

Before the Freshwater Hearings Panel convened by the Chief Freshwater Commissioner

In the matter of Freshwater parts of the Proposed Otago Regional Policy Statement 2021

Rebuttal Evidence of Nigel John Paragreen on behalf of Otago and Central South Island Fish and Game Councils

17 July 2023

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Introduction

- 1 My full name is Nigel John Paragreen. I prepared a statement of evidence on the Freshwater Parts of the Proposed Otago Regional Policy Statement 2021 (**pORPS**) dated 28 June 2023 (**EiC**). My qualifications and experience are set out in my EiC.

Executive summary

- 2 In response to Mr Brinsdon's evidence, I have provided additional information on the impact of the Roxburgh Dam for sports fish populations. This serves as an example of the impact of existing hydroelectric generation.
- 3 I have provided a similar example of the impact of existing hydroelectric generation at the Waipori Scheme, in which 100% of the surface flows in the Munro's Dam Stream are diverted 99.99% of the time, causing the creek to dry.
- 4 Given the urgent need for action on climate change it is important for pORPS guidance to be clear about where and when hydroelectricity electricity generation will be appropriate. I provide an example from the Nevis catchment where significant time and money was spent by parties to reach the conclusion that a hydroelectricity generation activity in the valley would not be appropriate.
- 5 Fish and Game's perspective on renewable electricity generation is nuanced, it recognises its need to mitigate the impacts of climate change, including impacts on the species it manages, and must also consider site specific impacts. At a conceptual level, I support Mr Brinsdon's implication that hydroelectricity generation should get a 'free ride' that a consenting pathway for renewable generation is not prevented at a policy level.
- 6 The above examples demonstrate that such development can come at a cost to the environment and other water users. Current and future hydroelectric generation activities should only occur where it is appropriate.

- 7 I agree with Ms McIntyre¹ that the omission of LF-FW-M8A from the tracked changes version of the pORPS provisions in the s42A report for this hearing can and should be easily addressed.

Evidence on hydroelectric generation and climate change

- 8 Mr Brinsdon, in his paragraphs 38 – 59, discusses conditions relating to fish passage and habitat in consents for the Hāwea and Roxburgh Dams. I note that in restricting his discussion to native species, Mr Brinsdon has largely omitted discussion of sports fish within his descriptions.
- 9 The Otago Sports Fish and Game Management Plan² provides background on the impact of the Roxburgh Dam on sports fish populations:

Chinook salmon were successfully introduced into Otago shortly after the turn of the century and established a significant wild run in the Clutha catchment with mature adults making their way upstream from the sea to major lake tributaries such as the Hunter and Matukituki Rivers to spawn. The historic annual run was estimated at between 20-30,000 returning fish by Jellyman (1989). One estimate of the peak run is as high as 50,000 (James and Dungey 2000)

The completion of the Roxburgh Hydro Dam in 1956 effectively stopped upstream salmon migration and the run rapidly diminished to a small percentage of its former size. Fish ladders were considered by the New Zealand Electricity Department at the time of planning for the dam, but were ruled out due to cost and practicality. The 1951-1952 report of the Otago Acclimatisation Society reports “some dams are so high that no scheme is possible, and the cost would cost about £50,000 per dam for a possible solution: and, pretty bluntly, that no Government would spent such an amount of money.

However, as a result of Contact Energy’s new resource consents to operate their hydroelectric generation assets on the Clutha River, the company is required to undertake a programme of fishery impact mitigation in the Lower Clutha River (defined as the river below the Roxburgh Dam). This includes

¹ Paragraph 78

² Otago Sports Fish and Game Management Plan 2015 – 2025, page 17

the objective of restoring a run of 5000 returning adult salmon to the lower river.

Salmon are caught over the full length of the Lower Clutha River from Roxburgh dam to the sea and in some tributaries. The residual run of salmon upriver from the sea has been recently estimated to be less than 500 fish per annum, many of which are caught by anglers immediately below the dam wall. Some salmon spawn in the river downstream of the dam but the significance of this spawning to the maintenance of the run is uncertain because of the damaging impacts of fluctuating flows from the power station and discharges of silt from the Roxburgh Dam reservoir.

Land-locked populations of salmon occur in Lakes Wanaka, Hawea and Wakatipu where they form an important component of the anglers catch. Although the size is relatively small these fish are readily caught. They spawn and rear in tributary streams such as Diamond Creek at the head of Lake Wakatipu but their spawning areas are not well defined.

- 10 The condition referred to in the above passage is condition 18 of consent 2001.394.V1. It requires Contact Energy to commission a plan so that a self-sustaining population of salmon with a spawning run of approximately 5,000 individuals is established and sports fish habitat is generally enhanced. This condition was put in place to mitigate fish passage and habitat impacts of the Roxburgh dam on the sports fish population.
- 11 To date, the plan referred to in that condition has enabled work to improve sports fish habitat but has not established the salmon population close to the 5,000 fish target. Fish and Game and Contact Energy have been in discussions for years on the issue.
- 12 This provides an example of the significant impact that existing hydroelectric generation can and does have on the sports fish resource, including habitat, and the public who seek to connect with and enjoy rivers through fishing and harvesting food. Within this, I acknowledge that the factors affecting salmon populations in Otago are not limited to the issue of dams.
- 13 Another example of significant impacts arising from existing hydroelectric generation, this time more focused on the general health and well-being of a water body, comes from Trustpower's (the scheme is now operated by Manawa Energy) operation of the Crystals Race – part of the Waipori Power Scheme. The following excerpt from the application to replace the race's

deemed permit gives an idea of the scale of impact on the source water body:

The CR [Crystals Race] intake weir restricts the flow downstream in Munro's Dam Stream. There is no residual flow provided at the intake, with 100% of the surface flow in Munro's Dam Stream being diverted approximately 99.99% of the time into CR. During high flow conditions (greater than 726 l/s) water can over-top the weir to continue down Munro's Dam Stream. However, most of the time there is no surface connection in Munro's Dam Stream at the weir. Seepage water is however present, forming a wetted area with an ill-defined channel immediately downstream of the intake.

