

## **Agenda Item 4: How and why the Land and Water Regional Plan manages intensification**

### **Purpose**

1. This paper provides an overview of how the draft Land and Water Regional Plan (LWRP) manages intensification of existing land use, and explains why it is important that intensification is managed.

### **Executive summary**

2. The draft LWRP establishes nutrient targets, called Target Attribute States or TAS, for different catchments, and requires land users to implement good management practices (GMP and GMP+), primarily through freshwater farm plans to achieve, or work toward achieving, those TAS. The improvement of water quality is also supported by a range of non-regulatory measures, such as education, incentives, and monitoring and work of teams including the Environmental Implementation team.
3. While intensification can bring economic benefits, it can also lead to increased losses of nutrients, sediment and microbial contaminants, leading to degradation of rivers, lakes, wetlands and groundwater.
4. Across the country there are a wide range of approaches to set and meet nutrient targets, and further approaches that have been investigated but not implemented. Many of these approaches are quite intrusive, in that they may require land use change, or rely on tools, science and research that may not yet meet the requirements for regulatory certainty. Research and experience shows that there is no 'best' approach, that maximises efficiency and equity across all affected stakeholders.
5. This paper does not recommend a different approach is taken, but seeks to provide assurance that the approach taken can be justified in the Otago context. It recognises that the LWRP is the first step in a longer-term process to reach the visions and environmental outcomes for Otago.

### **National direction**

6. The National Policy Statement for Freshwater Management (NPSFM) requires that the fundamental importance of water is recognised, and that protecting the health of freshwater protects the health and well-being of the environment. Since the very first NPSFM in 2011, there has been a consistent theme in every NPSFM of maintaining water quality where it is not degraded and improving water quality where it is degraded. The NPSFM 2020 sets out a prescriptive approach to how that will be achieved, which is implemented through the draft LWRP and action plans. The NPSFM does not allow further declines in water quality.
7. The National Environmental Standards for Freshwater (NES-F) regulates a range of farming activities, particularly through:
  - a. limits on intensive winter grazing (the greater of 50 ha or 10% of the area of the farm, 10 degree slope limit, waterway setbacks, avoiding critical source areas);

- b. a synthetic nitrogen fertiliser cap of no more than 190 kg/ha/year N;
  - c. controls on feedlots and stock-holding areas, including limits on duration of use and age of cattle, and setbacks; and
  - d. temporary limits on increases in intensification, broadly applying to the conversion of land to dairy farming, dairy support, increases in irrigation of dairy farm or dairy support land, conversion of forestry to pasture, and increases in intensive winter grazing. Resource consents for these temporary activities can be granted only if the regional council is satisfied the activity will not increase contaminant loads in the catchment, or concentrations of contaminants in freshwater or other receiving environments. The temporary intensification controls in the NES-F expire when the LWRP is notified or at the end of 2024, whichever is the earlier.
8. The temporary limits were intended to 'hold-the-line' and work hand-in-glove with the changes to regional policy statements and regional plans that give effect to the NPS-FM 2020, which at the time, needed to be notified by 31 December 2024. It was anticipated that these plans would set limits on resource use such as nutrient and sediment levels.<sup>1</sup> The Ministerial briefings at the time noted that "... councils are required to maintain or improve water quality everywhere – no catchment has further room for deterioration. The key implication of this is that further intensification requires 'headroom' to be created elsewhere."

### **State and trends of Otago's waterbodies**

9. There are several areas of Otago that have degraded water quality due to excess nutrients, sediment or microbial contaminants. The target attribute states tables in each FMU chapter give a good idea of where this is, with most FMUs and rohe having at least one degraded monitoring site. For example, for North Otago for periphyton, total nitrogen and total phosphorus, there are a number of sites that are below national bottom lines (in the "D" band). Those sites must be improved to at least C band (the national bottom line).
10. Medium-term (interim) targets have been set for the next decade, along with long term targets. The science reporting tells us that, if everything else remains constant, applying GMP and GMP+ practices to existing farming activities will likely be successful to shift to an improving trend. An improving trend means that water quality is getting better compared to the baseline. However, those practices are unlikely to shift water quality from the "D" band to the "C" band or result in any other shift between bands.
11. In other areas, existing water quality is better, and there is more emphasis on maintaining this, such as in the Roxburgh rohe. Maintaining this water quality means that it cannot be enabled to decline. It is also likely that, all other things being equal, applying GMP and GMP+ practices in these areas will lead to an improvement in water quality.

