FOREST OWNERS ASSOCIATION

Submission

On

Draft Land and Water Regional Plan

Submission to:

Otago Regional Council

6 November 2023

Trees for our future

Contents

FOREST OWNERS ASSOCIATION

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The Forest Owners Association

The New Zealand Forest Owners Association Incorporated (FOA) is the representative membership body for the commercial plantation forest growing industry. FOA members are responsible for the management of approximately 1.2 million hectares of New Zealand's plantation forests and over 70% of the annual harvest.

In 2023, the forest growing sector was worth $6.69 billion in export value and has a 12% share of rural land use. The Ministry for Primary Industries expects forest product export values to exceed $9billion by 2030.[1]

Forestry in Otago

The Otago Region has approximately 125,000ha of plantation forests which support forestry personal/contractors, seed and nursery suppliers, downstream sawmilling and manufacturing industries and export ports at Port Chalmers and Bluff. The region's industry works closely with the industry in Southland. Wood from either region is supplied to domestic users and to the two ports. The industry led Southern Wood Council includes both Southland and Otago regions.

Otago has a rich forestry history, dating back 160 years. Originally the industry relied on harvesting indigenous forests and then in the late 1890s the region's exotic plantations were established along with nurseries at Ranfurly and Tapanui. The first substantial plantings were developed at Naseby Forests and Conical Hill in 1900 and 1903, respectively.

While some of the country's major forest companies operate in the region there are smaller plantations located on farms. A third of the estate is in the hands of small to medium sized growers. All benefit from the well-established industry infrastructure. The Farm Forestry Association is particularly represented by its Mid Otago and South Otago branches.

For a more comprehensive picture of the industry, we refer you to the NZIER report for Forestry and Wood Processing in Otago and Southland. The information provided in the report extends beyond direct economic benefits and includes the value of carbon capture, nutrient retention and avoidance of runoff, soil erosion avoided, cultural (recreational) use and fire control services.

[1] https://www.mpi.govt.nz/dmsdocument/41319-fit-for-a-better-world-background-analysis-on-export-earnings-in-the-primary-sector

The Development of the National Environmental Standards for Plantation Forestry/Commercial Forestry

FOA supported the development of the National Environmental Standards for Plantation Forestry (NES-PF). The NES-PF took nine years to develop, and it came into force in May 2018. It involved many reports and practical assessment to ensure that any Permitted Activity along with Standards would avoid or mitigate any potential adverse effects of forestry operations. If a Permitted Activity Standard cannot be met there is a cascade of resource consent activities. Otago region is not like Gisborne and does not generally have high erosion risk areas. We understand that because of the region's low erosion risk that most forestry operations fall within the scope of Permitted Activities.

The NES-PF was meant to be reviewed at year one, but the review took five years and has resulted in the National Environmental Standards for Commercial Forestry (NES-CF) which came into force on 3 November 2023. The NES -CF has been expanded to cover not only plantation forests but any exotic continuous-cover forests. The NES-CF has new provisions regulating slash, and relevant to this feedback, has new management plans for afforestation and replanting. There were also changes to replanting provisions requiring the Wilding Tree Risk Calculation tool to be used for the replant of any confer species not just a change in species. There were no changes to the existing setbacks or regulations relating to the fish spawning tool or the operation with the setback area and or riparian zones. New harvest plan provisions have been introduced.

The NES-PF and now the NES-CF are, as stated on the Ministry for Environment's website, designed to *"provide nationally consistent regulation to manage the environmental effects of commercial forestry".* The regulations include discharge standards and include numerous standards to regulate land use where there may be potential impacts on water quality. As such, they are part of the government's suite of regulations that help meet the objectives of the National Policy Statement Freshwater Management (NPS-FM).

Forest Practice Guides

FOA has developed an Environmental Code of Practice[2], Forest Practice Guides (FPGs)[3] and a Forest Road Engineering Manual and Operators Guide[4]. The Code of Practice is out of date and in the process of being updated. The FPGs have an open to the public feedback loop. We have not received any notification from the council advising that provisions of the FPGs require amendment and or updating. Feedback is considered and the FPGs updated if required.

