



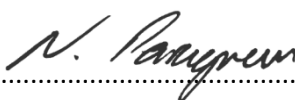
16 October 2020
Otago Regional Council
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Submission on Application No. RM20.039

This feedback is provided on behalf of the Otago Fish and Game Council (Fish and Game). For additional information please contact Nigel Paragreen using the details below.

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Introduction

- [1]** Fish and Game is the statutory manager of sports fish and game bird resources within Otago. It holds functions and responsibilities set out in the Conservation Act 1987. The organisation's functions include managing, maintaining and enhancing the sports fish and game resources of Otago in the recreational interests of anglers and hunters; representing the interests and aspirations of anglers and hunters in the statutory planning process; and advocating the interests of the Council, including its interests in habitats. This submission has been developed in line with these functions.
- [2]** Due to the popularity of angling in New Zealand, the demographic Fish and Game represents when carrying out its statutory functions is significant; however, this is not always obvious. The 2013/2014 Active NZ Survey conducted by Sport and Recreation New Zealand reported that 19.5% of respondents had been fishing (including both marine and freshwater angling) in the past 12 months¹. The survey found fishing had a higher rate of participation than rugby, tramping, football, cricket and basketball for men; and that fishing had a higher participation rate than netball, tennis, snow sports and tramping for women. Within Otago, license sales have exceeded 10,000 licenses in the past two decades and in the last decade has increased to over 20,000 licenses across all categories. Participation rates estimated from the National

¹ Sport and Recreation New Zealand. 2015. *Sport and Active Recreation in the Lives of New Zealand Adults: 2013/14 Active New Zealand Survey Results*. Wellington: Sport New Zealand.

Angling Survey (**NAS**)² between 1994 and 2015 show that total freshwater fishing effort in the Otago Fish and Game region ranged from 180,860 to 215,430 angler-days over the fishing season.

- [3] As required by the Conservation Act 1987, Fish and Game has prepared a Sports Fish and Game Management Plan for Otago³ (**SFGMP**), which has guided the development of this submission. This document describes the sports fish and game bird resources in the region and outlines issues, objectives and policies for management over the period. The document may be useful for decision makers when considering this application.

Submission and Relief Sought

- [4] RM20.039 has been limited notified previously, to which Fish and Game provided a submission, dated 28 May 2020. This submission is a copy of Fish and Game's original submission, with minor revisions. It also includes an additional appendix discussing the amendment to the application, commentary on new hydrology analysis and discussion of the implications of the *Action for Healthy Waterways*.
- [5] At times this submission refers to 'the application', which refers to the original application for resource consents from the first limited notified round. Fish and Game understands that this application document has remained unchanged in the second limited notified round and is now accompanied by a separate amendment document. This amendment document is referred to as 'the amendment'.
- [6] Fish and Game submits in respect to the whole application, in which it **opposes**. Fish and Game seeks that the application be declined unless the following relief is provided:
- a. that the consent term is no longer than 6 years;
 - b. that the residual flow be increased;
 - c. that a residual flow be imposed to provide for brown trout spawning;
 - d. where water is harvested at high flows, ensure at least a 50:50 sharing of flow between abstraction and the waterbody; and
 - e. that hydrology and ecology monitoring programmes are implemented over the life of the consent.
- [7] Fish and Game **does** wish to be heard in support of its submission.
- [8] Fish and Game **would** consider presenting a joint case at a hearing and **would** be involved in a pre-hearing meeting.
- [9] Fish and Game is **not** a trade competitor of the applicant.
- [10] Fish and Game has a preference for external commissioners to consider this application; however, it is unable to contribute financially to this end. Given this, Fish and Game **does not** request that the local authority delegates its functions, powers, and duties to hear and decide the application to 1 or more hearings commissioners who are not members of the local authority.

² Unwin, M. J. 2016. *Angler Usage of New Zealand Lake and River Fisheries*. Christchurch: National Institute of Water and Atmospheric Research.

³ Otago Fish and Game Council. 2015. *Sports Fish and Game Management Plan for Otago Fish and Game Region 2015 - 2025*. Dunedin: Otago Fish and Game Council.

[11] Fish and Game has served a copy of its submission on the applicant.

The Pig Burn

- [12] The Pig Burn is a tributary of the upper Taieri River which enters the Taieri River mainstem at Upper Taieri Wetlands Complex⁴, west of Waipiata. The stream is small yet hosts a generous level of abstraction. Xiaofeng and Ravenscroft⁵ calculated the consented maximum rate of take to be 0.455m³/s. The stream has been observed to consistently go dry in sections for decades. Drying has been confirmed by the monitoring undertaken by the water users in Appendix D of the application. The effect of natural gains and losses has likely been exacerbated by abstraction.
- [13] While the Pig Burn is a small tributary, the habitat and services it provides adds to the cumulative productivity and resilience of ecosystems and populations in the upper Taieri. Longfin eel (*Anguilla dieffenbachii*) and brown trout (*Salmo trutta*) have been identified within the tributary, as well as macroinvertebrates which form the basis for the food chain. For longfin eel, the provision of habitat in the Taieri is particularly valuable, as it is a large catchment where passage to spawning grounds remains unobstructed by large dams. According to the DOC website, the conservation status of long fin eel is 'At Risk – Declining'⁶.
- [14] Surveys by Fish and Game staff indicate that the Pig Burn is used by brown trout from the Taieri catchment as a spawning and rearing area. Numerous spawning surveys have been undertaken by Fish and Game between 2007 and 2020. These have identified spawning from the O'Neil Road bridge to above the Hamilton Road ford. A 2020 survey investigated the reach from the ford to the gorge and found the conditions to be suitable for spawning, had enough water been present downstream. The redds observed above the ford during this survey suggested that the fish were larger in size, not from a resident population of small adult fish. This is in direct contrast to the s92 response from the applicant⁷ which suggests spawning in this reach is unlikely to be important. Fish surveys from 2017 and 2020 are attached in Appendices 1 and 2 as examples.
- [15] The upper Taieri fishery is classified in the SFGMP as a regionally significant with backcountry and natural settings and is entirely dependent on wild spawning and rearing. Angling effort in the upper Taieri (above Kakonga) has been estimated to be between 5,000 and 3,500 angler days per year⁸. Total angling effort in the Taieri system is high, with over 22,000 angler days estimated during the latest National Angler Survey⁹. The backcountry characteristics and a natural setting of the upper Taieri that is often regarded as high value to anglers.
- [16] Tributary spawning areas which directly feed into the upper Taieri are considered critical for the upper Taieri fishery. The productivity and resilience of the upper Taieri fishery is dependent on the cumulative contributions of spawning tributaries, which also includes the

⁴ A regionally significant wetland listed in Schedule 9 of the Regional Plan: Water for Otago and recognised in s5.2 of the SFGMP as a regionally significant habitat.

