BEFORE WAIKATO DISTRICT COUNCIL
HEARINGS PANEL

UNDER the Resource Management Act 1991 (**RMA**)

IN THE MATTER OF Proposed Waiakto District Plan

DAVID KLEE

PRIMARY EVIDENCE ON BEHALF OF THE AUCKLAND/WAIKATO FISH AND GAME COUNCILS ("FISH & GAME")

SUBMITTER 433

Hearing 18, Rural

Dated: 8/9/2020

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1. QUALIFICATIONS AND EXPERIENCE

1.1 My full name is David Klee.

1.2 I am employed as Game Bird Manager, based at Auckland/Waikato with Fish & Game

1.3 I have a BSc degree in Biology and MSc degree with first class honours in freshwater ecology, both at the University of Waikato.

1.4 I have been in my current role since October 2008 during which time I have been responsible for monitoring and managing wetland habitat in the Waikato Region. During my employment with Fish & Game I have run the population monitoring and research programmes for game birds at both national and regional scales. A large part of my portfolio includes managing habitat enhancement and restoration projects around wetlands, lakes and rivers. Most of the projects I conduct are within the Waikato River catchment. During my employment with Fish & Game, I have also provided evidence for the Auckland/Waikato Fish and Game Council in statutory planning processes. This involves assessing notified resource consents applications, government policy statements, and statutory plans for their effect on game bird populations and recreational game bird hunting opportunities.

1.7 I am a member of the Waikato and Waipā Peat Lakes and Wetlands Accord groups and sit on the Executive Committee of Waikato RiverCare.

1.8 I am familiar with the Waikato Rural Zone generally through various projects Fish & Game conducts in these catchments. Major work streams include habitat restoration and creation, predominantly for wetlands, and riparian margins on both private and public lands. As such, I have experience, and personal knowledge, of the opportunities and threats that these habitats face in the Waikato District. I have also managed several research projects encompassing these areas in recent years assessing the ecological integrity of wetlands and lakes in relation to game bird productivity and population dynamics.

1.9 Most restoration activities I conduct focus on areas of heavily degraded wetland or marginal pasture. One of the major impediments to conducting these activities are the often onerous and expensive consenting requirements if the activities cannot proceed as permitted.

Expert Witness Code of Conduct

1.10 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. I confirm that the issues addressed in this brief of evidence are within my area of expertise.

1.11 I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed. I have specified where my opinion is based on limited or partial information and identified any assumptions, I have made in forming my opinions.

Scope of evidence

1.12 My evidence is given on behalf of the Auckland Waikato Fish and Game Council and covers the following topics;

a. Why wetland systems are unique in terms of management requirements
b. The need for proactive management of existing wetlands and creation of new wetland habitat.
c. Fish & Game activities and projects to enhance, restore and create wetlands.
d. The need for a planning framework that encourages and supports the creation and restoration of wetland habitat.
e. Specific commentary regarding rule 22.2.3.1 in the proposed Waikato District plan and how it would impact wetland creation and restoration activities.
f. Proposed amendments to rule 22.2.3.1 as covered in the H18 s42A Report.

2. SUMMARY STATEMENT

2.1 Wetlands are one of the most underrepresented ecosystem types left in New Zealand, and the Waikato Region is continuing to lose significant areas of wetlands from both direct drainage and long-term cumulative effects such as altered hydrology and nutrient and sediment loading.

2.2 Relying on the preservation of remnant wetlands alone, will be insufficient at preventing wetland degradation caused by anthropocentric alteration to natural ecosystem functioning. The District Plan must therefore find a balance that allows for interventions that aim to minimise impacts, restore hydrological functionality where it has been compromised and create new wetlands in order to provide habitat for species that no longer have sufficient natural wetland habitat to meet their ecological requirements.

2.3 To the best of my knowledge, all wetlands in the Waikato District have had their natural process disrupted to some extent. Alterations have most commonly involved earthworks to conduct drainage modifications. For this reason, reinstating natural hydrological processes through 'reverse drainage' is a priority for Fish and Game.

