Appendix 3 – Advice received on lake planting

Introduction

My full name is Alton Clifford Perrie. I am a Senior Environmental Scientist (Freshwater) at Greater Wellington Regional Council (**the Council**). I have been at the Council for over 20 years.

I hold the degrees of Bachelor of Science (Ecology) and Master of Science (Freshwater Ecology), both from the University of Waikato.

Code of conduct

I have read the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2023 (Part 9). I have complied with the Code of Conduct in preparing this evidence to reflect advice I provided Ms O'Callahan. My experience and qualifications are set out above. Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

Scope of advice provided

I was asked earlier this year by Ms O'Callahan for input into an appropriate riparian vegetation planting buffer around the perimeter of the Parangarahu Lakes for use in Objective WH.O5, which relates to the health and wellbeing of those Lakes.

Determining the appropriate riparian buffer width is largely dependent on the objectives of the buffer (i.e., providing shade, attenuating nutrients and sediments, stabilising banks, etc.), site and catchment characteristics (e.g., landuse intensity, contaminant pathways, topography, etc.), and also the land or room available (e.g., there may be a trade-off between buffer width and productive land).

It is generally accepted that riparian buffer widths of between 10 and 20 metres are sufficient to mitigate water quality impacts from most surrounding landuse practices and protect aquatic biodiversity values. Riparian buffers approaching 20 metre widths are considered to be more robust to invasions from terrestrial weeds and more self-sustaining in the long-term as well as providing greater terrestrial biodiversity benefits and ecosystem services.

While most of the benefits to freshwater appear to be gained in the first 10 to 20 metres of buffer width, it is still generally agreed that the wider the buffer (e.g., >20 metres) is better, although further benefits to freshwater biodiversity gains may be negligible. In my experience, riparian buffer widths of 20 metres are at the very high end of "best practice" implementation in New Zealand.

The Parangarahu Lakes are identified as lakes with outstanding indigenous ecosystem values in the Council's Natural Resources Plan and they are recognised as nationally significant lowland, coastal lakes for their aquatic macrophyte values. Given the high aquatic values of these lakes, it is appropriate in my view to set the minimum riparian buffer width at 20 metres to reflect, and better protect, the high aquatic values in these Lakes.

With both Lakes located in the Council's East Harbour Regional Park, it is expected that there will be few, if any, constraints on riparian buffer widths and that riparian buffer widths will naturally extend far greater than the minimum 20 metres recommended here. However, I did recommend a proviso to ensure that physical constraints can be considered as there are current examples where such vegetation may not be appropriate, such as beachy shoreline areas that are naturally devoid of significant vegetation and areas where there are existing tracks between the lakes and vegetation.

A Perrie

14 May 2025