⁵ Xiaofeng, Lu, and Pete Ravenscroft. 2016. *Management flows for aquatic ecosystems in the Pig Burn*. Dunedin: The Otago Regional Council. Accessed May 27, 2020.
<https://www.orc.govt.nz/media/2216/management-flows-for-aquatic-ecosystems-of-the-pigburn.pdf>

⁶ The Department of Conservation. n.d. *Department of Conservation*. Accessed May 27, 2020.
<https://www.doc.govt.nz/nature/native-animals/freshwater-fish/eels/freshwater-eels-in-new-zealand/>.

⁷ Sent 3 April 2020

⁸ Unwin 2016. *Angler Usage of New Zealand Lake and River Fisheries*.

⁹ Ibid.

Sow Burn and Kye Burn in this region. Habitat loss or degradation in tributaries due to overallocation relating to deemed permits will be having impacts on the wider fishery, even though effects are difficult to measure.

- [17] Sexually mature adult brown trout run into the Pig Burn from April, when flows permit, to spawn in suitable locations and trout eggs develop and hatch in river-bed gravels and emerge to become free swimming young of the year. They then either migrate downstream to the Taieri River or remain in permanently flowing reaches of the creek.
- [18] Under current circumstances, the value of the Pig Burn is diminished due to abstraction. As flow becomes limited, habitat is reduced and fish may become stranded and die. In previous years, Fish and Game has salvaged stranded fish as the creek dried (see Figures 1 & 2). Fish and Game has also been concerned about fish passage past intake structures at low flows. It is noted that that the application is not applying for consent to continue these activities¹⁰ and no information is presented about whether, or at what flow, any intake structures may obstruct fish passage.
- [19] Fish and Game submits that decision makers should consider the value of the wider catchment and fishery when considering this application. Extreme low flows as observed in the Pig Burn will likely represent a bottleneck for the population. As flow is returned to the Pig Burn and habitat is restored, in relation to both the areas which are abstracted dry and perennial reaches which are left in a depleted state after abstraction, it will benefit the eel, trout and macroinvertebrate populations help to ease the burden of cumulative effects for the greater upper Taieri catchment. Fish and Game expects that the closer the restoration of flow is to the naturalised 7-day mean annual low flow (**MALF**), the greater the benefits will be to these species.



¹⁰ Application section 6.4.6.1

Figure 1: Fish salvage operation undertaken by Fish and Game on 7 January 2004. 200+ 1 year old fish were transferred to Hamiltons dams.¹¹



Figure 2: Fish salvage operation undertaken by Fish and Game on 7 January 2004. 200+ 1 year old fish were transferred to Hamiltons dams.¹²

Uncertainty

[20] Because of the nature of the stream, with many gaining and losing reaches, considerable information is required to fully understand the impacts of the proposed flow regime. The observation approach employed by the water users isn't often used for deemed permit applications and provides useful information. Fish and Game is appreciative of the water users' efforts and considers that additional study is required to inform long term decision-making. Fish and Game has identified several areas where uncertainty makes it difficult to provide accurate feedback.

¹¹ Hadland, Ian (Chief Executive of the Otago Fish and Game Council). Personal communication with author based on diary entry. 28 May 2020.

¹² Hadland, Ian (Chief Executive of the Otago Fish and Game Council). Personal communication with author based on diary entry. 28 May 2020.

- [21] The application presents hydrological information on the catchment without discussing a critical report written by ORC staff in 2016¹³. This report identifies a naturalised MALF for the catchment of 0.079m³/s near the flow recorder, while the application identifies the MALF as 0.053m³/s. The two estimates use differing methods to calculate the MALF. The ORC report using a combined ratio method, which creates a statistical relationship between limited flow record and a nearby flow recorder with a longer record, while the application uses a short term observed flow record which assumes no influence from the two takes above the recorder. The 0.026m³/s difference in MALF between the two estimates represents the majority of the losses identified by Mr Hickey in the lower losing reach¹⁴. The difference is therefore not inconsequential in the context of this catchment. Unfortunately, the application does not discuss the 2016 ORC report and it is not clear why the different figure is used. Common forms of assessing the scale of adverse effects from abstraction depend on the identification of a naturalised MALF estimate; therefore, this uncertainty makes it difficult for Fish and Game to fully assess the scale of the adverse effects.
- [22] In Appendix C of the application, Mr Hickey identifies gaining and losing reaches of the stream based on observations and water take data. In doing so, he has identified that:
- “... there appears to be significant variation in losses based on the flow and take data coupled with the observation data, especially in the lower losing reach (between the Patearoa Waipiata Rd and O’Neil Rd), meaning that drying may or may not be an annual event naturally.”¹⁵*
- It is therefore difficult to say with certainty how accurate the gains and losses identified by Mr Hickey are in reality. Fish and Game cautions that the clean, graphical presentation creates an illusion of certainty which may be unrealistic. For example, based strictly on the numbers presented, the lower losing reach would retain at least a small flow in all years¹⁶. More study would be useful to properly inform long term decision making.
- [23] Uncertainty around the hydrology, especially the lower reaches, makes it difficult to assess the adverse effects of the application. At the very least, Fish and Game would not consider it appropriate for any reach to be abstracted dry where in all or most years it is naturally perennial. This does appear to be a potential adverse effect based on the hydrology presented.
- [24] Fish and Game does not consider that uncertainty is reason not to make decisions. Uncertainty increases the risk that adverse effects have not be adequately avoided, mitigated or remedied; however, there are tools which can be used to address this type of risk. Fish and game requests that the decision makers take a precautionary approach be taken to mitigate this risk.

Proposed flow regime

- [25] Fish and Game would describe the proposed flow regime as creating a highly unequal distribution of water between the volume abstracted for economic gain and the environmental share left for the stream. The MALF is estimated between 0.053m³/s and 0.079m³/s and the observed flow record has identified a median flow (across the 5 years) of

¹³ Xiaofeng and Ravenscroft. 2016. *Management flows for aquatic ecosystems in the Pig Burn*.

¹⁴ Losing and gaining reaches as identified and named by Mr Hickey in Figure 4 of Appendix C in the application

¹⁵ Application, page 157

¹⁶ Figure 4 and Table 2 of Appendix C in the application

0.221m³/s. The water users propose to abstract up to 0.262m³/s at low flows¹⁷. This means the applicants have the ability to abstract the lion's share of a water to a point above median flows, leaving only 0.01m³/s for the river. The applicants have proposed a beneficial mitigation in that the movement of the Herlihy ford take at low flows will mean that additional water is retained within the creek for a distance. This does not avoid the fact that the water is eventually taken out and the waterbody left in a depleted state, compared to what it would have been without abstraction. Overall, the applicants have abundant opportunity to keep the river at low flow conditions at inflows ranging from low flows right up to median flows.

