Nutrient regulations and soils data

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Rural landowners in five lake catchments near Rotorua have been regulated since 2005 by 'Rule 11' which imposes a cap based on their 2001-2004 nitrogen leaching and phosphorus runoff losses. In February 2016 new rules were proposed for the Lake Rotorua catchment to help meet the lake's sustainable annual nitrogen load of 435 tonnes. This target is defined in the regional policy statement and seeks to protect lake water quality in the long term. The proposed rules require progressive reductions in nitrogen losses to meet farm-specific nitrogen discharge allowances by 2032. The proposed reductions average 35% for dairy farms and 17% for dry-stock farms, relative to Rule 11 nitrogen leaching levels.

Lake Rotorua catchment nitrogen losses, as in some other regions of New Zealand, are assessed using the OVERSEER® nutrient budget model (OVERSEER). Within OVERSEER, the amounts of drainage and nitrogen loss are influenced by soil physical parameters entered by the model user. Recent upgrades to OVERSEER have simplified the uploading of S-map data including soil drainage parameters such as profile available water. This is part of the continuous improvement of OVERSEER through the incorporation of new science and integration with existing databases like S-map. However, there is a tension between this type of improvement and the certainty desired by both regulators and the regulated in the context of managing farm nutrient losses. The consistent quantification of nitrogen losses is also critical to nitrogen trading between farmers and/or sales to the public fund established to buy nitrogen in perpetuity.

This paper considers the differences in OVERSEER farm nitrogen loss estimates arising from using 'better' soils data. Methods to manage these differences are discussed, including the role of OVERSEER data input protocols and the interaction between nutrient policy and soil science.