

**BEFORE THE COMMISSIONERS ON BEHALF OF
THE OTAGO REGIONAL COUNCIL**

Consent No. RM20.003

BETWEEN

ROCKBURN WINES LIMITED

Applicant

AND

OTAGO REGIONAL COUNCIL

Consent Authority

EVIDENCE OF CIARAN SEWELL MERRICK CAMPBELL

Introduction

1. My full name is Ciaran Sewell Merrick Campbell.
2. I am a Freshwater Ecologist at Otago Regional Council. I hold the following tertiary qualifications; a Bachelor of Science (Ecology and Zoology double major) from Massey University and a Postgrad Diploma in Wildlife Management with Distinction from the University of Otago.
3. I specialise in freshwater ecological research and management of native freshwater fish. I was a freshwater fisheries specialist for the Department of Conservation from 2011 to 2019.
4. I am currently working my way towards a Master of Science (Zoology) through University of Otago, my project focusing on using genomic data to inform phylogenetics, and ultimately formal species descriptions, of threatened non-migratory galaxias fishes in Otago.
5. During the last ten years I have undertaken freshwater fish surveys throughout Otago catchments, and extending into the Waitaki catchment. I have considerable and contemporary understanding on the freshwater ecosystems and fish species of Otago from my employment and tertiary studies.
6. I confirm that I have read and agree to comply with the Environment Court Code of Conduct for Expert Witnesses (Consolidated Practice Note 2014). This evidence is within my area of expertise, except where I state that I am relying on the evidence or information provided by another parties. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

Scope of Evidence

7. My evidence addresses:
 - An assessment of the nature and ecology of Park Burn
8. To inform my assessment, I have used
 - freshwater fisheries data provided by the New Zealand Freshwater Fish Database (Crow 2017) - henceforth referred to as NZFFD.
 - Consent Application RM20.003.01
 - An ecological assessment report (Allibone 2019)
 - Hydrological evidence prepared by Xiaofeng Lu – ORC Hydrologist.
 - Observations I made during a site visit, 7 February 2020.

Park Burn

9. Park Burn sources from the upper Pisa Range and flows in an easterly direction towards Lake Dunstan. The creek descends rapidly and flattens out as it hits the valley floor.
10. There are no flow records for Park Burn. To establish flows, Otago Regional Council Hydrologist – Xiaofeng Lu – used flow records from the neighbouring catchment, Amisfield Burn. The Amisfield Burn flow recorder has been in place since 2013 and is not impacted by any water abstraction or augmentation, therefore the recorded flows can be considered natural. Based on the flow data recorded, the following flow statistics have been generated:

Table 1: Flow statistics for Park Burn calculated by Xiaofeng Lu as a ratio of Amisfield Burn.

Location	Area (m ²)	Runoff (mm)	Vol (m ³)	7dMALF (Oct-Apr)	MALF (HYDRO YEAR)
Amisfield Burn flow recorder	6560262	372	2441998	0.068	0.062
Park Burn	15140786	191	2897596	0.081	0.073

11. Based on the data provided in the application, there is a natural loss of surface water to ground which is unlikely to provide connectivity to Lake Dunstan during summer low flow conditions in Park Burn (Landpro 2019, Allibone 2019). This supports previous and recent observations that Park Burn is naturally ephemeral in reaches on the valley floor.

Ecological values

12. To consider the ecological values of the site, NZFFD records were combined with a recent survey report provided in the consent application.
13. The NZFFD provides presence/absence data for fish species at 3 sites in the Park Burn catchment. Records exist for fish surveys from 1996 and 2018 (Fig. 2, Table 2). Brown trout (*Salmo trutta*) are the only fish species recorded in Park Burn on the database.
14. Since 2018, a survey was completed in the Park Burn and neighbouring catchments by Dr Richard Allibone of Waterways Consultants Ltd. Brown trout were detected at five sites and rainbow trout (*Oncorhynchus mykiss*) at one site in Park Burn (Table 2).