- [26] It is not reasonable to Fish and Game for one to think that such a wide flow range could be considered 'low flows'. Confusingly, the additional 0.07m³/s to be abstracted during 'high flows' is also triggered within this range. It should be noted that the application's definition of high flows when determining that trigger point is within the 0.053m³/s – 0.079m³/s MALF estimate range.
- [27] At low flows, the proposed flow regime would see dry reaches below the gorge and between the Waipiata Patearoa Road bridge and the O'Neil Road bridge. Under MALF conditions identified by both Mr Hickey and Xiaofeng and Ravenscroft, and using the gains and losses identified by Mr Hickey, the second loosing reach would not go dry without the impact of abstraction¹⁸. Compared to a state without abstraction, the proposed flow regime represents a fundamental change in natural character, a total loss of habitat in this reach at low flows and a denial of fish passage for this second loosing reach. Fish and Game considers allocations of this magnitude to be too high in the context of the Pig Burn. It is interesting to note that Xiaofeng and Ravenscroft¹⁹ describe the Taieri catchment as over-allocated, based on the allocations calculated in the Regional Plan: Water for Otago (RPW) Policy 6.4.2. Applying the same calculation, the Pig Burn would also be over-allocated. Fish and Game's understanding is that until a couple of years ago, the common interpretation of over-allocation was that it occurred when the consented take exceeding 50% of MALF or the allocation listed in RPW Schedule 2.²⁰
- [28] As a general statement, water abstracted from the Pig Burn is water that is not available to contribute to the Taieri River main stem, which is made up of the cumulative contributions of all tributaries and groundwater inflows. The extreme levels of abstraction from the water available in the Pig Burn means that the water lost will need to be provided from elsewhere in order to maintain mainstem flow – both in terms of providing a variable flow regime and avoiding breaching the minimum flow. There is a degree of catchment equity at play, as not all water users in the greater Taieri catchment take to the same degree. In a well-functioning and healthy ecosystem, all tributaries would contribute a meaningful flow to the main stem. In the nearby Kye Burn, for example, recently granted consents will see roughly 40% of naturalised flows move down toward the main stem as a residual flow. This is compared to just 12% - 18% in the Pig Burn proposal, depending on the MALF estimate used.
- [29] Fish and Game is supportive of the water users' desire to move towards increased reliance on storage and water harvesting. This should relieve pressure on low flows and Fish and Game would like to see increased in-stream flow in this process. The RPW creates a framework for water harvesting using supplementary flows – where flows are shared 50:50 in small

¹⁷ Table 1 of Appendix C in the application

¹⁸ With the qualification that there is significant uncertainty about the accuracy of hydrology in the catchment.

¹⁹ Xiaofeng and Ravenscroft. 2016. *Management flows for aquatic ecosystems in the Pig Burn*.

²⁰ Watson, Niall (ex-Chief Executive of the Otago Fish and Game Council). Personal communication with author. 28 May 2020.

resolution blocks between the ecosystem and abstractors. Fish and Game seeks that abstraction for water harvesting be subject to a 50:50 flow sharing arrangement.

- [30] At low flows, Fish and Game generally seeks residual flows and allocation regimes that will meaningfully provide for species and ecosystems and mitigates the impact of abstraction. Fish and Game seeks that fish passage is not denied where it would be present without abstraction. Fish and Game is concerned that the very small residual flows proposed, being just 0.01m³/s in perennial reaches, and the extremely high allocations proposed will not achieve these goals.
- [31] A key theme in the application is that the proposed flows will result in a flow pattern similar to that which would occur without abstraction. Mr Hickey describes this outcome as both a “*significant improvement on the existing flow regime*”²¹ and a proposal that “... *provides significant levels of habitat protection in the neutral and gaining reaches, acknowledging that the losing reaches naturally dry*”.²² Fish and Game could find very little discussion about the appropriateness of residual flows proposed within the application. It is not clear how these statements are justified.
- [32] It is also important to note that Xiaofeng and Ravenscroft²³ assessed previously completed instream habitat modelling and recommended a flow of 0.046 m³/s to maintain fish habitat in the Pig Burn. Unfortunately, neither the application or Xiaofeng and Ravenscroft discuss fish passage at all for the takes below the gorge.²⁴ Strictly speaking, a flow was not recommended to protect spawning habitat; however, a flow of 0.2m³/s was identified to provide 100% retention of trout spawning habitat during the spawning season.
- [33] Given the intention of some water users to harvest water and to take water into April and May, Fish and Game seeks an additional seasonal residual flow during the spawning season. Combined with a 50:50 flow sharing regime as described above, this should address adverse effects of water harvesting during the spawning season.
- [34] In summary, the proposed flow regime will:
- f. retain just 12% – 18% of MALF in the waterbody;
 - g. possess the ability to keep the waterbody at this very low flow due to the high allocation sought, which represents 331% - 494% of MALF and exceeds the observed median flow;
 - h. potentially abstract the second losing reach dry;
 - i. likely affect fish passage, noting that information on the extent of this is has not been presented for the takes below the gorge;
 - j. provide a flow much less than the 0.046m³/s recommended by Xiaofeng and Ravenscroft to provide for aquatic habitat, with little justification as to why this is appropriate; and
 - k. have the potential to affect brown trout spawning and migration.

²¹ Application, page 151

²² Ibid.

²³ Xiaofeng and Ravenscroft. 2016. *Management flows for aquatic ecosystems in the Pig Burn*.

