

## Memo

---

Date	5 June 2018
To	OTOP Zone Committee
CC	Dan Clark
From	Lyn Carmichael, Craig Davison

### Managing the nitrate hotspot areas

#### Purpose

The purpose of this paper is to propose a stepped regime as a framework for managing the nitrate hotspots within the OTO plan change.

#### Background

Water quality across the OTO Zone generally meets or is better than the required water quality standards for nitrate under the National Policy Statement for Freshwater Management 2017 (NPSFM) and the New Zealand Drinking Water Standards 2008 (NZDWS). The exception to this is three nitrate hotspot areas in Rangitata Orton, Fairlie Basin and Levels Plains where nitrate concentrations in freshwater resources are breach the national bottom line for ecosystem health as specified in the NPSFM and/or exceed the Maximum Acceptable Value under the NZDWS for drinking water (Appendix I).

The Zone Committee has responded to this challenge in the draft ZIPA by recommending that diffuse discharges of nutrients are capped at current limits and reduced over time in the hotspot areas to meet water quality standards.

The draft recommendations for reducing nitrates in each of the hotspot areas state:

*Where the zone-wide water quality outcomes specified in Recommendation 4.8.1 for ground and surface water are not currently being met, establish a stepped regime within the plan change that will require diffuse discharges of nitrogen from farming activities to be reduced beyond Baseline GMP Loss Rates and diffuse and point source discharges from industrial activities to be reduced beyond current consented loss rates.*

The Zone Committee has also supported targeted non-statutory mitigations to address nitrates and poor stream health within the hotspot areas and has recommended that a robust monitoring programme is established to evaluate the efficiency and effectiveness of measures to achieve water quality outcomes.

The feedback received on the draft recommendations for managing nitrates has generally been supportive, with many respondents seeking clarification on the timeline for achieving the water

quality outcomes and requesting that a first step towards reducing nitrates begin within a short timeframe of the OTOP Plan change becoming operative.

## **Managing nitrates from farming activities**

Plan Change 5 (PC5) to the Land and Water Regional Plan (LWRP) has sought to respond to the contamination of nitrates to waterbodies from farming activities by providing appropriate consent thresholds. The higher risk farming activities with over 50ha of irrigation or the intensive winter grazing of cattle on a land area over a prescribed threshold will require a resource consent, which will include a Farm Environment Plan (FEP). A condition of any consent granted will direct the auditing of the FEP to ensure the consented farming activity occurs in accordance with Good Management Practice (GMP). The consent pathway for these properties will also require the preparation of an OVERSEER (or approved equivalent) modelled nutrient budget that will be registered with the Farm Portal.

For high risk farming activities consented after PC5 becomes operative, a property's nitrogen loss limit becomes its "Baseline Good Management Practice Loss Rate", which is a property's nitrogen losses during the baseline period, if it were operated at GMP as estimated by the Farm Portal. A majority of the land use consents for farming within the OTOP zone will expire in 2025, and farmers will therefore be required to farm within their Baseline GMP loss rates on renewal of these consents from 2025 onwards.

A farmer reference group was established by the Zone Committee to investigate the options and consequences for further reductions in N losses beyond Baseline GMP for farm systems within the OTOP Zone (Fietje, 2018). A key finding of this group was that dairy systems are able to reduce nitrate losses, within their current farming systems and without adopting land use change, if the requirement to reduce is within 10-15% beyond Baseline GMP. It should be noted that no opportunities for further reductions beyond Baseline GMP were found for other land uses within the zone and the options available for dairy were not without significant increases in management complexity and in some cases cost.

To respond to the draft recommendation to establish a stepped regime, the policy and rule framework for the plan change for OTOP could require percentage reductions beyond Baseline Good Management Practice (GMP) to be staged in ten percent steps at five yearly intervals to meet water quality outcomes as longer-term targets. In acknowledgment of the cost likely to be associated with achieving Baseline GMP in 2025, the first stepped reduction beyond Baseline GMP for land use consents to farm would apply at year 2030.

A monitoring programme will be implemented to inform future State of the Environment Monitoring, and efficiency and effectiveness evaluations of the OTOP plan change. A core component of the monitoring programme will be to determine if the planned future stepped percentage reductions beyond GMP, as established based on current science, would still need to apply to meet the water quality targets, or whether lesser or greater percentage reductions would be required as a result of new science.