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<sup>1</sup> Precis from MfE/MPI Agricultural intensification factsheet

12. There is a useful summary of the Council’s water quality science programme attached as Appendix 4.1. The conclusion of this memo is:

*From the suite of reports related to surface water quality for the LWRP, we can conclude:*

1. *The current water plan has not stopped intensification in Otago. While some areas may be improving over the most recent 10-year period, others are degrading and there is potential for further degradation to occur. Therefore, to improve water quality, measures which stop further degradation are required regardless of whether sites fall below national bottom lines.*
2. *On-farm reductions achieved through a mitigation-based actions can lead to improvement in water quality. This improvement is expected to be realized as improvement in trend or within band improvement for nutrients and, in many locations, sediment.*
3. *In the short to medium term (5-10 years), it is unlikely that uncertainties associated with these studies can be significantly reduced. While additional nuance may be added, the overall conclusions from the suite of studies are unlikely to change.*

13. Overall, there is a need to decrease contaminant loads in many areas to improve water quality.

### **What can we do to maintain or improve water quality?**

14. There is a clear tension between enabling growth and development individually and regionally but also maintaining existing water quality and improving it where it is degraded. Achieving both can be difficult, especially where that growth and development leads to activities that might increase losses of contaminants.
15. Appendix 4.2 contains an assessment by Landcare Research Maanaki Whenua of the economic implications of a range of different options to reduce nutrient losses. While this research is over 10 years old, the tools it assesses and their implications, including economic implications, are still useful. The research assesses what is most efficient (can be implemented at least cost to the region) and how the impacts are distributed. The distribution element leads to questions about what is equitable, which is subjective and depends on perspectives of different people. The research indicates that each option affects each sector differently, and therefore there are likely to be diverse views as to what is equitable. Essentially, there is no ‘best’ approach identified.
16. The draft LWRP approach is to at least maintain water quality where it is good, and to reverse declining trends, through requiring GMP and some GMP+ activities through freshwater farm plans, and to discourage a narrow range of known riskier activities unless it can be shown that losses will not be increasing. Those known riskier activities are further dairy farming, dairy support, and irrigation. Other activities or changes in land use are not restricted.
17. In addition, there are a range of non-regulatory approaches that both the Council and industry groups are taking, for example, Catchment Action Plans underway in various catchments in the Catlins and ECO funding for riparian planting and other environmental good actions.

18. Importantly, Council has been clear that the LWRP is a ‘first step’ on the journey, and, until more information on the effectiveness of the suite of regulatory and non-regulatory measures is available, it should not require land use change.

### **Draft LWRP provisions – clause 3 version**

19. The draft LWRP controls a range of farming activities. Key to this paper, are the provisions that require a discretionary activity resource consent for the following kinds of intensification of farming activities:

- a. Conversion of more than 10ha of land to pasture from forestry since September 2020
- b. Conversion of more than 10ha of land to dairy farm land since September 2020
- c. Conversion of more than 10ha of land to dairy support land since September 2020
- d. Additional irrigation of more than 10ha of land since September 2020

20. These restrictions essentially roll over the temporary intensification restrictions in the NES-F. September 2020 is the relevant date, as that is the date that the existing intensification restrictions start in the NES-F.