2.4 Resource consents can create an impediment to conducting wetland restoration and creation projects. They generate an extra cost burden for projects which are already financially strained. In my experience, landowners are less willing to conduct projects if consents are required and I have personally been involved in several projects which have not proceeded due to draconian consent requirements that are based on what I consider to be arbitrary provisions in both Regional and District Plans.

2.5 The H18 s42a report canvasses the issues raised in my evidence and suggests amendments to the proposed District Plan in order to facilitate conservation activities. I generally support the changes proposed, most notably the changes to rule 22.2.3.1 which would permit earthworks ancillary to conservation activities and the deletion of rule P2 (vi) and P3 (vii)

2.6 I disagree with the introduction of proposed rule 22.2.3.1 P1 (b)(i) *Sediment resulting from the earthworks is retained on the site through the implementation and maintenance of erosion and sediment controls.*

The wording if taken literally suggests that all sediment must be retained on site which is sometimes impossible. The rule should be amended to ensure that sediment is retained on site as best as practicable. In my opinion it is also illogical to only subject conservation activities to this rule. Other rural earthworks activities pose a much greater threat of sediment entering waterways due to the types of actions permitted, their frequency and extent.

3. WHY WETLANDS NEED MANAGMENT

3.1 The rate of wetland habitat loss in New Zealand has been dramatic and wetland ecological integrity is severely depleted. What remains is threatened, with some ecosystem types, communities, and species facing extinction. In the Waikato Region it is estimated that a further 1.2% of remnant wetlands were completely lost, and 15% suffered partial loss, during the time period 2001 – 2016. This is likely to under-estimate the loss in wetland extent (Stats NZ 2020).

3.2 The negative impacts resulting from wetland loss and degradation include the loss of habitat for a diverse range of plants and animal species, and loss of ecosystem services such as flood storage, filtering of nutrients and sediment from discharged water. Wetlands are ecotones that support both terrestrial and aquatic biota. They can be affected by a range of human disturbances, including alterations of nutrient supply, changes in hydrology, sedimentation, fire, vegetation clearance, soil disturbance, weed invasions (aquatic and terrestrial), and animal pest invasions (Clarkson et al. 2004a).

3.3 Given the continued loss of wetlands and flow on effects to wide variety of species that rely on them, I understand the need for stricter legislation to safeguard wetland environments, but the framework needs to be carefully considered to provide for wetland construction and restoration activities.

3.4 It is important to recognise that wetland systems are distinctly different from riverine and lacustrine systems in the patterns of degradation.

Lakes and river systems have generally maintained their original extent, with various modifications such as alterations of course, damming, nutrient enrichment, sedimentation, etc. However, for wetland systems the most significant impact by far is reduction in aerial extent by clearance and drainage. The remaining wetlands are then further impacted by various factors such as nutrient inputs and sedimentation (Clarkson et al 2015). These pressures therefore have cumulative adverse effects.

3.5 Another cumulative matter which must be considered when managing wetlands is that contaminants do not get continually flushed out over a defined time, as in a river environment (which can improve rapidly once catchment concentrations are reduced).

3.6 Wetlands are a natural sink for nutrients and sediment so even if contaminants are discharged to wetlands at low levels, these will still contribute to the continued degradation of the wetland system if elevated above the wetland's capacity to process them. This can lead to ongoing and permanent declines in wetland ecosystem health.

3.7 Protection alone will not prevent further loss of wetland biodiversity. Effective conservation will also require active management and restoration to mitigate impacts of invasive species, fire, sedimentation, nutrient enrichment, and altered hydrology (Sorrell & Gerbeaux, 2004). In order to minimise eutrophication, exotic plant invasion and sediment accumulation, routine maintenance activities are often required in wetlands. The statutory framework needs to both protect wetlands from further attempts to drain them or cause other adverse effects, but also allow for their maintenance and re-establishment.

3.8 The protection, enhancement and creation of new wetland habitat remains one of Auckland/Waikato Fish & Game's highest priorities. In the past 10 years I have been involved in 47 discrete projects for such purposes, on DOC, Fish & Game, Waikato Regional Council and private land in the central Waikato Region. However, for every project completed in the Region, there appear to be other wetland sites being drained or degraded at an even faster rate.

