

**BEFORE INDEPENDENT HEARING COMMISSIONERS
AT WHANGAREI**

**I MUA NGĀ KAIKŌMIHANA WHAKAWĀ MOTUHAKÉ
KI WHANGAREI**

**IN THE MATTER
AND**

of the Resource Management Act 1991

IN THE MATTER

**of the hearing of submissions on applications by the
Northport Ltd – Port Expansion project at Marsden
Point**

**SUMMARY STATEMENT OF EVIDENCE OF KARIN BRYAN
ON BEHALF OF PATUHARAKEKE TE IWI TRUST BOARD**

HYDRODYNAMICS AND COASTAL PROCESSES

30 OCTOBER 2023

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1. INTRODUCTION

- 1.1 My full name is Karin Roisin Bryan. I have qualifications and experience as set out in my Evidence in Chief (“**EiC**”) dated 18 September 2023. As per my EiC, I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023, and I agree to comply with it.
- 1.2 The purpose of this statement is to briefly summarise the key points from my EIC.

2. SUMMARY OF EVIDENCE

- 2.1 Numerical hydrodynamic and sediment transport modelling has been conducted using state of the art numerical modelling software. The set up of the model follows best practice. However, the numerical models have not been well-calibrated or verified with in-situ data. The models focus on the region around the entrance of the Whangārei Harbour.
- 2.2 The applicant, Northport Ltd, argues that the changes to tidal hydrodynamics and sediment transport processes around the entrance are minor. This conclusion is based entirely on the results of numerical modelling which has not been well calibrated or verified with in-situ current and suspended sediment measurements. Without calibration or verification, I cannot be confident that the effects are minor. Calibration and verification of current data should be collected for a minimum of a month. Suspended sediment measurements should be collected for longer time periods (such as seasonal to annual) to capture episodic events that normally dominate suspended sediment timeseries in these environments.

- 2.3 The balance between ebbing and flooding currents and the effects of spatial variations to bedshear stress are very sensitive to the parameters used in the modelling. Minor inaccuracies in these can have larger implications to modelling output. Without sound calibration and verification data, I cannot be confident that the effects are minor.
- 2.4 The modelling is focused on the entrance of the harbour, but does not check whether effects are minor over the wider harbour. Understanding effects on wider Harbour residence times and flushing is important to assessing wider ecological effects. It also does not check whether effects would be minor when sea level rises. Given the permanent nature of the reclamation and the virtual certainty of sea level rise, I believe that it would be best practice for these matters to be assessed.
- 2.5 I have read the response to my Evidence in Chief. However, I believe the data and modelling results supplied were already included in the initial reports, and so my concerns remain unchanged.

Karin Bryan
31 October 2023