²⁴ Fish passage for the takes above the gorge was discussed in the s92 response

Intrinsic value, natural character and Te Mana o te Wai

- [35] Fish and Game considers that the Pig Burn has intrinsic value in and of itself. Regardless of its human use values, the waterbody should be allowed exist and function as part of the wider river ecosystem. This is a concept which resonates with many people including anglers and hunters. The knowledge that ecosystems across the landscape are protected, productive and resilient creates a sense of satisfaction for many people. In addition, the protection of the intrinsic values of the Pig Burn will provide a degree of landscape amenity for upper Taieri and Otago communities.
- [36] Recognition and protection of the intrinsic value of a water body is key also to ensuring functions that are difficult to measure are maintained. For smaller streams such as the Pig Burn this is critical as information is often lacking and these factors may be overlooked due to their complexity. Examples include:
- a. the resilience of the ecosystem;
 - b. invertebrate and fish productivity;
 - c. surface-ground water interactions;
 - d. landscape amenity; and
 - e. natural character.
- [37] The concept of intrinsic value is partly encapsulated, among other things, by the concept of Te Mana o te Wai²⁵. The NPS-FM describes Te Mana o te Wai as:
- “... the integrated and holistic well-being of a freshwater body. Upholding Te Mana o te Wai acknowledges and protects the mauri of the water.”*
- [38] It should be noted that Objective AA1 and Policy AA1 have not been given effect to within the RPW²⁶. However, this concept is being integrated into other planning documents elsewhere in the country. In evidence given to the Environment Court regarding the Southland Land and Water Plan, a witness giving evidence on behalf of various Rūnanga and Te Rūnanga o Ngāi Tahu described Te Mana o te Wai:
- “... Te Mana o te Wai disrupts the regulation of the status quo by RMA tools as it makes the mana of water, its health and status, the paramount priority. It gives reverence to water, rather than regarding it solely as a commodity to benefit land-based production, economic development, and land use change.”²⁷*
- [39] With such extreme allocations and small residual flows proposed in a context of hydrological uncertainty, it appears that the application is heavily skewed towards abstraction. Rather than giving reverence to water, the proposed flow regime could more accurately be described as simply whatever is left over.

²⁵ The NPS-FM 2014 (amended 2017) was superseded by the NPS-FM 2020, which came into effect on 3 October 2020. This passage on Te Mana o te Wai from Fish and Game’s original submission is largely retained and additional commentary is presented in Appendix 3.

²⁶ The Otago Regional Council. 2020. Section 32 Evaluation Report: Proposed Plan Change 7 to the Regional Plan: Water for Otago. Dunedin, Otago, New Zealand: The Otago Regional Council. Retrieved March 19, 2020, from https://www.orc.govt.nz/media/8319/water_permits_plan_change_public-report-20200311.pdf

²⁷ Cain, A. 2019. Statement of evidence of Ailsa Margaret Cain. ENV-2018-CHC-26 to 50. Retrieved March 19, 2020.

[40] A fundamental concern here is that an assessment of effects based on an improvement on the status quo. This method cannot fully encapsulate the adverse effects identified when considering the intrinsic value of the Pig Burn, nor Te Mana o Te Wai. How can reverence be given to water in respect to water allocation if it is only considered in a state where so much water has already been allocated? Considering adverse effects of water allocation against the naturalised flow provides a full understanding of the resource available and the adverse effects that arise through abstraction.

Inadequacy of the Otago Water Planning framework and consent term

[41] Fish and Game does not consider the application as proposed to be reasonable or consistent with the higher order policy documents. There is little justification as to how it provide for the life-supporting capacity of the stream (NPS-FM Objective B1), and it does not appropriately provide for Te Mana o te Wai (NPS-FM Objective AA1). Looking to Part 2 of the Resource Management Act (RMA), the proposal will enable the water users to provide for their social and economic well-being; however, it does so at the cost of the waterbody. To Fish and Game, it does not appear that the adverse effects of the proposal have specifically not been effectively avoided, remedied or mitigated.

[42] Fish and Game submits that applications with such poor environmental protection has been encouraged by the water policy framework in Otago being outdated and incomplete. The RPW in particular, was written decades ago does not give effect to the provisions of the NPS-FM. The RPW does not require decision makers to consider Te Mana o Te Wai; safeguard life supporting capacity; define and phase out over-allocation; or provide for economic well-being within limits, as in the NPS-FM, but rather to maintain or enhance values and grandfather existing allocations.

[43] Significant future work is required for the RPW to give effect to the NPS-FM. This has been recognised by the ORC. In late 2018, ORC staff recommended that a Progressive Implementation Programme be adopted as they advised the RPW did not give effect to the NPS-FM.²⁸

[44] Since then, 2 recent investigations by external experts have brought consenting issues regarding surface water to light:

- a. Consents Function Review: A report prepared for the Otago Regional Council²⁹, which concluded that the term for surface water consents issued by the ORC (typically 25-35 years) was too long; and
- b. Report to the Minister for the Environment³⁰ (the Skelton Report).

[45] The Skelton Report is critical, as it represents an in-depth analysis of Otago water policy documents, ORC performance and the perspectives of stakeholders. It is the most in-depth investigation of the Otago water framework in recent years. The report found that:

²⁸ Hawkins, L., & Dawe, A. 2018. *Progressive Implementation Program (PIP) for the NPSFM*. Dunedin: The Otago Regional Council, 14 – 21. Retrieved from <https://www.orc.govt.nz/media/6263/council-agenda-31-october-2018.pdf>

²⁹ Maw, Philip, and Stephen Daysh. 2019. *Consents Function Review: A report prepared for the Otago Regional*. Dunedin: Otago Regional Council.

³⁰ Professor Skelton, Peter. 2019. *Investigation of Freshwater Management and Allocation Functions at Otago Regional Council: Report to the Minister for the Environment*. Wellington: Ministry for the Environment.

- *“The Council’s existing water planning framework has suffered from a lack of investment in science, planning, and hydrological modelling.*
- *There is a lack of clear and robust minimum flows and a failure to address over-allocation.*
- *The existence of the deemed permits has also limited the ability of the Water Plan to manage water quality and quantity.*
- *There is large variation in the planning frameworks for the region’s catchments to deal with the expiry of deemed permits.*
- *Only the Pomahaka catchment is underway for transition to an RMA consenting process with an established primary allocation limit, minimum flows for primary allocation, supplementary allocation blocks, and minimum flows for supplementary allocations. This catchment, however, has only three deemed permits. Progress is also being made on the Arrow and Cardrona catchments which have started a planning process to set minimum flows and allocations*
- *Most other catchments are not so prepared. A minimum flow and allocation regime was proposed for the Lindis catchment some five years ago but has yet to be decided on by the Environment Court.*
- *A minimum flow and allocation regime for the Manuherekia catchment is still about two years away and even further is the Taieri catchment where hydrological modelling has yet to be started. The status of the Taieri catchment is significant since it includes the highest number of deemed permits (75).*
- *Due to the under investment in science and planning, I do not consider that the ORC is in a position to provide for the smooth transition from water allocation based on mining privileges to allocation based on RMA consents which are subject to appropriate flow and allocation limits before 1 October 2021. This is a major concern since we are now in 2019 – ‘Year 28’ of the 30 year transition period for the deemed permits.”*

[46] The allocation proposed for the water users is an example where the Otago water policy framework encourages the grandfathering of the primary allocation for a surface water consent, in this case with very little scrutiny of ecological effects. In this sense, the Otago water policy framework is enabling outcomes that are out of step with modern policy direction.

[47] On this point, the Skelton report concludes:

“The immediate issue facing the Council is the challenge of developing a fit for purpose planning framework ahead of the expiry of the deemed water permits on 1 October 2021.

