Nanobubble Technology Deployed in Pilot Project to Enhance Lake Killarney Ecosystem Health

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In a significant step towards ecological restoration, a cutting-edge nanobubble system has been deployed in Lake Killarney, Manitoba, as part of a pilot project aimed at improving water quality and mitigating harmful algal blooms. This initiative, spearheaded by the Killarney Lake Action Committee in collaboration with Calgary-based SWAT Water Technology, represents a proactive, science-backed approach to addressing long-standing environmental challenges facing the lake.

Lake Killarney has historically grappled with persistent cyanobacteria (blue-green algae) blooms, which, according to Betty Sawatzky, Chair of the Killarney Lake Action Committee, are a common and toxic issue in Prairie lakes. “The presence of these toxic blooms, influenced by wind, heat, humidity, and nutrient influx, has led to compromised water quality, impacting recreational activities and aquatic life,” stated Ms. Sawatzky. Previous interventions, including an aeration system installed in 2017, provided some relief but did not fully resolve the recurring algae problem.

The newly installed nanobubble unit infuses water with microscopic oxygen bubbles, significantly smaller than those produced by traditional aeration systems, allowing them to remain suspended for extended periods. This advanced technology is designed to disrupt the environmental conditions that foster algal growth, particularly by reducing the availability of phosphorus, a key nutrient for cyanobacteria.

“The nanobubble system works by dispersing these ultra-fine bubbles throughout all levels of the lake – from the bottom to the surface,” explained Shane Warnez, a volunteer with the Killarney Lake Action

Committee and a representative of SWAT Water Technology. “This extensive dispersion helps to break down excess nutrients that fuel algal blooms. By addressing the food source, we anticipate a substantial reduction in the algae, leading to clearer and healthier water.”

The six-month pilot project, the first of its kind in Manitoba for this specific technology, follows three years of extensive research by the Killarney Lake Action Committee to identify an eco-friendly and cost-effective solution. The unit, comparable in size to a dehumidifier, was strategically placed in a section of the lake known as “the Bay.” It operates by drawing in water, injecting it with oxygen nanobubbles, and returning the treated water to the lake.

Initial observations may include some foaming, but a successful outcome is expected to result in noticeably less algae and improved water clarity, enhancing the lake’s aesthetic appeal. Continuous water testing will monitor phosphorus and dissolved oxygen levels to assess the system’s effectiveness. The trial, costing approximately $11,000, benefits from SWAT Water Technology’s pro bono provision of the unit, with the main expenses for water testing and electricity covered by the local agricultural society.

The community, including local businesses like Kerry Park Campground, is closely observing the pilot’s progress. Cheryl Burke, co-manager of Kerry Park Campground, noted the adverse impact of algae on tourism. “A clear lake would undoubtedly attract more visitors to our community,” Ms. Burke commented, recalling the pristine conditions of Lake Killarney in the 1990s.

Should the pilot project demonstrate positive results, the Killarney Lake Action Committee hopes to secure approval for the installation of additional nanobubble units across the entire lake, signaling a promising future for the long-term ecological health of Lake Killarney.