GROUND TRUTHING OVERSEER FM –

MODELLED P LOSSES VERSUS MEASURED P LOSS

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Surface runoff water quality inflow and outflow from three Detainment Bunds (DBs) in the Lake Rotorua Catchment, was monitored from Dec 2017 to Dec 2018 as part of the Phosphorus Mitigation Project Inc. Two of the DBs were located on dairy farms and one was on a beef/sheep/deer farm. The catchment areas delivering surface runoff to the inflow point of the DBs (i.e. before ponding treatment) ranged from 6 to 47 ha in size. This present study was able to 'value add' to the larger water quality monitoring project, by comparing OverseerFM predictions of surface P losses with measured inflow surface water quality.

Farm scale OverseerFM nutrient budget models were constructed for each farm, and areas within the DB catchment were blocked separately, in order to identify P loss from the DB catchment area. Areas within the DB catchment were blocked in more detail than typical OverserFM blocking (up to 11 blocks within the DB catchment), to account for different management, soil and topographical features, in order to model P loss accurately. These blocks were also soil sampled separately to identify differences in soil P and anion storage capacity (ASC). S-map digital soil data was available for all 3 farms, however, S-map indicated that two farms had podzols, whereas the ASC results and ground truthing indicated that these two farms were more accurately described as allophanic soils in OverseerFM.

When accurate soil information was used, the OverseerFM's predictions of P loss/ha was in good agreement with those measured during the one-year water quality study in the catchments, with measured losses of 1.7, 0.9 and 0.4 kg P/ha verses modelled losses of 1.9, 0.8, 0.7 kg P/ha. In contrast, when the S-map soils were used for all 3 catchments, modelled losses were 1.9, 2.7 and 2.3 kg P/ha. This highlights the importance of using accurate farm scale soil type information when using OverseerFM.

Editor's note: An extended manuscript has not been submitted for this presentation.