It will be important to complete a new regional policy statement and a new land and water regional plan before undertaking the assessment of any new or replacement water consent applications. This will enable applications to be considered under the new freshwater planning framework and will halt the current unsatisfactory situation of ad hoc ‘planning by consent’. This report recommends a pathway for achieving this.”

[48] Upon receipt of the Skelton Report, Minister Parker recommended that the ORC develop a fit for purpose planning regime and take steps to manage surface water consents until that

time³¹. He suggested placing short term limits on consents, so they are aligned with the development of the new planning regime. The ORC has since adopted this approach and recently notified Plan Change 7 (PC7) on 18 March 2020.

Policy documents

- [49] While Fish and Game strongly asserts that the Otago water policy framework is not fit for purpose, the application must still be consistent with the framework as it stands. Fish and Game considers that decision-makers should have regard to the following relevant legislation and policy documents in assessing this application³²:
- a. the Resource Management Act 1991;
 - b. the National Policy Statement for Freshwater Management 2014 (amended 2017);
 - c. The Regional Policy Statement, both proposed and operational;
 - d. the RPW;
 - e. the Kai Tahu ki Otago Natural Resource Management Plan 2005; and
 - f. the Sports Fish and Game Bird Management Plan for Otago 2015-2025.
- [50] Decision-makers may find it useful also to consider the direction from the Minister and the Skelton Report, discussed above, as other matters of relevance under RMA s104(1)(c).
- [51] The recent notification of PC7 is relevant to this application. PC7 sets up two pathways for assessing surface water abstraction consents, using a single objective, three policies and two rules.
- [52] Fish and Game considers that application as proposed is not consistent with PC7. The duration is longer than six years and, based on the discussion above, Fish and Game considers that the adverse effects (including cumulative effects) are not less than minor on the ecology and hydrology of the waterbody or connected waterbodies. It is not clear from the application whether there is a reduction in volume of water allocated for abstraction or whether there will be no increase in the area under irrigation.

Fish screens

- [53] Fish and Game considers that fish screens should be installed on intake structures in the Pig Burn to avoid harm to, or entrainment of, wild fish populations. Fish and Game understands that the original application proposed installing fish screens on all intakes. In the s92 response sent 3 April 2020, the applicant amended this stance so that the shared take will now not have a fish screen. Given the demonstrated lack of fish life in that reach, Fish and Game has no issue with that amendment.

³¹ Parker, David. 2019. Section 24A Report: Investigation of Freshwater Management and Allocation Functions and Otago Regional Council under section 24A of the Resource Management Act 1991. Office of Hon David Parker

³² On the date of submission, the Central Government announced an update on the *Action for healthy waterways* package. Fish and Game has not had time to consider this announcement fully.

Term

- [54] Fish and Game does not believe that any consent arising from this application should be issued for the long term. The current water policy framework in Otago is not fit for purpose and provides guidance that is out of date. The ORC has committed to the development of a new Land and Water Regional Plan by 2025, which must give effect to the NPS-FM. This will require:
- l. a freshwater management unit (FMU) for all parts of the region with a new limit setting process – the ORC has proposed to make the Taieri catchment one FMU;
 - m. a mechanism to identify and phase out over-allocation; and
 - n. effect to be given to Te Mana o te Wai.
- [55] Because of these and other factors, Fish and Game submits that the application will need to be reviewed within just a few years of its commencement. Given the skewed nature of the application, in terms of water that is abstracted compared to the total available for allocation, it is clear to Fish and Game that such a review would need to be fundamental in nature.
- [56] Fish and Game is not confident that a fundamental review, for example to remove substantial blocks of primary allocation, would be possible under RMA s128 and s129 without frustrating the consent. It would not be appropriate to issue a long term consent.
- [57] RPW Policy 6.4.19 discusses the need to consider of “*climactic variability and consequent changes in local demand for water*” when setting term for a resource consent to take and use water. Fish and Game is concerned that the application does not adequately predict or provide adaptation mechanisms for climatic variability due to climate change over the 35 year term that is proposed.
- [58] A shorter term aligns with a precautionary approach recommended by Fish and Game to mitigate risks arising from uncertainty.

Appendix 1 – 2017 spawning survey

Appendix 2 – 2020 spawning survey

Appendix 3 – Additional commentary from the second notification

Amendment to the original application

- [59] Generally, the amendment makes two changes to the application:
- o. It outlines a change to the ownership of Concept Farms Ltd. This is inconsequential to Fish and Game.
 - p. It proposes a water harvesting regime for the combined take, whereby up to 110L/s could be abstracted provided a residual flow of 200L/s is provided past the point of take.

- [60] Fish and Game has sought relief to protect spawning of brown trout. Discussions with the application to date have suggestion that this may be provided via a 200L/s residual flow from May – September³³. Several takes operate during this period, particularly during September.
- [61] The combined take is proposed to abstract water during May, and the amendment includes provision for a 200L/s residual flow. However, if the takes were to begin abstracting during this period, they may have adverse effects on trout spawning.
- [62] The increase in the primary allocation sought by the applicant for the combined take at high flows does entail additional abstractive pressure above what was initially proposed. Fish and Game has already sought relief regarding water harvesting, which is relevant to this allocation. While the additional primary allocation sought on the combined take has a 200L/s residual flow, there is still 262.6L/s that can be abstracted under ‘low flow’ conditions (<70L/s) and up to 332.6L/s which can be abstracted under ‘higher flow’ conditions (>70L/s).
- [63] Despite the amendment, the ability to share water between the environment and abstraction remains highly skewed towards abstraction at lower flows.
- [64] Fish and Game notes that the amendment has not considered RPW Policy 6.4.2AA, which is directly relevant. For this policy to be fully considered, information will need to be presented which demonstrates when the supplementary block would be accessible in the Pig Burn and how this relates to the previous and proposed abstraction regime.

PDP review of hydrology and other further information since the original application

- [65] In July 2020, Pattle Delamore Partners (PDP) Limited undertook an assessment of hydrological assessments undertaken to date in the Pig Burn³⁴. This assessed both the analysis undertaken by Mr Hickey and the ORC report *Management Flows for Aquatic Ecosystems in the Pig Burn*. Key findings included:
- q. *“In the absence of a long term flow record for the Pig Burn both the short term estimate for the observed (or modified) 7D MALF as calculated by the applicant and the short term naturalised 7D MALF as calculated by ORC are considered reasonable.”*
 - r. The abstraction above the gorge flow site will be impacting on the observed flow statistics, meaning *“The long-term naturalised 7D MALF for the Pig Burn at the gorge is likely to be greater than the short term observed 7D MALF as calculated by the applicant.”*
 - s. *In reference to gains and losses along the stream “It is considered that there is significant uncertainty regarding the (natural) flow regime in the Pig Burn.”*
- [66] These conclusions confirm the issues raised by Fish and Game about uncertainty in the understanding of the hydrology and nature of the Pig Burn. It suggests that both MALF calculations are reasonable. This leads Fish and Game to the conclusion that a MALF range could be appropriate – albeit a range with considerable variance.
- [67] After discussions with Fish and Game and Aukaha staff, Mr Hickey shared Figure 4³⁵ which shows a hydrograph at 53L/s (the MALF estimate from the observation dataset) with observed

³³ Brown trout spawning is variable from year to year with adult fish often entering spawning streams from mid-April – September (inclusive) in Otago. In this case, Fish and Game has agreed to forgo the provision of flows for the early spawning run when they are available, in order to try and attain agreement.