15. Sampling across Park Burn is not extensive, however in my opinion there is sufficient data to determine fish values.
16. Brown trout and rainbow trout are introduced sports fishes (classified as Introduced and Naturalised – Dunn et al. 2018) that appear to have formed a self-supporting, stunted population in the Park Burn catchment (Allibone 2019), which is highly unlikely to be acting as a nursery to the downstream Lake Dunstan fishery due to the ephemeral nature of the creek.
17. Regionally Significant Wetlands are listed in Schedule 9 of the Regional Plan: Water for Otago. There are no Regionally Significant Wetlands that will be affected, adversely or otherwise, by the proposed water take in the Park Burn.
18. The hydrological nature and connectivity of these catchments is complex and highly variable. To prevent unnecessary mortality, freshwater fishes should be able to move freely between natural waterways, water races, and storage ponds within the systems affected by this application. To further prevent unnecessary mortality, a fish screen should be installed on the outlet from storage ponds. A drum-shaped screen with 3mm mesh is recommended (Jamieson et al. 2007).

Recommendations

19. My recommendation is a fish screen is placed on the storage pond outlet.

Summary

20. Park Burn is a small, ephemeral creek situated in the Pisa Range, Lake Dunstan catchment.
21. Park Burn has small, self-sustaining populations of brown and rainbow trout and is unlikely to be acting as a nursery for downstream fishery.

Ciaran Campbell

27 July 2020

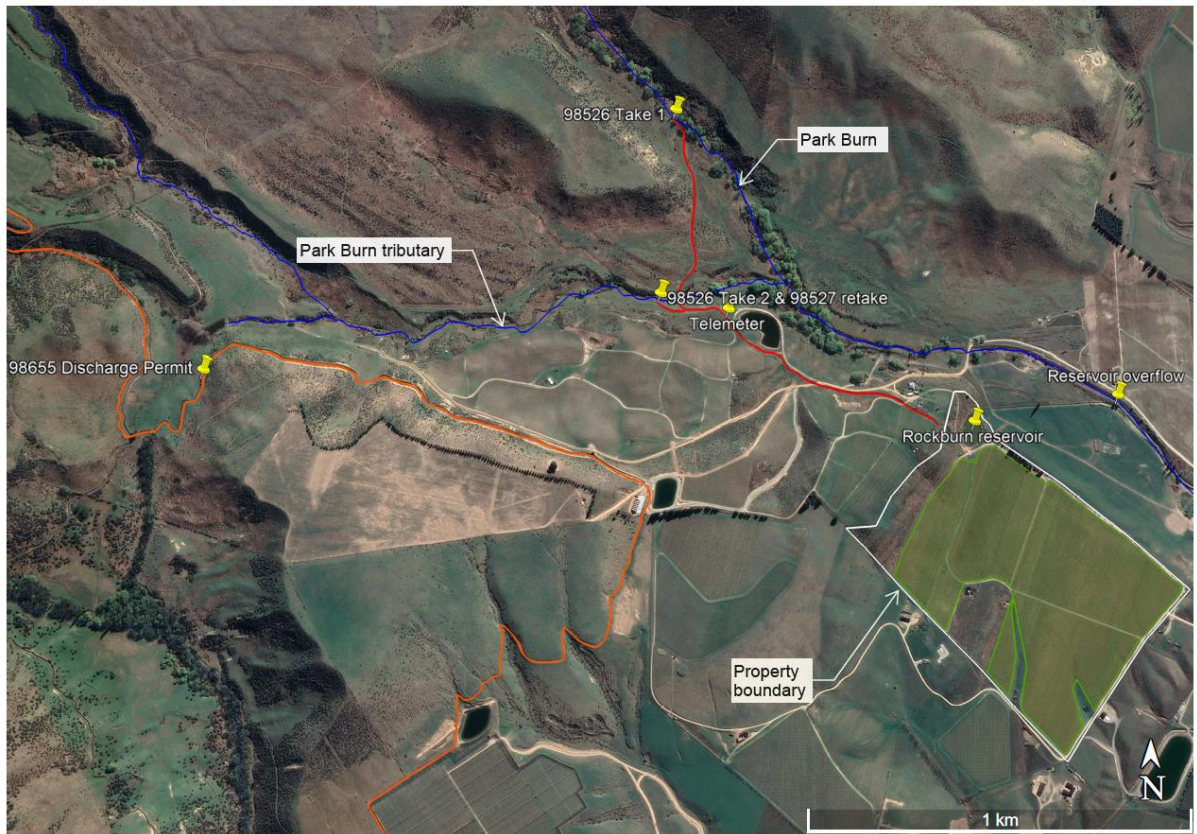


Figure 1. Park Burn catchment, location of proposed water takes (98526 Take 1 and Take 2).