3.9 In recent years, I have focused much of my attention on the creation of wetlands on marginal farmland. These sites were often part of larger wetland complexes that were drained in a bygone era where wetlands were viewed as wastelands. I have certainly witnessed an intergenerational shift as many new landowners are recognising that many decades of attempting to drain marginal sites have been unsuccessful in providing increased production or land values. This is in part compounded by the fact that many of these areas are on peat land.

3.10 Peat, when drained goes through an initial rapid subsidence event and then as it dries, oxidises and shrinks further. The average contemporary (2000s–2012) subsidence rate for Waikato peatlands was 19 ± 2 mm yr-1 (± SE) and was significantly less ($p = 0.01$) than the historic rate of 26 ± 1 mm yr-1 between the 1920s and 2000s (Pronger et al.2014). Many areas that were drained a generation or two ago have subsided to the extent where they now receive frequent and prolonged inundation events and therefore lend themselves to restoration.

3.11 Fish and Game work with willing landowners by assisting with funding applications, sourcing, and supplying appropriate wetland plant species and conducting earthworks to help restore hydrological functionality. The activities can often best be described as ‘reverse drainage’ where the original hydrology is restored to sites through the infilling of drains or creating small bunds and earth dams to create a preferential hydrological regime to restore wetland ecosystems.

3.12 I am not aware of any wetlands in the entire Waikato District that have not been adversely impacted through hydrological modifications. Even large internationally significant sites such as Whangamarino Wetland continue to be degraded through multiple hydrological stressors including peripheral drainage activities. As such, there is no wetland in the Waikato that would not benefit from the restoration hydrological processes. Given that alterations have largely occurred through earthwork activities, it is also logical that earthworks will be required to restore them.

4. WETLANDS AND PLAN FRAMEWORKS

4.1 I conduct many projects under permitted activity rule 3.6.4.4 in the Waikato Regional Plan-Small dams and damming of water.

1. *The damming of water and its diversion, taking, and discharging related to its passage through, past or over the dam, in any off-stream area or ephemeral river or stream or artificial watercourse, and*
2. *The use, erection, reconstruction, placement, alteration or extension of any associated structure in or on the bed of an ephemeral river or stream, where:*

i) the catchment area is less than one square kilometre (100 hectares), and
ii) the maximum retained water depth in the pond is less than three metres, and
iii) the dam retains not more than 20,000 cubic metres of water except that:
a) the damming shall not affect Significant Geothermal Features
b) the dam shall not occur in a cave system;
*is a **permitted activity** subject to the following conditions:*

a) The dammed water is not a Natural State Water Body as identified in the Water Management Class Maps.
b) The dammed water shall not raise water levels on neighbouring properties.
c) Any erosion or scour as a result of the dam and associated discharges shall be remedied as soon as practicable.
d) The damming or discharge of water from the dam shall not increase the potential for land instability.
e) A spillway must be constructed to prevent the dam being overtopped, and the spillway shall be designed to pass the probable maximum flood.
f) The spillway shall be constructed on underlying parent material.
g) The activity shall not disturb any archaeological site or waahi tapu as identified at the date of notification of this Plan, in any district plan, in the NZ Archaeological Association's Site Recording Scheme or by the Historic Places Trust except where Historic Places Trust approval has been obtained.
h) In the event of any waahi tapu that is not subject to condition g) being identified by the Waikato Regional Council to the person undertaking the activity, the activity shall cease insofar as it may affect the waahi tapu. The activity shall not be recommenced without the approval of the Waikato Regional Council.
i) The structure shall be maintained in a structurally sound condition at all times.
j) Any discharge from construction works associated with the structure shall comply with the suspended solid standards as set out in Section 4.2.21.

4.2 The operative District Plan rule 25.25 allowed for damming and diversion providing projects complied with permitted activity rule 25.25.1, in particular volume and area restrictions (h&j) and batter face criteria (i).

4.3 In some instances, the volume and area restrictions stipulated in the operative District Plan were prohibitive and meant that either consents

were required, or projects were scrapped as they could not fit within PA status. Many of the projects I am involved in are run on shoestring budgets and as covered in the evidence of Mr Wilson[1], fees associated with consents can blow out, sometimes costing more than the actual physical works themselves. This provides uncertainty and a perceived increase in risk for landowners. In my experience, as soon as consenting requirements are mentioned, landowners become much less likely to pursue a project and therefore those rules provide a disincentive for conducting projects that are accepted to provide positive environmental outcomes.