³⁴ Bas Veendrick. 2020. *Technical Memorandum*. Christchurch: Pattle Delamore Partners Limited.

³⁵ Hickey, Matthew (Consultant for the applicant). Personal communication with Helen Trotter. 30 July 2020.

gains and losses under a naturalised, observed and proposed flow regime. This suggests that the proposed abstraction would fundamentally change the nature of the lower losing reach by causing it to go dry when it would otherwise be wetted.

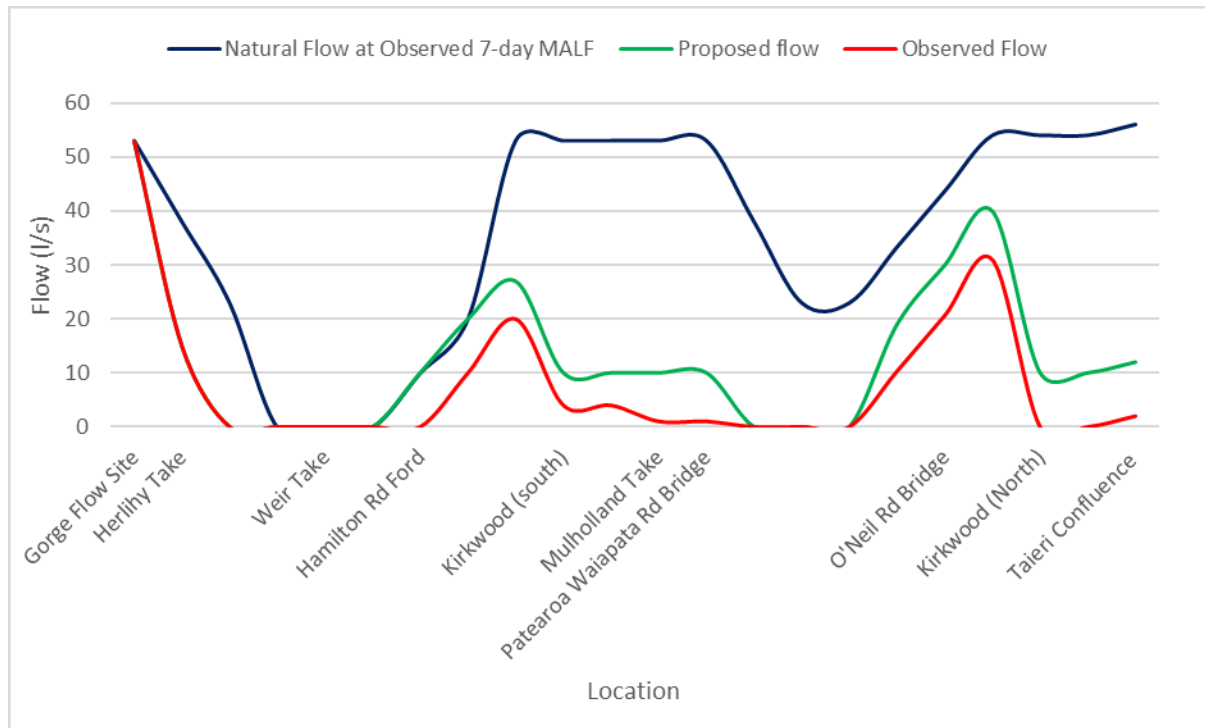


Figure 4: estimated gains and losses under different flow regimes

- [68] However, it should be stressed once again that the PDP analysis found that there was significant uncertainty about the accuracy of these gains and losses.
- [69] It is understood that the applicants were initially opposed to the use of the ORC report; however, the PDP analysis suggests that it is similarly flawed to the analysis presented by the applicants. In addition, Mr Hickey has cited habitat analysis from the ORC report in his assessment of effects within the amendment. This habitat analysis also recommends that a 46L/s residual flow be provided during low flows. Fish and Game submits that the ORC report is relevant and worthy of consideration.
- [70] In summary, the hydrology information on hand is still uncertain and this has been confirmed by independent, external review. However, it does suggest that the Pig Burn may be abstracted dry by the scale of abstraction proposed in the application and that the proposed residual flows are not sufficient to meet recommended habitat retention at low flows. Given these circumstances, it is not appropriate to issue a long term consent up to 35 years as the scale of the adverse effects and mitigation measure are uncertain.

Action for Healthy Waterways

- [71] On the date Fish and Game's original submission was written, the *Action for Healthy Waterways* package was released. This comprised of a new National Policy Statement (**NPS-FM 2020**) and a National Environmental Standard for Freshwater (**NES-FW**), as well as stock exclusion and water metering regulations. The NPS-FM 2020 and NES-FW came into effect on 3 October 2020 and will have a bearing on this application.

[72] The discussion in Fish and Game’s original submission about not giving effect to the NPS-FM 2014 (amended 2017) has been retained for completeness. However it is worth noting that many concepts discussed are still relevant to the NPS-FM 2020.

[73] The NPS-FM 2020 states that Te Mana o te Wai is its fundamental concept and the single objective of the policy is related to the hierarchy of obligations within Te Mana o te Wai. This is an expansion on the description and use of the concept compared to previous iterations. The NPS-FM 2020 describes Te Mana o te Wai as³⁶:

... a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community. (own emphasis added)

Fish and Game submits that the concept will need to be thoroughly considered by the decision maker. Unfortunately, the application has not specifically considered Te Mana o te Wai, despite it being a matter of national significance within the now outdated NPS-FM 2014 (amended 2017).

[74] It should also be noted that the NPS-FM 2020 policies 9 and 10 protect the habitats of indigenous freshwater species, trout and salmon. In the case of the Pig Burn, Fish and Game considers that the habitats of the main freshwater fish – eel and brown trout – can be jointly protected. As discussed in Fish and Game’s initial submission, there is little analysis of habitat protection within the application. While broad conclusions are reached, the justification is sparing. Xiaofeng and Ravenscroft³⁷ suggest a residual flow of 46L/s at low flows to protect fish habitat.

