

OCEANAGOLD (NEW ZEALAND)
LIMITED

WAIHI NORTH PROJECT

Instream Habitat of the
Wharekirauponga Stream and
Tributaries

Evidence of Hamish Biggs and Maurice
Duncan (NIWA) Regarding Technical
Assessment of Instream Habitat of the
Wharekirauponga Stream and
Tributaries

10 February 2025

INTRODUCTION

Our names are Hamish Biggs and Maurice Duncan from the National Institute of Water and Atmospheric Research (NIWA)

Our roles in relation to the Waihi North Project (“**WNP**”) has been to provide expert advice on instream habitat at a range of flows. We conducted fieldwork, performed data analysis, performed instream habitat modelling, and wrote the “Instream Habitat of the Wharekirauponga Stream and Tributaries” report which is provided within *Part H – Supporting Technical Assessments* of the application.

This evidence has been prepared to accompany the application by Oceana Gold (New Zealand) Limited (“**OGNZL**”) for approvals required for the WNP under the Fast-track Approvals Act 2024 (“**FTAA**”). It has been prepared on the understanding that the process for determining applications under the FTAA does not require a hearing to be held, and accordingly the purpose of this evidence is to confirm that, relative to my area of expertise the “Instream Habitat of the Wharekirauponga Stream and Tributaries” report provides an appropriate description of the instream habitat available for taxa present in the Wharekirauponga Stream and Tributaries, for the flow changes that were predicted to occur due to mining.

Our findings are set out in full in the “Instream Habitat of the Wharekirauponga Stream and Tributaries” included within *Part H – Supporting Technical Assessments* of the application.

While this application is not being considered by the Environment Court, we confirm that we have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2023 and that we have complied with it when preparing this evidence. Other than when we state we are relying on the advice of another person, this evidence is within our area of expertise. We have not omitted to consider material facts known to us that might alter or detract from the opinions that we express.

QUALIFICATIONS AND EXPERIENCE

Hamish Biggs, PhD. I am currently employed as an Ecohydraulics Scientist at NIWA and have held that position since 2017.

Maurice Duncan, M. Agr. Sc. I am currently employed as a Hydrologist at NIWA and have held that position since 1992.

Hamish Biggs was the project leader for fieldwork and data analysis, while Maurice Duncan was the project supervisor and completed the instream habitat modelling. Maurice has extensive experience with instream habitat surveys and modelling. This includes providing expert input for MfE, (1998), co-authoring the guide to instream habitat survey methods and analysis (Jowett, Hayes, & Duncan, 2008), and leading multiple instream habitat projects.

MfE (1998). Flow Guidelines for Instream Values. Volumes A & B. ME 270 & ME 271. *Expert input was provided by Maurice Duncan for both volumes.*

Jowett, I.G., Hayes, J.W., & **Duncan, M.J.** (2008). A guide to instream habitat survey methods and analysis. NIWA Science and Technology Series No. 54. 121 p.

Duncan, M.J. & Sykes, J. (2015). Instream habitat, and minimum flow and allocation requirements in the Mata River. NIWA Report CHC2015-035, prepared for Gisborne District Council.

Duncan, M.J. & Sykes, J. (2015). Instream habitat, and minimum flow and allocation requirements in the Waiapu River. NIWA Report CHC2015-034, prepared for Gisborne District Council.

Duncan, M.J. & Bind, J. (2016). Instream habitat, and minimum flow requirements in the Manuherikia River. NIWA Report CHC2016-034, prepared for Otago Regional Council.

CONFIRMATION OF CONTENTS OF REPORT

We confirm that in our opinion the “Instream Habitat of the Wharekirauponga Stream and Tributaries” report contains an accurate and appropriate description of the expected impacts to instream habitat due to the projected flow reductions due to mining (as modelled by FloSolutions and GHD). We have provided expected impacts on instream habitat relative to the pre-mining 7-day Mean Annual Low Flow (7-day MALF) and the pre-mining Median Flow for a range of instream species identified as being present in the study reaches by Boffa Miskell through instream surveys and eDNA analysis. Our results cover an ‘average case’ flow reduction which is the most likely change in flow and a ‘worst case’ which is the unlikely 5th percentile of flow (i.e. 95th percentile of flow reduction). The reaches studied were Adams Stream, Edmonds Stream, Teawaotemutu Stream, Thompson Stream, Tributary-R, Wharekirauponga Stream downstream reach (WKP1), and Wharekirauponga Stream upstream reach (WKP2).

We confirm that in our opinion the contents of the “Instream Habitat of the Wharekirauponga Stream and Tributaries” may be relied upon for making a decision on the approvals sought for the WNP. For the average-case (most likely scenario) changes to suitable instream habitat for taxonomic groups (i.e. periphyton, invertebrates, and fish) ranged from -0.72% for fish in Adams Stream to -4.20% for invertebrates in Thompson Stream. The average reduction of suitable instream habitat for the seven study sites and three taxonomic groups was -2.08%. For the worst-case (unlikely scenario) changes to suitable instream habitat between the pre-mining 7-day MALF and the predicted post-mining 7-day MALF ranged from -1.20% for fish in Adams Stream to -5.66% for invertebrates in Thompson Stream. The average reduction of suitable instream habitat for the seven study sites and three taxonomic groups was -3.20%. At median flow, which is representative of average annual flow conditions, changes in flow due to mining have much less impact on suitable instream habitat than those at the 7-day MALF. While the assessment of acceptable instream habitat changes is subjective and may vary based on the relative importance assigned to different species (i.e. by ecologists, Iwi, and other interested parties), we confirm that the results within our report can be used to assist with such a decision. We have also provided results as graphs and tables so that the impact of flow changes outside those provided can be assessed.



Hamish Biggs

Dated the 10th of February 2025



Maurice Duncan

Dated the 10th of February 2025