Further downstream the Munro's Dam Stream gradient increases and by a distance of approximately 150 m downstream of the intake the stream has a well-defined channel and flow. The stream then alternates between flowing through shallow gradient sections, forming large pool areas, and steeper and narrow bedrock substrate dominated sections.

- 14 As a result of the hydroelectric generation activity, Munro's Dam Stream has been essentially removed immediately downstream of the Crystals Race. For the remainder of the length, the flows within the waterbody have been dramatically cut because headwater type flows have been re-created due to the intake. At the local scale, the impact of the hydroelectric generation activity on the health and well-being of Munro's Dam Stream is surely significant.
- 15 Looking to the future, Fish and Game's concern for hydroelectric generation is nuanced. The organisation recognises the generally detrimental impact of climate change on the species it manages³ and the crucial role of renewable energy generation in mitigating such impacts; yet it also must consider the site and catchment impacts on the sports fish and game resource, including habitat, of new hydrogeneration development or upgrades.

³ For example, Issue 6.2.9 within the Otago Sports Fish and Game Management Plan 2015 – 2025 states that: "Climate change may alter the hydrological patterns across Otago and consideration for the effects of climate change needs to be built into decision making."

- 16 In the context of addressing the significant challenge of climate change, I understand that the development of renewable electricity generation will need to come at an unprecedented rate. Mr Hunt, in evidence appended to Mr Brinsdon's evidence, explains that hydroelectric generation will form a fundamental part of the electricity generation capacity in the future.⁴ Mr Brinsdon confirms that Contact is investigating new renewable electricity generation opportunities in the lower South Island.⁵
- 17 The implication I take from this is that there may be an increase in hydroelectricity generation proposals in Otago in the near future. If this is the case, it will be important to have clear direction on where, or in what situations, new development and upgrades are appropriate. I understand that the need to mitigate climate change is urgent,⁶ so it is imperative that time and money spent on these issues is not wasted.
- 18 By way of example, plans in the early 2000's to dam the Nevis River for hydroelectric generation was prohibited due to an amendment to the Kawarau Water Conservation Order by Fish and Game. Reporting at the time characterised the decision, using quotes from the Environment Minister at the time, as below:⁷

"It means that damming will be prohibited on the Nevis river, that the Nevis tributaries will be included in the order and that further scenic characteristics will be added to the order."

The process had been long, drawn-out, costly and stressful.

Making the final decision included weighing up plans to dam the river and what a prohibition would mean with protecting the rare native fish species gollum galaxii, as well as trout fisheries and recreational users, she said.

⁴ Evidence of Mr Brinsdon, Appendix A, section 6: Future of the electricity system.

⁵ Evidence of Mr Brinsdon, paragraph 7.

⁶ The Intergovernmental Panel on Climate Change states on page 24 of its 2023 Synthesis Report (summary for policymakers) that: *"Without urgent, effective, and equitable mitigation and adaptation actions, climate change increasingly threatens ecosystems, biodiversity, and the livelihoods, health and wellbeing of current and future generations."* https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

⁷ Nevis River protection order ends dam hopes: <https://www.stuff.co.nz/southland-times/news/9353991/Nevis-River-protection-order-ends-dam-hopes>

“Yes, it does mean that there's a loss in the ability to create some hydro generation but in the scheme of the amount of electricity that could be created versus the potential damage to what is an incredibly important part of New Zealand - on balance I think it's clearly the right decision to make.”

- 19 It was reported in the same article that the case cost in excess of \$1,100,000 between Pioneer Generation and Otago Fish and Game and took 7 years to be resolved. In the context of a rush of renewable generation development to mitigate the impacts of climate change, it would not be appropriate to regularly spend time and money on cases such as this.
- 20 In paragraph 62(3), Mr Brinsdon states clearly that *“Contact does not seek a ‘free ride’...”* and asks that a consenting pathway for renewable generation is not prevented at a policy level. Fish and Game also seek this at a conceptual level. Fish and Game supports the development of renewable generation to mitigate the impacts of climate change and seeks that such development takes place in locations that are appropriate for the activity.

Evidence on species interaction

- 21 I agree with Ms McIntyre⁸ that the omission of LF-FW-M8A from the tracked changes version of the pORPS provisions in the s42A report for this hearing can and should be easily addressed. I'd hope this would assist the Panel to review the full trout and salmon framework within the context of the other provisions.

Conclusion

- 22 Fish and Game's perspective on renewable electricity generation is nuanced, it recognises its need to mitigate the impacts of climate change, including impacts on the species it manages, and must also consider site specific impacts. At a conceptual level, I support Mr Brinsdon's implication that hydroelectricity generation should get a 'free ride' that a consenting pathway for renewable generation is not prevented at a policy level.

⁸ Paragraph 78

- 23 The above examples demonstrate that such development can come at a cost to the environment and other water users. Current and future hydroelectric generation activities should only occur where it is appropriate.
- 24 I agree with Ms McIntyre⁹ that the omission of LF-FW-M8A from the tracked changes version of the pORPS provisions in the s42A report for this hearing can and should be easily addressed.

17 July 2023

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⁹ Paragraph 78