[75] The NES-FW also creates rules around natural wetlands and it is not clear from the application whether any of these are relevant to the proposed activities.

³⁶ NPS-FM 2020 1.3(1)

³⁷ Xiaofeng, Lu, and Pete Ravenscroft. 2016. *Management flows for aquatic ecosystems in the Pig Burn*. Dunedin: The Otago Regional Council. Accessed May 27, 2020.
<https://www.orc.govt.nz/media/2216/management-flows-for-aquatic-ecosystems-of-the-pigburn.pdf>

SPORTSFISH SPAWNING SURVEY FORM

Date: 16/05/2017

River: Pig Burn

Section: O'neill Rd to ford on Hamilton Rd

Start Point: O'neill Rd **End point:** ford on Hamilton Rd

Distance: 6km

Species: B. Trout

Observer: S Dixon, Pavel

Description	Redds	Fish	Comment
O'neill Rd to Patearoa – Waipiata Rd	6	6	Stream low & clear
Waipiata Rd - ford on Hamilton Rd	5	5	
Totals	11	11	Redds/km:

Map: (mark all or major spawning areas in blue)





Ford over Pig Burn



Redd in Pig Burn

GPS Waypoints (NZMG)

Type	Name	Short name	Group 1	Group 2	East	North
Place	01	01	Spawning 17	Pig Burn	2282695	5547941
Place	02	02	Spawning 17	Pig Burn	2282690	5547927
Place	03	03	Spawning 17	Pig Burn	2282799	5547772
Place	04	04	Spawning 17	Pig Burn	2282823	5547688
Place	05	05	Spawning 17	Pig Burn	2283126	5547265
Place	06	06	Spawning 17	Pig Burn	2282371	5549514
Place	07	07	Spawning 17	Pig Burn	2282486	5549738
Place	08	08	Spawning 17	Pig Burn	2282462	5549760
Place	09	09	Spawning 17	Pig Burn	2282335	5550232
Place	10	10	Spawning 17	Pig Burn	2282555	5551521
Place	11	11	Spawning 17	Pig Burn	2282614	5551727

SPORTSFISH SPAWNING SURVEY FORM

Date: 22/05/2020 **River:** Pig Burn

Section: Upper Pig Burn

Start Point: Hamilton Rd Ford

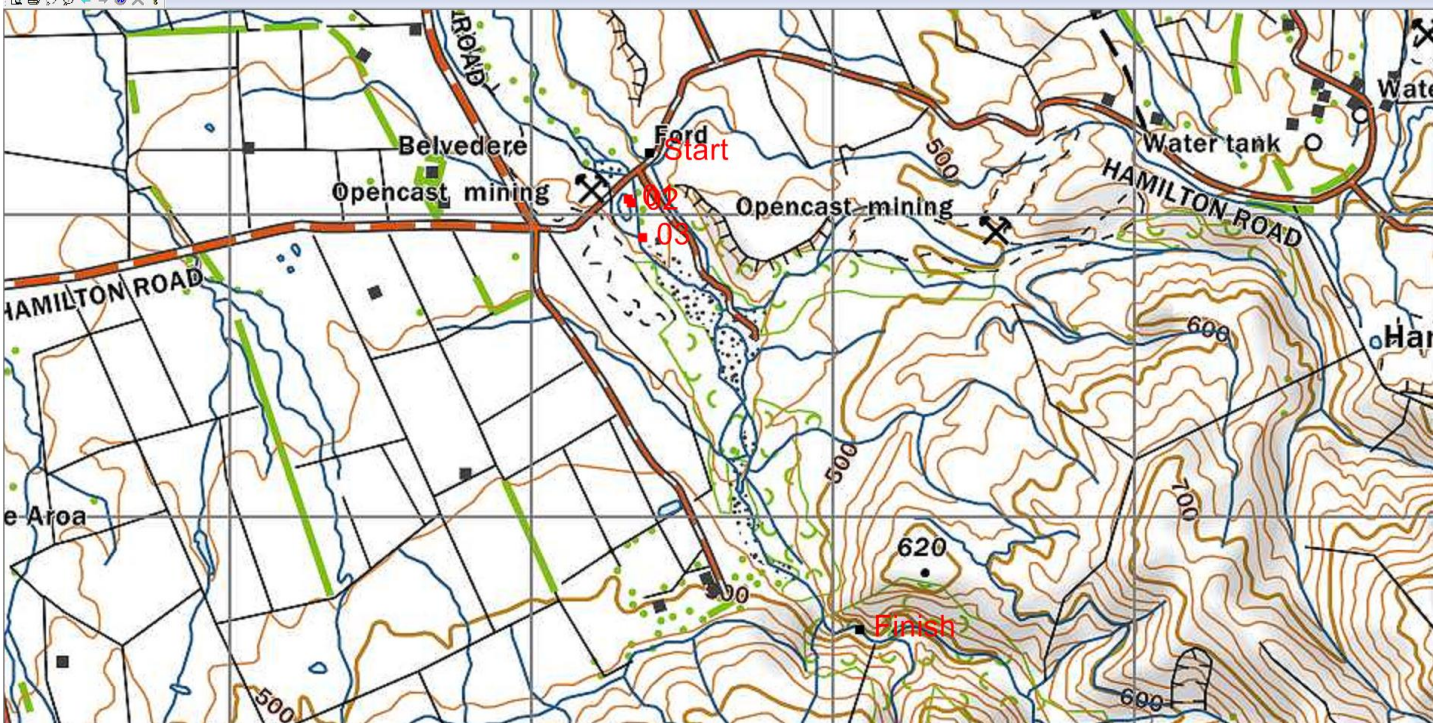
End point: E1374206 – N4983952 **Distance:** 2km

Species: B. Trout

Observer: S Dixon

Description	Redds	Fish	Comment
Stream very low with two points of disconnection.	3	0	Water low and clear
Totals	3	0	Redds/km: 1.5

Map: (redds marked in red)



Comments: There were three redds noted in the survey (photo 3) close to the start point with no adult fish seen. The redds were large, taking up 2/3 of the stream width which indicates the adult fish would have probably originated from the Taieri River. There were a couple of sections where the stream ran dry (photos 1 & 2). It was also noted some of the water takes in the surveyed reach were still operating. One particular water take (photo 5) shows the stream dammed off with no consideration for fish passage. The Pig Burn upstream of the survey finish point showed good flow and ideal gravels for spawning but because of the two disconnected sections and the water take bund lower down there were no signs of fish or spawning.

In all the years I have been conducting spawning surveys on the Pig Burn I have never seen it this low at this time of year.



Photo 1



Photo 2



Photo 3 – Redd 1



Photo 4 – Upstream of finish point



Photo 5

Submission Form 16 to the Otago Regional Council on consent applications

This is a Submission on (a) limited notified/publicly notified resource consent application/s pursuant to the Resource Management Act 1991.