The policy framework could further support this direction by requiring that land use consents to farm are granted with durations not exceeding ten years and would therefore only adopt one percentage reduction step beyond the current step. This would enable the renewal of farming land use consents

to be relative to the five yearly monitoring and ten yearly plan review cycle, and would ensure the percentage reduction steps are relative to the future state.

Based on the current state of the waterbodies, the reductions in loss rates beyond Baseline GMP required to meet water quality outcomes in the nitrate hotspot areas are likely to be in the order of 30-40% for Rangitata Orton, 10-15% for Levels Plains and 9% for Fairlie Basin.

If the above nitrate hotspot management regime were to be established, the steps and targets for achieving water quality in each hotspot would be as follows:

Fairlie Basin – 9% reduction at 2030, with the water quality targets to be achieved by 2035

Levels Plains – 10% reduction at 2030, a further 5% reduction at 2035, with the water quality targets to be achieved by 2040

Rangitata Orton – 10% reductions at 2030, 2035, 2040, 2045, with the water quality targets to be achieved by 2050.

## **Permitted intensification of farming activities**

The potential for winter forage increases under the permitted activity thresholds for PC5 have previously been assessed for each FMU within the zone and presented to the Zone Committee. This assessment showed PC5 permitted activity thresholds could allow for winter forage activities to increase by 40% on average, for properties within the 100-500 ha range, and by 75% on average for properties above 500 ha. However, the findings of this assessment also showed that there were some limitations to expansion of winter grazing within areas likely to affect the nitrate hotspots. The Orari FMU showed only small increases in winter grazing available as a permitted activity, due to the existing distribution of irrigation already requiring resource consent on most properties. Within the Timaru FMU, the permitted expansion was predominantly only able to be allocated to properties less than 50 ha in size.

A full uptake of the provisions in the PC5 permitted activity rules could still be associated with large increases in nitrates to waterbodies and a further assessment is underway to quantify the likely impact on nitrogen loads within the hotspot areas. The further assessment of potential increases to winter grazing areas as a permitted activity will be presented in August to support the Zone Committee in establishing permitted activity thresholds that contribute to the attainment of the water quality targets in the nitrate hotspot areas.

## **Managing nitrates from industrial discharges**

There are a number of industrial discharges of nitrogen occurring within the OTOP Zone. Loe and Clarke (2012) have assessed these industrial discharges and quantified some of the associated nitrogen loads. Within the Rangitata Orton hotspot area, there are six consented discharges from Fonterra's Clondeboye milk processing plant with a total assessed nitrogen load of 798 tons per year. Loe has not assessed the nitrogen load from the discharge from the Ravensdown fertiliser storage facility at Seadown, which is within the Levels Plains hotspot area. Further work is currently being undertaken to quantify the amount of nitrogen in this discharge.

If the nitrate management framework outlined above was applied to industrial discharges, these loads could be reduced over time in a stepped manner that was consistent with the reductions required by farming activities. A first step in 2025 could be set to align with the renewal date of existing land use consents to farm, and the requirement for those consent holders to achieve Baseline GMP.

## **Recommendation**

That the Zone Committee considers the stepped regime for managing nitrates outlined above for inclusion in the policy and rule framework for the OTOP plan change.

## **References**

Fietje, L., Carmichael, L. (2018). Farmer Engagement in Farming Within Limits. In: Farm environmental planning – Science, policy and practice. (Eds L.D. Currie and C.L. Christensen). <http://flrc.massey.ac.nz/publications.html>. Occasional Report No.31. Fertiliser and Lime Research Centre, Massey University, Palmerston North, New Zealand.

Loe, B., Clarke, C. (2012). Estimating nitrogen and phosphorus contributions from authorised discharges in five Freshwater Management Units. A report for Environment Canterbury.

North, H. C., Belliss, S. E., & Pairman, D. (2017). Winter livestock forage map: Canterbury region 2016. Prepared for Environment Canterbury. Contract Report No. LC2742. Landcare Research.

# Appendix I Nitrate Hotspots in the OTOP Zone

