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

Summary of Evidence of Ami Coughlan on behalf of Otago and Central South Island Fish and Game Councils

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Introduction

1 My full name is Ami Coughlan. 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 Most New Zealand freshwater fish species are endemic and suffer population loss and fragmentation, with many species locally extinct over much of their pre-European range, largely attributed to loss of habitat and impacts of introduced fish species.

3 Species interact in complex and dynamic ways; interactions can be positive or negative and are often altered by the presence of other species within the same habitat.

4 Any predation impacts will potentially affect an extremely vulnerable native fish species. This could be predation by trout, larger bodied native species, piscivorous birds, or harvesting by humans.

5 Protecting the freshwater environment is an important aspect of increasing native species abundance and distribution. Degraded environments are potentially harmful to the species themselves and can also increase negative impacts of interspecies interactions.

6 Native fish species may be less affected by natural river disturbances such as flooding than introduced species, thus protections of habitats which allow for disturbances that mimic natural water body behaviour and other location specific managements should encourage healthy and abundant native fish populations and coexistence with trout.

7 There will be sites where trout should be removed as part of a suite of management tools to bolster vulnerable native fish populations. It should be noted eradications may have unanticipated negative ecological impacts on the food web. Such interventions should be undertaken cautiously.

8 Any species interaction management actions should be undertaken in a collaborative, science-based manner with iwi, relevant council bodies, the Department of Conservation, and Fish and Game councils. These are the parties who have statutory responsibility for the species involved.

9 I present a risk assessment matrix (paragraph 11, statement of evidence) which has been designed to assess population level vulnerability of indigenous species to trout predation. This is intended as a transparent,

flexible, and easy to utilise tool to indicate where highly vulnerable species are modelled to likely to interact with trout, and where mitigations such as habitat improvement, protective barriers, or predator removals may be needed.

10 Nationally, trout of any size are predicted to overlap with at least one native fish species across a total stream length of approximately 25,000 km. Of this overlapping distribution, 1,626 km of reach is likely to contain both trout and high-risk native fish species, 5,318 km of waterway contains both trout and medium-risk native fish species, and the remaining 18,115 km contains both trout and low-risk species. Otago Region has a relatively large number of species which have been designated high risk, however, many reaches which contain highly vulnerable indigenous fish species are likely to be too small to contain trout. It should be noted that as research advances, or habitats, perspectives, or the health of native fish populations change, so should this risk assessment.

11 Where the risk of negative population level impact on native species from species interaction is low it is very likely that actions to improve habitat for trout and salmon will benefit native species as the aquatic habitat needs of trout are often higher than the needs of indigenous species. In circumstances where anthropogenic water use is significant, the habitat retained in rivers is often driven down to the absolute bare essential needs of the adults of the species within. Protecting a waterbody to meet the habitat needs of trout can lead to more varied and resilient river habitats, benefiting both trout and natives, as more water is left in which can increase microhabitats beneficial for more species and life stages.

Conclusion

12 Multiple factors contribute to the persistence of indigenous fish populations within New Zealand, of which species interactions are a subset. Environmental factors such as river flow and form, availability of mesohabitat and food resources, the presence and connectivity of source and sink populations, and trout size influence biotic interactions.

The interaction of each factor in determining the impact of trout on native fish is difficult to predict. The framework proposed by Fish and Game in LF-FW-M8a would allow for practical and collaborative addressing of species interactions and adaptive responses to population changes using multiple management strategies.

30 August 2023

Ami Coughlan