large part of the 50 km river system, restricting recreational access. The same algal species was subsequently confirmed in the Mangaroa river, with a second toxic species (*Phormidium* sp.) later found in the Wainuiomata, Waikanae and Otaki rivers.

Over the summer holiday, public health warnings were in force for over 60% of the region's river catchments, and Kapiti Coast District Council closed its potable water intake on the Waikanae River. Although up to five dogs died over the summer period after contact with river water, there were no reports of adverse human health effects.

3. Toxic algae in the region

Toxic algal blooms are a common occurrence in summer to the north of the Wellington region, and within our region have affected lakes at Karori Wildlife Sanctuary, Whitby and Te Marua in recent years. However, there has been no confirmed history of toxic algal problems in the region's rivers, the only possible exception being the Waikanae River, where there have been several instances of unexplained dog and seagull deaths over recent years.

Greater Wellington's routine state of the environment monitoring and bathing water quality monitoring noted the presence of toxic algae in 55% of the region's watercourses in previous years, although not in numbers to cause concern. Overall, the Hutt, Waikanae and Otaki rivers generally exhibit very

good water quality. Data from May 2005 gave no indication of an emerging problem with *Oscillatoria* sp. in the Hutt River, although it did identify an abundance of *Phormidium* sp in the Wainuiomata, Otaki and Waikanae rivers.

Rainfall in late January raised river flows that eventually flushed toxic algae out of the Hutt River, enabling restrictions to be lifted on 30 January. However, at the time of writing, restrictions remain in place for the Mangaroa, Wainuiomata, Waikanae and Otaki rivers.

If the dry weather continues, toxic algal blooms may recur in the Hutt River and affect other rivers in the region. This situation is likely to persist until April, which normally marks the onset of stormy weather that will elevate river flows.

4. Causes and consequences

The hot and dry conditions of summer of 2005/06 resulted in conditions conducive to algal growth; namely elevated water temperature, low flow velocities, available sunlight, and less dilution for nutrients in the water.

As several rivers in the region were simultaneously affected by toxic algae, our preliminary conclusion is that favourable conditions for algal growth arose due to the un-seasonally warm and dry weather, rather than contaminant discharges. However, investigations are currently underway in the Mangaroa Valley, to determine the significance and legality of several agricultural nutrient sources.

5. Incident management

The Health Act 1956 provides the framework for regulatory response to incidents that present a risk to public health. Under this legislation, territorial authorities have a monitoring and public protection role, with the Medical Officer of Health providing guidance and issuing warnings or restrictions as necessary.

This incident led to the formation of an incident management team comprising Regional Public Health service, Hutt City Council, Upper Hutt City Council, Kapiti Coast District Council, Porirua City Council and Greater Wellington. Greater Wellington provided support in the form of environmental monitoring, technical information and media support.

The public responded very well to public health warnings, even though the restrictions effectively removed a major recreational resource for the whole of the summer holidays.

There has also been a high level of co-operation amongst regulatory agencies involved in managing this incident, and lessons learned are being built into a multi-party protocol for responding to future such incidents.

6. Considerations for the future

Given the number of rivers affected by toxic algae during the summer, the Resource Investigations Department will be examining ways in which our river monitoring programmes could be used for predicting toxic algal problems in the future. The Environment Management Division will also be evaluating the effectiveness of controls we impose on farm-sourced nutrient inputs to river systems (via resource consents and our permitted activity rules).

7. Communication

No further public communication is necessary for this report.

8. Recommendations

It is recommended that the Committee:

1. *receive the report; and*
2. *note the contents.*

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