

## Overseer Limited

### SUBMISSION ON ESSENTIAL FRESHWATER CONSULTATION DOCUMENT

#### Contact

Caroline Read  
Chief Executive, Overseer Limited  
[Caroline.read@overseer.org.nz](mailto:Caroline.read@overseer.org.nz)

Overseer Limited supports the objectives (outcomes) set out by the consultation document to take action for more effective water management.

Overseer Limited also welcomes the Government's commitment to invest in systems and technology such as Overseer that will help farmers make good decisions based on good information. Tools and technologies can play a critical role in assisting farmers monitor and manage their environmental impacts.

Overseer is an excellent example of an industry-government partnership, a unique New Zealand solution to environmental challenges based on joint leadership, an approach similar to the "world first partnership" announced recently to reduce primary sector GHG emissions.

#### **OverseerFM, playing an integral part in farm environment planning**

OverseerFM is an on-farm, strategic decision support tool for farmers. It is designed to produce nutrient budgets, examine nutrient use efficiency, identify potential environmental risks, and evaluate the effects of mitigation practices. By quantifying the impacts of different farm management options, OverseerFM helps monitor progress over time and, therefore, incentivises the right behaviour for positive environmental outcomes. It is also designed to run off data that is readily available to a farmer making it useable beyond research and it covers a wide range of farm management systems across New Zealand.

**This submission focuses on three critical points, on which the success of the Essential Freshwater initiative depends.**

- **Farm planning and a proposed freshwater module must be supported by "quantifiable" objectives against which progress should be monitored.**
- **Unless practical guidance is provided in the National Environmental Standards (NES) on how to use the tool appropriately, there is a high risk of perverse behaviour which does not lead to desired environmental outcomes.**
- **The consultation document and the draft NES do not appear to reflect a major step change introduced recently through the OverseerFM software service. This prevents New Zealand from taking advantage of technological advancements to support the Essential Freshwater initiative.**

Outlined below are the key facts that are intended to inform finalisation of the policy and enable the successful implementation of the positive environmental outcomes sought through the Essential Freshwater consultation document.

#### **1. Improving farm practices through farm specific planning with quantifiable outcomes**

Every farm is different. The diversity of NZ farming environment makes an effects-based approach most suitable. Planning needs to take into account farm specific characteristics such as climate, soil, stock, crops and the farming practices adopted by a farm. This goes beyond a generic good management practice approach and helps enable farmers to explore what is appropriate for their farm. The quality of

planning has a significant impact on its effective execution.

Currently, OverseerFM, underpinned by science modelling, is the only tool that enables farm-specific estimation of nutrient losses relative to management practices taken. Therefore, it should be one of the key inputs into farm planning. Quantifying the impact of changes identified in a farm plan is essential to determine the effectiveness of that plan in that specific situation.

In other words, a proposed freshwater module may not result in desired outcomes unless it takes advantage of the NZ's home-grown farm planning tool, OverseerFM.

The flexibility of Overseer in supporting “what if” scenario planning helps farmers test the impacts of potential farm management changes or land uses and make more informed decisions. It also helps track effectiveness of change by quantifying improvements over time.<sup>1</sup>

In summary, farm planning and a proposed freshwater module would be a powerful tool to effect positive change to contribute to water quality improvement providing;

- It is a living document and is relevant to each farmer.
- Industry driven good management practice is complemented by farm-specific, science-based farm practice options analysis and.
- Improvement trends are quantified and carefully monitored.

## **2. Incentivising positive change and avoiding perverse behaviour**

The best option to incentivise positive change is farm-specific planning that integrates quantification of the impact of changes identified in the plan for use in planning and monitoring.

Option 1 (Nitrogen-loss cap in high nitrate-nitrogen catchments) poses a considerable risk given a lack of detail on how it will be implemented in the consultation document nor the draft National Environmental Standards (NES). For example, will each Regional Council determine how this will be put into practice without formal national guidelines on how to use Overseer?

Tools and technologies such as Overseer can have a positive impact. On the other hand, they pose a risk of incentivising perverse behaviour if not used appropriately. Quoting examples from use of Overseer by some Regional Councils in the recent past, the Enfocus review<sup>2</sup> highlights that models such as Overseer is best used in a relative sense e.g. to monitor trends or as a means to target specific farm operations for closer scrutiny. It also highlights risks of using a single number in a pass/fail sense as this approach is likely to incentivise farmers to focus on generating a number to be compliant rather than on making informed decisions to improve their farm system performance.