Submitter Details:*(please print clearly)*Full Name/s: The Otago Fish & Game CouncilPostal Address: PO Box 76Dunedin Post Code: 9016Phone number: Business: 03 477 9076 Private: _____

Mobile: _____

Email address: npacugrc@fishandgame.org.nzI/we wish to **SUPPORT** / **OPPOSE** / submit a **NEUTRAL** submission on (circle one) the application of:Applicant's Name: Various water users in the Pig Barn - please see attached ~~submission~~ notification letter

And/or Organisation: _____

Application Number: RM 20.039Location: Pig Barn.Purpose: Please see attached notification letter

The specific parts of the application/s that my submission relates to are: (Give details)

Please see attached submission

My/Our submission is (include: whether you support or oppose the application or specific parts of it, whether you are neutral regarding the application or specific parts of it and the reasons for your views).

Please see attached submission

I/We seek the following decision from the consent authority (*give precise details, including the general nature of any conditions sought*)

Please see attached submission

I/we:

- Wish to be heard in support of our/my submission
- Not wish to be heard in support of our/my submission

If others make a similar submission, I/we will consider presenting a joint case with them at a hearing.

- Yes
- No

I, ~~am~~**am not** (choose one) a trade competitor* of the applicant (for the purposes of Section 308B of the Resource Management Act 1991).

**If trade competitor chosen, please complete the next statement, otherwise leave blank.*

I, ~~am~~**am not** (choose one) directly affected by an effect as a result of the proposed activity in the application that:

- a) adversely affects the environment; and
- b) does not relate to trade competition or the effects of trade competition.

I, ~~do~~**do not** (choose one) wish to be involved in any pre-hearing meeting that may be held for this application.

I ~~do~~**do not** request* that the local authority delegates its functions, powers, and duties to hear and decide the application to 1 or more hearings commissioners who are not members of the local authority.

I ~~have~~**have not** served a copy of my submission on the applicant.

N. Papp

Signature/s of submitter/s
(or person authorised to sign on behalf of submitter/s)

16 October 2020

(Date)

Our Reference: A1393781

28 September 2020

Otago Fish and Game Council

PO Box 76

Dunedin 9054

Nigel Paragreen - nparagreen@fishandgame.org.nz

Dear Sir/Madam

Limited Notification of Application for Resource Consent under s.95B of the Resource Management Act 1991

The Otago Regional Council has received an application for the following resource consents:

RM20.039:

RM20.039.01 - **Natasha Lee Burrell, Ian Joseph Burrell and Canterbury Trustees (2016) Limited being trustees of the Duncan Cleugh Farming Trust (1/3 share), Pig Burn Gorge Limited (1/3 share) and Janine Ruth Smith (1/3 share).** To discharge water taken from the Pigburn under Consent X to an unnamed tributary of the Taieri River known locally as Harpers Creek, for the purpose of subsequent re-taking for the purpose of irrigation, domestic use and stock drinking water..

RM20.039.02 - **Natasha Lee Burrell, Ian Joseph Burrell and Canterbury Trustees (2016) Limited being trustees of the Duncan Cleugh Farming Trust (1/3 share), Pig Burn Gorge Limited (1/3 share) and Janine Ruth Smith (1/3 share).** To take and use surface water as primary allocation from an unnamed tributary of the Pig Burn, and to retake from a tributary of the Taieri River known locally as Harpers Creek for the purpose of irrigation, domestic use and stock drinking water.

RM20.039.03 - En Hakkore Limited

To take and use surface water as primary allocation from the Pig Burn for the purpose of irrigation, stock drinking water and domestic supply.

For our future

RM20.039.04 - Greenbank Pastoral Limited

To take and use surface water as primary allocation from the Pig Burn for the purpose of irrigation, stock drinking water and dairy shed use.

RM20.039.05 - Hamilton Dairy Limited

To take and use surface water as primary allocation from the Pig Burn for the purpose of irrigation, dairy shed use and stock drinking water

RM20.039.06 - Hamilton Runs Limited

To take and use surface water as primary allocation from the Pig Burn for the purpose of irrigation and stock drinking water.

RM20.039.07 - Concept Farms Ltd and Christopher Patrick Mulholland and Dale Evelyn Mulholland, Hamiltons Dairy Limited and Trustees of the Sophic Trust

To take and use surface water as primary allocation from the Pig Burn for the purpose of irrigation, stock drinking water and dairy shed use.

RM20.039.08 - Concept Farms Ltd

To take and use surface water as primary allocation from the Pig Burn for the purpose of irrigation, dairy shed use and stock drinking water.

A copy of the full application can be found via the following OneDrive link:

https://otagorc-my.sharepoint.com/:f:/g/personal/rochelle_stevenson_orc_govt_nz/EpbedwGQoN9Lum3HBslUfP4BXrfvU8871psf_Y7NaI6rkw?e=cAA1bS

This is a "Limited Notification Application," meaning that it has only been served on those parties whom the Otago Regional Council considers may be adversely affected by the application.

You may make a submission on the application. No persons, other than those that may be adversely affected, can submit on this application.

Should you wish to make a submission, please find enclosed submission form 16. **It is essential that you use the enclosed submission form 16 to ensure that your submission is legally valid.** Extra pages can be attached to the submission form if necessary.

Submissions must be received at the Otago Regional Council's office on or before **5pm Tuesday 27 October 2020**. Our address for service is Private Bag 1954, Dunedin, or your submission can be delivered to 70 Stafford Street Dunedin or emailed to submissions@orc.govt.nz.

A copy of your submission must also be served on the applicant as soon as reasonably practicable after serving your submission on the Otago Regional Council. The applicant's address for service is: **Sally Dicey, C/- McKeague Consultancy Limited , PO Box 1320, Dunedin 9054** sally@mckconsultancy.co.nz

If you do not intend to make a submission, it would be helpful if you could advise us of that, in writing, as soon as possible.

Please contact **Alexandra King** of this office on 03 – 474 0827 (or from outside the Dunedin urban area on 0800 474 082) or by emailing Alexandra.King@orc.govt.nz if you have any queries regarding this application.

Yours sincerely



Rochelle Stevenson
Consents Support Coordinator

Encl

cc -

Pigburn Gorge Ltd

jenandmike74@yahoo.co.nz

Natasha Lee Burrell, Ian Joseph Burrell and Canterbury Trustees (2016) Limited being trustees of the Duncan Cleugh Farming Trust

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Janine Ruth Smith

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Hamilton Dairy Limited

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Concept Farms Ltd

kirkwoodga@gmail.com

Trustees of the Sophic Trust

gkkirkwood@xtra.co.nz