

## Submission on Publicly Notified Consent Application

**To:** Environment Southland  
Private Bag 90116  
Invercargill 9840

**Name of submitter:** Fish & Game New Zealand – Southland Region ('Fish & Game')  
PO Box 159  
Invercargill 9825

**Attention:** Rebecca Robertson – Consents Officer

**Name of Applicant:** Castlerock Farming Company Ltd ('the Applicant')

**Application:** APP-20181676

**Description of activity:** The Applicant has applied for resource consent to undertake the following activities:

- Drill and construct up to 12 groundwater bores of which up to 6 may be used to take groundwater;
- Take up to 50L/s and 4,320m<sup>3</sup>/day of groundwater from the Lumsden Aquifer for groundwater bore / aquifer testing; and
- Take up to 50L/s, 4,320m<sup>3</sup>/day and 113,745m<sup>3</sup>/year of groundwater from the Lumsden Aquifer for pastoral irrigation, dairy shed use and stock drinking water.

The purpose of the proposed take is principally to supplement the Applicant's existing surface water take (AUTH-301933) from the Oreti River (14,000m<sup>3</sup>/day and 1,260,000m<sup>3</sup>/year) to irrigate up to 400ha of pastoral land that is used for dairy farming. The application provides that:

- The Applicant is frequently unable to irrigate during the driest part of the season when irrigation is most needed as a result of the minimum surface water flow cut-off; and
- There is no freshwater storage on site.

The Lumsden Aquifer is considered overallocated when assessed against the Regional Water Plan for Southland ('the Operative Plan'). The Lumsden Aquifer is nearing full discretionary allocation when assessed against the Proposed Southland Water and Land Plan ('the Proposed Plan') – 69,954m<sup>3</sup>/year is available as discretionary allocation under the proposed plan.

**Location:** 72 Castlerock Road, Lumsden.

**Our submission relates to:** The proposed groundwater take of up to up to 50L/s, 4,320m<sup>3</sup>/day and 113,745m<sup>3</sup>/year of groundwater from the Lumsden Aquifer for pastoral irrigation, dairy shed use and stock drinking water.

For the avoidance of doubt, Fish & Game is not opposed to the proposed drilling / construction of groundwater bores and proposed groundwater take from the Lumsden Aquifer for groundwater bore / aquifer testing. Fish & Game considers that undertaking these activities would provide useful information about the Lumsden Aquifer properties, the degree of hydraulic connection with surface water flows and any adverse effects, including cumulative adverse effects, on surface water flows in the vicinity of the proposed groundwater take.

**Our submission is:** We oppose the proposed groundwater take of up to 50L/s, 4,320m<sup>3</sup>/day and 113,745m<sup>3</sup>/year of groundwater from the Lumsden Aquifer for pastoral irrigation, dairy shed use and stock drinking water.

**Our reasons for comments are:**

Fish & Game is responsible for the management and enhancement of sports fisheries and game bird populations in Southland Region in the recreational interests of anglers and hunters. Fish & Game has an interest in groundwater extraction, particularly where it may affect ground and / or surface water quality / quantity, aquatic ecosystems and sports fish and game populations.

In this case, the location of the proposed groundwater take falls within the mid-Oreti Catchment. Specifically, the main channel of Murray Creek runs through the property on both sides of Dipton – Castlerock Road and the property is bordered to the east by the main stem of the Oreti River.

There are considerable Fish & Game values associated with the Oreti catchments as follows:

1. Of significance to Fish & Game and freshwater anglers is the self -sustaining population of brown trout, which the Oreti catchments support.
2. The Oreti River and Murray Creek catchment have the following specific Fish & Game values:
  - a. It is a significant habitat of indigenous and introduced waterfowl, including game species which are actively hunted during the annual game bird hunting season. .
  - b. The Oreti River and its tributaries support a nationally significant brown trout fishery and angling amenity features that are recognized pursuant to the Water Conservation (Oreti River) Order 2008 ('the Oreti WCO') as including:
    - i. The following protected waters with outstanding characteristics or features:

- Oreti main stem at Rocky Point at NZMS 260 E44 373 946 upstream to the forks at E42 345 450 – habitat for brown trout, angling amenity and value in accordance with tikanga Maori; and
  - Weydon Burn, Windley River and all other tributaries upstream of the Oreti River at E43 305 210 near Lincoln Hill – habitat for brown trout.
- ii. The following waters to be protected for their contribution to outstanding features:
- Oreti River downstream of Rocky Point at E44 373 946 to the Wallacetown Bridge at e46 455 208 – habitat for brown trout and habitat for black-billed gulls; and
  - Groundwater hydraulically connected to the surface water of the Oreti River from Rocky Point at E44 373 946 upstream to the forks at E42 345 450 – habitat for brown trout, angling amenity and value in accordance with tikanga Maori.

The Oreti River is a heavily fished brown trout river. In terms of angler use, national angler usage surveys are undertaken by the National Institute of Water and Atmosphere (NIWA) once every seven years to assess angler use in terms of the number of angler visits to each waterbody. <sup>1</sup> NIWA estimates that during the 2014 / 2015 angling season 16,900 ± 2,060 angler days were spent on the main stem of the Oreti River, of which:

- i. Approximately 2,340 ± 600 angler days were spent on the Oreti River above Lumsden; and
- ii. Approximately 12,940 ± 870 angler days were spent on the Oreti River below Lumsden.