Whilst the threshold approach is better than setting hard limits, its effectiveness is highly dependent on how the tool is used to create the threshold. Therefore, for Option1 to be effective, the use of national guidelines on appropriate use of the tool must be mandated (and guidelines established) in the NES Subpart 4 Nitrogen cap, section 47 Regional Council to calculate threshold values.

Overseer Limited is developing guidelines on how to model farms appropriately to the design of the science model and would welcome an opportunity for further engagement to inform the development of the NES. Note that the Best Practice Data Input Standards 2016 quoted in the draft NES are no longer valid as they were based on the data entry facility in the legacy OVERSEER software.

---

<sup>1</sup> By design, Overseer does not calculate or measure the specific losses that occur from a farm in a particular year. It estimates the average losses for the farm system modelled over the long-term.

<sup>2</sup> Using Overseer in water management planning Willis G 2018

Another important point to note is that the Option 1 uses “slope” as a specific criterion for the requirement of an “audited Overseer nitrogen loss figure” i.e. “flat or gently rolling (low-slope) pastoral farm in the identified catchments”. By defining slope in a specific manner in the policy, this has potential to result in high cost practical implementation issues by Regional Councils requiring that Overseer analyses are set up to reflect this definition rather than based on management approaches. This is contrary to a standard blocking approach by Overseer that includes topography with a range of slopes including a dominant one (flat <7 degrees, Rolling < 15 degrees).

### **3. Supporting farmers, rural professionals and Regional and central government**

The consultation document and the draft NES appear to reflect the old legacy issues and understanding that were relevant to the previous software rather than developing options based on a major step change introduced through OverseerFM software as a service in the last twelve months.

Characteristics of the legacy OVERSEER software meant it was not easily accessible by farmers, created inefficient business processes by rural professionals and had the potential for errors (accidental or otherwise) to be introduced into the file on handling. All resulted in avoidable costs.

OverseerFM is a completely different software service with a clear focus on supporting farmers and rural professionals to understand and implement effective changes on farm and to provide compliance information to councils through a transparent and traceable process.

Other key points to note that are of particular relevance to this consultation include;

- The new OverseerFM software has demonstrated data entry efficiency gains of 25-50%<sup>3</sup> from the legacy software,
- It has a centralised database that enables automated and transparent updating of results following any version changes.
- The centralised database allows reporting at an individual and aggregated level. Coupled with the new visualisation features within the software, it enables farmers to more readily understand the impact of their current farm management on environmental losses.
- It enables easy sharing of data and the ability to compare historic and planned system analyses.
- It enables more meaningful dialogue between farmers and rural professionals and the ability to test options for different approaches, thus incentivising on-farm change.

OverseerFM workshops run for farmers across NZ<sup>4</sup> confirmed that the above addressed some of the key issues that are important for farmers e.g. data sharing, farm insights from results, Regional Council reporting and benchmarking opportunities.

Two other points are worth highlighting from a perspective of national interest i.e. the national coverage and a holistic approach to farm planning e.g. water management and climate change.

#### National coverage:

Since its release in June 2018, over 10,000 farm accounts have been created in OverseerFM. This coverage is primarily driven by the use by regional councils. Resource managers are now able to better quantify the impact of regional plans and the implementation of farm planning.

#### A holistic approach to farm planning:

The discussion document noted that climate change action and freshwater health are both priorities for the Government and a careful balance needs to be achieved. Farmers have also told us that they need to

---

<sup>3</sup> Overseer valuation of the benefits report (Barber A, Stenning H, Allen J, Journeaux P, Hunt J, Lucock D. 2018)

<sup>4</sup> It included workshops in Cambridge, Reporoa, Balclutha, Winton, Whagarei, Waipukurau, Ashburton

have a holistic view of their farm business environmental impacts. Commonly known as pollution swapping, reduction in one area can result in the worsening of environmental factors in other parts of the production system such as wintering of animals causing higher effluent pond GHG emissions. OverseerFM can demonstrate the impact of different management practice options on GHG emissions and nutrient losses e.g. Nitrogen, Phosphorus at the same time.

#### **4. Supporting the primary industry through continuous improvement**

Building on the platform described above, we continue to improve both OverseerFM farm environment planning services and the science model that drives the software to support farmers, rural professionals and central and local government. Our focus areas include improving customer experience e.g. provision of user guidance, insights generation, including new options e.g. plantain, building confidence in the modelling e.g. crop model calibration, catchment level reporting and including new systems. (See Appendix 1: the innovation roadmap for key priorities).

Ongoing evaluation and calibration of the sub-models within Overseer maintain the model's integrity as new components are included or updates are made to the existing modelling to reflect improved scientific understanding.

Overseer Limited is happy to provide further detail if it assists.