21. Of note, there are no controls in the current draft of the LWRP<sup>2</sup> on intensification within an individual farming system, such as increasing the stocking rate, or imported or exported feed. Similarly, there are no controls on changes between farming systems, other than as described above. This means that there are few controls, other than farm plan requirements, for existing activities or conversion to horticulture, arable, or other livestock classes. The reasoning for that is that dairy farming and dairy support have been subject to existing controls in the NES-F, and are the sectors where significant increases in scale, and therefore nutrient losses, are more likely. Of note, the NES-F also controls expansion in intensive winter grazing, another comparatively high-risk activity.

### **Clause 3 Feedback – brief summary**

22. Feedback from clause 3 consultation on the farming provisions was discussed at the ESP workshop on 19 March 2024.

23. In summary, the feedback was mixed, with some seeking relaxation of the provisions, while others sought more stringency. For example, one party was “... categorically opposed to any limit on ‘intensification’. The Plan must consider the efficient use and development of resources (s 7(b) RMA). That means that intensification, within limits, should be enabled.” In contrast, another party sought:

- a. no intensification of farming activities in catchments where relevant contaminant reductions are required; and
- b. a more restrictive activity status than discretionary for intensification; and

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<sup>2</sup> Council included an option of an intensity control based on stocking rate or cow numbers in the clause 3 consultation version. Staff reported back on clause 3 feedback at the 19 March workshop and following discussion understood that, based on the clause 3 feedback, this option would be difficult to implement, inflexible, and therefore was not preferred.

- c. a specific rule restricting further intensification of existing intensive land uses.

### **How else could the Plan manage nutrient losses?**

24. The provisions in the draft LWRP are relatively modest in seeking to manage additional dairy farming, dairy support and irrigation. Other possibilities have previously been considered and discounted, but may be worthy of further consideration – either now or in subsequent versions of the LWRP. It is useful to start exploring these now, so we can ensure that we are collecting the right information.
25. The consideration of possibilities has been aided by a wide range of research and examples of approaches used elsewhere in New Zealand. The options considered in the Maanaki Whenua Appendix 4.2 use ‘nitrogen discharge allowances’, as a common allocation mechanism, which is not recommended for the draft LWRP<sup>3</sup>.
26. The Maanaki Whenua paper compares different allocation approaches in two catchments and for four different model farms. The options it assesses are:
  - a. Grandparenting – a nitrogen discharge allowance based on N leaching rates during a baseline or benchmarking period and proportional to a reduction target.
  - b. Natural capital – nitrogen discharge allowances are allocated based the physical quality of the land, soil and environment. Land use capability (LUC) is used as a proxy for natural capital, and more nitrogen discharge allowances are allocated to higher class land.
  - c. Catchment average - All landowners are given the same nitrogen discharge allowances regardless of land use and this is the average of total N discharge from land-based sources.
  - d. Land cover average - Landowners managing a specific land cover (e.g. pasture, forest, arable) are given the same nitrogen discharge allowance.
  - e. Sector average - Landowners within the same sector (e.g. dairy, sheep and beef) are given the same nitrogen discharge allowance.
  - f. Nutrient vulnerability - nitrogen discharge allowances are allocated based on the nutrient leaching capacity of the soil. More nitrogen discharge allowance would be allocated to land with lower ‘vulnerability’.
27. Of the options above, an option based loosely on the ‘sector average’ for dairy farming was put forward previously, with a stocking rate and synthetic fertiliser threshold in place of a nitrogen discharge allowance. It was not supported by feedback or in further discussion with councillors.
28. The information potentially exists to explore a form of ‘nutrient vulnerability’ for Otago. However, this may lead to questions about the viability of more intensive farming (for example dairy farming and intensive winter grazing) in less suitable areas. This may drive discussion about land use change, which is not the intent of the draft LWRP.

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<sup>3</sup> This is because they rely on using Overseer numbers within the Plan. However, it is possible to use proxies for discharge allowances such as fertiliser use, stocking rate etc.

