

# Simulation modelling to develop an index of inherent risk of nitrogen losses to water from New Zealand's agricultural lands

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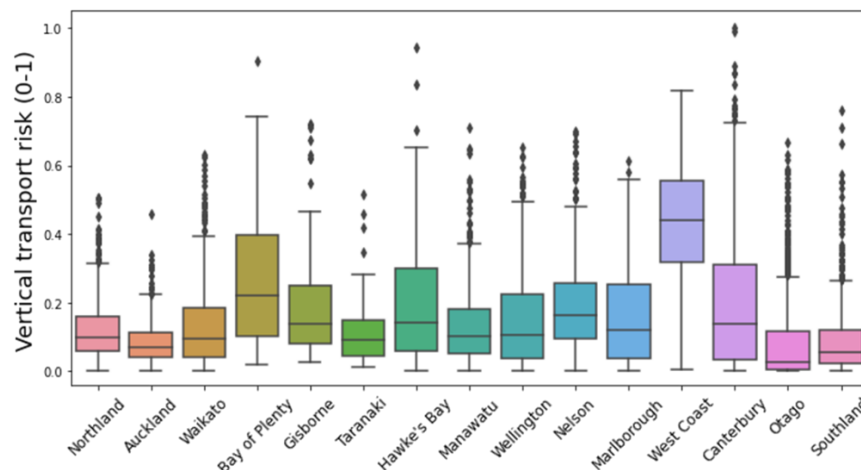
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**Abstract:** Maintaining and improving water quality (surface and ground) in New Zealand is a priority issue for the public, government, and rural sector. Regional government bodies are required to give effect to the National Policy Statement for Freshwater Management in their regional plans. This requires a tool to assess the risk of nutrient losses from farmed landscapes which (a) is evidence based; (b) addresses both inherent and anthropogenic drivers of risk; and (c) is suitable for usage at the farm scale.

We used simulation modelling deploying APSIM NextGeneration (Holzworth et al., 2018) combined with databases of historical weather (Tait et al., 2015) and mapped soil properties (Lilburne et al., 2012) to generate indices of inherent (i.e., non-anthropogenic) risk of nitrogen losses to water across New Zealand (Figure 1). This presentation will discuss the development of the methods and its limitation for assessing risk at the point scale.



**Figure 1.** Index of the risk of vertical transport (i.e., leaching) risk across the regional authorities of New Zealand

## REFERENCES

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