The mid Oreti River provides important fish passage for brown trout moving within the catchment. This is an important consideration because:

- i. Brown trout spawn in freshwater and move extensively within freshwater, including upstream and downstream. Some brown trout migrate to sea, estuarine or tidal riverine reaches at various times for various periods during their life history; and
- ii. Those brown trout that do migrate to the lower reaches with a greater abundance of large food items are more likely to grow to 'trophy' proportions before migrating back upstream. They are highly valued by recreational anglers.

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<sup>1</sup> Unwin M. (2016). *Angler usage of New Zealand lake and river fisheries - Results from the 20014 / 15 National Angling Survey*, NIWA.

The Oreti River, depending upon location, can be fished using a range of techniques and offers angling opportunities to inexperienced and experienced trout anglers alike.

Further, the Oreti River is a significant resource for other recreational pursuits such as white bait fishing, boating, rowing and swimming.

- c. Murray Creek is a significant groundwater fed system that drains into the Oreti River above Ram Hill, which is a major hydrological reference point because the majority of surface and groundwater in the upper Oreti River catchment is thought to be constrained through this point

Murray Creek begins as a series of small intermittent drainage channels south of Mossburn township and flows parallel with the Oreti River for the length of its course. Limited instream gauging data suggest that Murray Creek gains flows along its length.

Murray Creek catchment is intensively farmed in its mid and lower reaches with several dairy farms operating in the area, including a number that undertake pastoral irrigation.

Murray Creek is a recognised brown trout spawning tributary of the main stem of the mid-Oreti River and a medium sized spring fed brown trout fishery, particularly downstream of the Double Road Bridge. Dense bank cover can, however, limit angler access to Murray Creek. Winter spawning surveys were undertaken by Fish & Game on Murray Creek between 2003 – 2007, which identified brown trout spawning throughout the following surveyed reaches:

- i. From its confluence with the Oreti River to the Double Road Bridge; and
- ii. From Double Road Bridge to where it first emerges as springs along the base of a terrace to west of the Oreti River near Lumsden.

Murray Creek is classified as 'spring fed' on the water quality maps in both the Operative Plan – Appendix D and the Proposed Plan – Part B: Maps. In addition, Murray Creek between its confluence with the Oreti River to Castlerock – Dipton Road is recognised in Schedule 5.4 of the Southland District Plan as having legal access along most of its length, but has moved away in places. Legal access is comprised of unformed legal road, marginal strip and Crown hydro land.

The freshwater fisheries database records that the following fish species have been found at various locations in Murray Creek: gollum galaxiids, upland bullies freshwater crayfish, long fin eel, upland bully and brown trout.

The above background information explains the significance of the brown trout fishery associated with the Murray Creek and Oreti catchment and the context in which the Applicant's proposal has been considered by Fish & Game.

## **Bore testing**

To date, bore tests, including stepped pump tests, have yet to be undertaken in relation to the proposed groundwater take. The application provides that the Applicant has lodged all resource consents simultaneously due to concern that because the Lumsden Aquifer is nearing full discretionary allocation under the Proposed Plan it could invest in infrastructure and then be unable to access water.

Fish & Game is not opposed to the proposed drilling / construction of groundwater bores and taking of groundwater from the Lumsden Aquifer for groundwater bore / aquifer testing. Fish & Game considers that undertaking these activities would provide useful information about:

1. The Lumsden Aquifer properties – technical comment suggests that the Lumsden Aquifer is likely to be semi-confined near the proposed site; and
2. Any adverse effects, including cumulative adverse effects on surface water flows in the vicinity of the proposed groundwater take for pastoral irrigation, dairy shed use and stock drinking water.

## **Stream depletion effects**

Technical comment by Michael Killick, Technical specialist – Soils and Groundwater Quantity, for Environment Southland provides that the Lumsden Aquifer is expected to be semi-confined near the proposed site. In this case, the Applicant has modelled surface water hydraulic connection and considers it to be 'low' pursuant to the Proposed Plan classification. Conversely, Mr Killick considers that:

1. More conservative, i.e. higher, values of stream bed conductance than those used by the Applicant are appropriate; and
2. If more conservative values of stream bed conductance are used there will be at least 'moderate' hydraulic connectivity with Murray Creek and with respect to bore 7 the potential for 'high' hydraulic connectivity with the Oreti River and hence require a minimum flow cut-off.

In this case, the effects of moderate or high hydraulic connectivity and associated stream depletion have not been assessed. As such, there is uncertainty regarding:

1. Adverse effects, including cumulative adverse effects, on surface water flows in Murray Creek and the Oreti River; and
2. Whether minimum flow cut-off are required to maintain surface water flows in Murray Creek and / or the Oreti River under low flow conditions.

## **Decision we wish the Council to make**

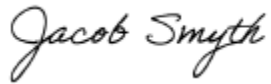
That the application to take up to 50L/s, 4,320m<sup>3</sup>/day and 113,745m<sup>3</sup>/year of groundwater from the Lumsden Aquifer for pastoral irrigation, dairy shed use and stock drinking water be declined.

Fish & Game wishes to be heard in support of its submission at a hearing if needed.

Fish & Game wishes to be involved in any pre-hearing meeting that may be held for this application.

If others make a similar submission, Fish & Game will consider presenting a joint case with them at a hearing.

Fish & Game has served a copy of its submission on the Applicant.

A handwritten signature in cursive script that reads "Jacob Smyth".

Jacob Smyth  
Resource Management Officer  
Fish & Game New Zealand – Southland Region

Date: Tuesday, 7 May 2019

Cc: Landpro  
PO Box 302  
**Cromwell 9342**

**Attention: Tim Muller – Environmental Scientist**