Chair's Annual Report

FOR THE YEAR ENDING SEPTEMBER 2025

Introduction

This year marks the fifth year of implementing the **Lake Hayes Strategy and Action Plan**, developed in partnership with the Otago Regional Council (ORC). The multi-agency Strategy Group – led by ORC and chaired by Jana Davis – has continued to provide strong direction for restoration and protection planning.

The collaboration between ORC, Queenstown Lakes District Council (QLDC), iwi, the Department of Conservation (DOC), and the Friends of Lake Hayes (FOLH), alongside contributions from landowners and the wider community, has been instrumental in shaping projects across the catchment. A new 2025 Guiding Strategy has now been produced, extending well beyond the original 1995 strategy, expanding the focus from water quality, including a broader range of values.

FOLH has developed draft proposals for future action into this process. As the consultation phase continues, it will be critical that all stakeholders – landowners, agencies, and community groups – contribute their own perspectives so that the final Operational Plan reflects both scientific evidence and practical opportunities. Both these documents are available to read on our website.

Monitoring and data insights

Buoy and water quality monitoring

The investment in a high-resolution lake buoy system, with eight sensors sampling at 0.5 m intervals down to 33 m, continues to generate invaluable long-term data. This dataset is complemented by:

- Monthly samples at the outlet creek (nutrient loads, inflows, rainfall, and lake height).
- Comprehensive monitoring of Mill Creek by ORC, including continuous flow, turbidity, nitrogen, and temperature data, supported by automatic samplers.

Together, these provide a robust basis for assessing nutrient inputs and outputs across the catchment.

Phosphorus trends

Since systematic measurements began on 1 January 2024, we estimate a net loss equivalent to three topdressing plane loads of phosphorus (~300 kg P) from the system. This represents measurable progress toward reducing phosphorus, the lake's key limiting nutrient.

Dissolved oxygen and temperature

Comparing buoy data from 2024 and 2025 shows:

- Temperature: slightly warmer this year, though less vertical mixing occurred due to calmer weather.
- Dissolved Oxygen (DO): ~25% higher throughout the water column. This represents an estimated 550 tonnes of additional oxygen stored in the lake volume (55 million m^3).

This oxygen increase may delay anoxia in the hypolimnion, potentially reducing late-summer nutrient release ("internal loading"). However, outcomes remain dependent on seasonal climate and mixing patterns.

Water clarity and chlorophyll

- Water clarity since February 2025 has been the best observed since the project began.
- Chlorophyll concentrations are ~50% lower than at the same time in 2024.
- Dissolved phosphorus at winter turnover (0.048 g/m^3; ~2.6 t) was ~30% higher than last year, but still within acceptable bounds. This may support additional algal growth during spring; clarity will be monitored closely. Overall, the monitoring evidence suggests improvements in oxygenation and clarity, though nutrient dynamics remain variable year-to-year.

Project updates

Riparian planting and wetlands

- 120,000 native plants established by Mana Tāhuna are thriving, shading streams, stabilising banks, and reducing runoff.
- Wetland systems at Millbrook, Ayrburn, Threpwood, and the northern lake margin are functioning increasingly well, improving flood buffering and nutrient attenuation.
- Maintenance continues through partnerships between FOLH, Rotary, QLDC, and landowners.

Lake outflow improvements

Outflow modifications completed in March 2024 have already enhanced flow regulation. During periods of high phosphorus concentrations in surface waters, this system has accelerated flushing, contributing to measurable nutrient export (~336 kg P between September–November 2024).

Arrow River augmentation

ORC has advanced the Arrow Augmentation Project, enabling diversion of up to 4 million m^3 of cool, low-nutrient water from the Arrow River via Mill Creek into Lake Hayes. At full capacity, this could increase throughflow by up to 40% in dry years, removing an estimated 26 kg of phosphorus annually. Flow trials are due to commence this month.

Sediment traps and removal

Sediment management remains critical:

- ORC/FOLH research suggests 700–1,000 t/year of removal is required for long-term nutrient balance. Changes since mid-year update:
  - Millbrook removed ~1000 t this year, with further removals planned.
  - Ayrburn has committed to a "super trap" in 2026, a major advance in catchment management.
  - FOLH is supporting maintenance of Vision Project traps and reinstating additional traps near Mill Creek.

Policy, planning and stormwater

District Plan (Policy 24.2.4.2)

Over the past five years, FOLH has advocated for improved planning tools to support lake health. Policy 24.2.4.2 is now semi-operational, guiding "common-sense" best practices in developments such as Waterfall Park and Ayrburn. Full QLDC adoption remains a priority.

Stormwater management

Stormwater remains one of the greatest ongoing risks to lake health. Current mapping is outdated, and FOLH/ORC are leading a review to identify weaknesses. A fit-for-purpose stormwater strategy will be essential to embed resilience into the District Plan.

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Research and development

In response to the 2023 State of the Environment Report, FOLH have secured $40,000 from the Sargood Bequest to investigate oxygen demand dynamics in Lake Hayes. A Masters project has now been established under Assoc. Prof. Marc Schallenberg, with field research commencing in 2027 with thesis publication early 2028.

Acknowledgements

I extend my gratitude to:
- FOLH Executive Team (10 members) for their dedication.
- Membership base (~200 people) for financial and in-kind support.
- Sargood Bequest for ongoing generosity.
- Robyn La Roche for outstanding work on communications and our professional web presence.
- Dr. Marc Schallenberg and Prof. Brian McGlynn for scientific guidance.
- Landowners, iwi, DOC, QLDC, ORC and community partners for their active role in improving water quality.

Conclusion

Together, our community and partners are making demonstrable progress toward restoring the ecological health of Lake Hayes. The past year has seen measurable improvements in oxygenation, clarity, and nutrient export, supported by strong project delivery across wetlands, plantings, and infrastructure – however the current improvements are finely balanced and could easily tip back. We need to keep our foot on the throat of nutrient inputs! The biggest downside risk is around stormwater management and land development proposals in the upper catchment wetlands and intensive Ladies Mile development.

To safeguard these gains we need to ensure that best practice learnt from the Ayrburn development enhancements around these issues are included in land use change in the catchment to provide further water quality resilience.

Mike Hanff
Chair, FOLH