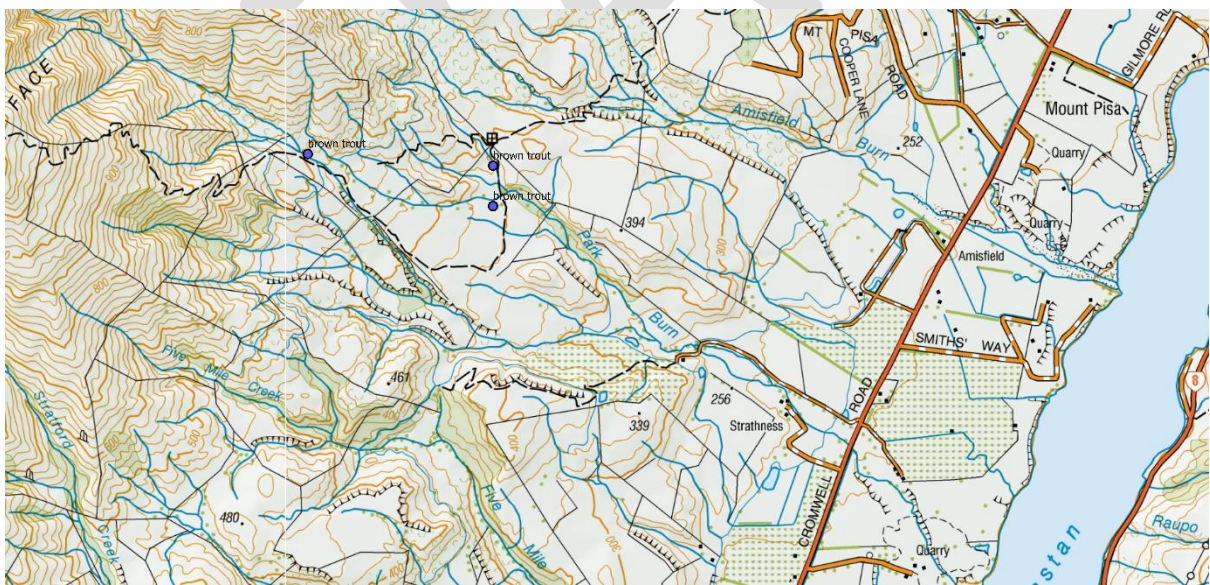


Figure 2. NZFFD records from the Park Burn catchment.

Table 2. NZFFD data from Park Burn.

Card	m	y	location	org	east	north	fishmeth	species	count
15507	1	1996	Park Burn	doco	2211500	5578900	efp	brown trout	1
15508	1	1996	Park Burn tributary	doco	2211500	5579200	efp	brown trout	1
114079	4	2018	Park Burn tributary	rdcl	2210123	5579288	efp	brown trout	4

Table 3. Water Ways Consulting Ltd Data from Park Burn

Site	Area fished (m ²)	Species and size
Park Burn 1	100	brown trout (length 219mm)
Park Burn 2	Nil	Nil
Park Burn 3	10	Nil
Park Burn 4	80	brown trout (length 67-80mm)
Park Burn 5	20	Nil
Park Burn 6	80	brown trout (length 77-97mm)
Park Burn 7	Nil	Nil
Park Burn 8	Nil	Nil
Park Burn 9	30	brown trout (length 78-205mm)
Park Burn 10	50	Nil
Park Burn 11	100	brown trout (length 104-151mm), rainbow trout (length 127mm)
Park Burn 12	80	Nil

References

Allibone, R.A. (2019). Park Burn and Amisfield Burn Ecological Considerations for Residual Flows. Water Ways Consulting Ltd, report 78-2019 for Landpro Ltd.

Crow, S. (2017). New Zealand Freshwater Fish Database. Version 1.2. The National Institute of Water and Atmospheric Research (NIWA). Occurrence Dataset <https://doi.org/10.15468/ms5iqu>.

Dunn, N. R., Allibone, R.M., Closs, G.P., Crow, S.K., David, D.O., Goodman, J.M., Griffiths, M., Jack, D.C., Ling, N., Waters, J.M., Rolfe, J.R. (2018). Conservation status of New Zealand freshwater fish. New Zealand threat classification series 24. Wellington, Department of Conservation.

Jamieson, D., Bonnett, M., Jellyman, D., and Unwin, M. (2007). Fish Screening: good practice guidelines for Canterbury. NIWA Client Report CHC2007.092. NIWA, Christchurch.

Landpro (2019). Hydrological assessment prepared for water users of the Park Burn: Small Burn Limited and Parkburn Water Company. Technical comment.