4.4 By way of example, I have been working with a landowner who in 2017 received $2000 of external funding from the Waikato Ecological Enhancement Trust to block two historical drains that have altered the hydrology of a listed SNA wetland. In my opinion these drains continue to facilitate significant adverse effects to ecological integrity ecosystem functioning. The Waikato Regional Council has directed that the activity would require a consent as in their opinion the drains constituted modified natural watercourses rather than artificial watercourses. Regardless of whether the drains were lawfully established a consent will now be required to restore the original hydrology of the wetland. In this instance the $2000 the landowner received only covers around 50% of the total project budget. The landowner viewed the consent process too much of a burden and potential risk of paying extra fees dissuaded him from going ahead with it. The $2000 has been relinquished and the opportunity has been lost.

4.5 The proposed District Plan rule 22.2.3.1 had volume and area restrictions which in my opinion would provide arbitrary impediments to conducting wetland restoration and construction activities. The Fish & Game submission sought to have this rule amended to allow for such activities. The H18 S42A report[2] acknowledged this issue and it is now proposed that *"earthworks ancillary to conservation activity are provided for as permitted given the social and environmental benefits*

[1] Paragraph 3.13, Ben Wilson Primary Evidence.
[2] Paragraph 267, Section 42A Hearing Report, Rural Zone.

that arise from such activities". I support the proposed amendment which will also be covered in the evidence of Ms Davis[3]

4.6 The amendment does introduce a new rule P1 (b)(i) requiring that "*sediment resulting from the earthworks is retained on the site through the implementation and maintenance of erosion and sediment controls"*. The rationale for this inclusion is that earthworks related to conservation activities will often occur close to watercourses.

4.7 I agree that sediment should be contained within work sites as best as practicable but have some concerns about the absoluteness of the proposed wording if it were to be interpreted literally. In some instances, it may be unavoidable that a small amount of sediment is discharged from an earthworks site, for example, during an unseasonable storm event. It also seems curious that this rule is solely reserved for conservation actives, given that ancillary rural activities such as farm drainage and cropping are not subject to these requirements. Given the quantity and spatial extent of rural ancillary activities occurring in the District, including near watercourses, compared to the small amount of conservation work, I consider it is irrational to single out conservation activities in this instance. In my opinion other rural activities create greater risks of sediment entering watercourses.

4.8 The General Earthworks rule (22.2.3.1, P2 (vi) and P3 (vii) in the proposed District Plan sought to impose further restrictions on earthworks which could severely restrict restoration and creation of wetlands. I consider the proposed wording "*Do not divert or change the nature of natural water flows, water bodies or established drainage paths"* to be particularly problematic. The rule is all encompassing and would apply to any waterway. As drafted, it would dictate that any time someone was to install a small bund or dam, a resource consent would be required. By its very nature, the act of creating a dam requires the diversion of water around or through the structure. It most certainly alters the 'nature of the flow'.

[3] Paragraphs 23-32, Statement of Evidence, Mischa Davis

4.9 The rule is poorly constructed, as it does not seek to avoid remedy or mitigate potential adverse effects associated with the earthwork's activity, rather it seeks to stop the activity outright. I could not locate any commentary in the S32A[4] report regarding the need for this rule and I am unclear what rationale was applied to its drafting.

4.10 It is entirely conceivable, that flow paths can be altered through damming and diversion without any deleterious environmental or social consequences and as outlined in my evidence this activity is often necessary to restore hydrological functionality to wetland ecosystems. In my opinion conditions a)-j) in the rule 3.6.4.4 of the WRP address potential adverse effect on the environment more appropriately whilst still allowing for the positive outcomes of wetland creation and restoration.

4.11 This issue has been recognised in the S42a report[5] with the proposed removal of rule 22.2.3.1 P2 (vi) which I fully support and will be covered further in the evidence of Ms Davis.[6]

[4] Section 32 Report Part 2 Rural Zone.
[5] Paragraph 289, Section 42A Hearing Report, Rural Zone
[6] Paragraphs 26-32 Statement of Evidence, Mischa Davis

References

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