# Global Warming Fuels Avian Botulism Outbreaks in Lakes: Urgent Action Needed

For Immediate Release

11/12/2024

Global warming is exacerbated by the rising threat of avian botulism in lakes, devastating bird populations and aquatic ecosystems. Dr Dulana Herath, an esteemed aquatic biologist and founder of [PASES Aqua](https://www.pasesaqua.com.au/) and [Auspond](https://www.auspond.com.au/), has warned that increasing temperatures, declining water levels, and nutrient-rich conditions are driving the proliferation of Clostridium botulinum, the bacterium responsible for avian botulism.

*“Global warming is intensifying the conditions that allow Clostridium botulinum to thrive,” says Dr. Herath. “As water levels drop and temperatures rise, we are witnessing an alarming increase in outbreaks, which are not just localised events but indicators of a broader ecological crisis.”*

**The Perfect Storm for Botulism Outbreaks**

Avian botulism outbreaks, often fatal for waterbirds, are triggered by high temperatures, stagnant water, and organic material decay. Dr. Herath’s recent case study on Lake Jualbup in Western Australia revealed how drought followed by nutrient-rich runoff during summer and autumn rain events created an ideal environment for the bacterium to flourish in an anaerobic environment. The resulting outbreak caused widespread bird fatalities, perpetuated through the “carcass-maggot cycle” in which botulinum toxins accumulate in maggots, further infecting healthy birds.

**Recommendations to Mitigate Outbreaks**

Dr Herath’s report outlines several measures to combat the growing threat of avian botulism, including:

* Improving Water Quality: Removing decaying organic material especially any dead birds, introducing beneficial bacteria that inhibit growth of C. botulinum, and using nutrient-reducing enzymes.
* Enhancing Aeration: Advanced aeration technologies such as nanobubble systems, solar paddle wheel aerators are employed to maintain oxygen levels even during low water level periods.
* Community Engagement: Educating the public on minimising nutrient runoff (i.e. fertilisers) from urban areas and promoting sustainable practices around wetlands.
* Infrastructure Improvements: Designing deep artificial wetlands and adapting existing ones to mitigate the impact of climate change on natural water resources.
* A Call to Action

Dr. Herath emphasises the urgency of adopting these strategies to protect aquatic ecosystems. “We must act now to mitigate these outbreaks by implementing sustainable water management practices, especially considering global warming will only get worse. This is not just about saving birds—it’s about preserving the balance of the entire aquatic ecosystem from fish, to frogs and invertebrates,” he states.

**Contact Information**

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Literature review - <https://www.pasesaqua.com.au/wp-content/uploads/2024/11/Final-Avian-Botulism-outbreak-report-City-Of-Subiaco.pdf>

Images

<https://www.pasesaqua.com.au/wp-content/uploads/2024/12/Avian-Botulism-Outbreaks-1-scaled.jpg>
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