29. In other regions across New Zealand, approaches that allow limited flexibility for increases in losses, particularly from the dry-land sheep and beef, horticulture and arable sectors is not unusual, but it typically comes as part of a package to keep the net overall position in an improving direction.
30. Some examples from elsewhere in the country include:
- a. Managed reductions in N losses (% reduction in Overseer numbers through farm plans) from certain sectors (e.g. dairy) or above specified loss rates, in combination with GMP through farm plans. Less restrictions apply to low-loss activities, up to a cap in N losses (for example 15 or 20 kg/ha/pa N Overseer losses).
  - b. Losses matched to land capability – typically an Overseer N loss rate that is allowable depending on the land use capability class (LUC) of the soil. Generally, better quality soil classes have a higher loss rate enabled than lower quality soils. On balance, this is likely to require very significant reductions or land use change for higher-loss activities that are located on less suitable soil types.
  - c. Capping intensity through rules relating to both the land area and stock numbers, in combination with GMP through farm plans.
  - d. Highest emitters needing to reduce, mid-range not increasing, and lower emitters having some flexibility, as well as GMP through farm plans across the board.
31. Different FMUs or rohe could potentially have different frameworks. This is the situation in some other regions, where local solutions have been developed depending on the contaminants of most concern in the FMU. Staff have previously suggested some FMU-based approaches to managing dairy and dairy support intensity. More bespoke FMU-based solutions may be viable once we have more science, but they do take time and resources to develop, particularly using ‘community reference groups’, ‘zone committees’ or similar frameworks. They also have an opportunity to build trust, engagement in the solution, and a unique blend of non-regulatory and regulatory actions. It is a path that the ORC may wish to take for future management of water quality and quantity.

## **Conclusion**

32. As a start-point, the draft LWRP approach of limiting intensification is a common resource management framework, and is effective and efficient as an interim step. It has the advantages of:
- a. It recognises existing investment and land use patterns for those already undertaking irrigation, dairy farming or dairy support – existing capital and management skills are not lost in the short to medium term
  - b. It gives certainty to large parts of the community
  - c. If the existing activities have resource consent, it recognises the priority of existing consent holders for replacement of existing consents recognised in the RMA (s124)
  - d. It is relatively simple to establish and operate

- e. It allows consideration of and management of cumulative effects of any new activities / expansion of existing activities
- f. Flexibility within or conversion to other sectors and land uses is available.

33. However, there are some recognised disadvantages, many of which were pointed out through clause 3 engagement:

- a. It can lock in existing patterns of land use
- b. It can induce feelings of inequity, when land 'on the other side of the fence' has been previously developed with irrigation, or for dairy farming or dairy support, and that opportunity is now not available or harder to achieve given the requirement not to increase contaminants for those who have not developed
- c. Development of farms, often through further irrigation, dairy farming or dairy support, is a path to a financially sustainable farming future for many families. This is particularly for dairy support, which is not as capital intensive.
- d. It forecloses flexibility for the future.

34. Some of the options used elsewhere in the country, as set out in paragraph 30, are difficult to implement or may rely on science or tools that are not available in Otago. For example, rules that rely on Overseer 'numbers' have been subject to heavy criticism due to uncertainties inherent in the Overseer model, such that an approach like that is not recommended by staff. Similarly, Land Use Capability would require modelling and science information that is not currently available in Otago.

35. Overall, an approach based on GMP and GMP+ actions through farm plans and limiting further dairy and dairy support intensification will not, in many cases, reach the environmental outcomes or long term target attribute states. There is an opportunity to address this through:

- a. A range of non-regulatory mitigation actions, such as ecological improvements, wetland development, sediment traps and other on-farm and community scale actions; and
- b. Improvement in the quality of point-source discharges; and
- c. The next planning framework addressing the methods needed to address any further required loss reductions, possibly developed at an FMU-scale.

**Appendix 4.1 – LWRP surface water quality programme regional summary (separate document)**



**Appendix 4.2 – Landcare Research - Sharing the Pie: The dilemma of allocating nutrient leaching between sources (separate document)**