The practice guides and the Road Engineering Manual provide measures and methods that foresters may insert into their NES-CF management plans. These measures and methods provide the information on how a forester is going to meet the NES-CF regulations. They are in a form that can be audited by councils. The FPGs are not legal rules but once they are incorporated into a management plan, RMA enforcement provisions can be used to ensure compliance.

[2] https://www.nzfoa.org.nz/resources/file-libraries-resources/codes-of-practice/44-environmental-code-of-practice/file
[3] https://docs.nzfoa.org.nz/forest-practice-guides/
[4] https://docs.nzfoa.org.nz/live/nz-forest-road-engineering-manual /

Draft Provision at issue

FOA is particularly concerned with the draft provisions relating to setbacks for afforestation and replanting. Setbacks for herbicide discharge beyond the existing rules will effectively result in further setbacks for productive forests as it is essential to control weeds and regeneration from previous forest rotations. The consequential social and economic effects on the industry are extensive.

Stringency

While regulation 6 of the NES-CF allows for a council to provide more stringent rules to meet an objective giving effect to the NPS-FM, there is a process to be undertaken by the council to justify any application of stringency. We refer you to Section 32 (4) of the RMA which states:

"(4) If the proposal will impose a greater or lesser prohibition or restriction on an activity to which a national environmental standard applies than the existing prohibitions or restrictions in that standard, the evaluation report must examine whether the prohibition or restriction is justified in the circumstances of each region or district in which the prohibition or restriction would have effect."

The starting point when assessing the need for a more stringent rule under Regulation 6(1)(a) is firstly to demonstrate the NES-PF controls are not sufficient to achieve a plan objective that gives effect to the NPS-FM. The next step is to then demonstrate how a more stringent rule will achieve that objective in a more effective and efficient way than the NES-PF and that the more stringent rule is justified in the context of the region. Simply proving a link between a proposed rule and a plan objective that gives effect to the NPS-FM is not sufficient.

We are advised by the forest companies operating in the region that the council has not undertaken any of its own research into how the NES-PF provisions have been operating. We are also advised that the regular auditing of forestry operations has not indicated any major issue with the operation of the NES-PF in regulating the impacts of forestry operations including the harvesting regulations.

We understand that draft rules for farming permit fertiliser application with 3m of a waterbody, winter grazing to 10m with no slope restriction and discharge of agricultural waste within 20m. From a scientific perspective in regard to the potential impact on waterbodies, these provisions make no sense especially when compared against the 50m setbacks proposed for afforestation and replanting.

We urge the council to review its own information held on auditing forest operations, to focus on scientific research undertaken by the numerous companies on generation of suspended sediment, on the ecosystem health of the waterbodies adjacent to forestry operations and in particular to consider if the provisions of the NES-CF are avoiding or mitigating the environmental impacts of forestry on water quality in the region.

Social and economic impacts

An interim analysis of the setback rule indicates that almost all forestry land is greater than a 10-degree slope and therefore the 50m setback rule would apply ubiquitously. The Otago forest industry represents over $1billion in asset value and investment (excluding carbon). Regarding replanting the interim analysis indicates that there would be an average loss of productive forest land of 37% with an estimated forest value of more than $320million. This major loss of existing

productive land will have flow on effects to employment, forestry contractors, wood processing and export providers.

We refer to the calculations submitted by P F Olsen (section 12.2) which are included as Table 1 below. The table demonstrates the amount of land that would need to be retired from forestry for several different scenarios if Otago Regional Council (ORC) setbacks applied.

Woodlot area	NES-CF perennial stream < 3m wide	NES-CF perennial stream > 3m wide	ORC Draft LWRC >10° waterbody
10 ha woodlot with 400m of stream	0.2 ha setback	0.4 ha setback	2 ha setback (20% of the forest)
10 ha woodlot with 800m of stream	0.4 ha setback	0.8 ha setback	4 ha setback (40% of the forest)
50 ha woodlot with 400m of stream	1 ha setback	2 ha setback	10 ha setback (20% of the forest)
50 ha woodlot with 800m of stream	2 ha setback	4 ha setback	20 ha setback (40% of the forest)
250 ha forest with 3 km of stream	5 ha setback	10 ha setback	50 ha setback (20% of the forest)
250 ha forest with 5 km of stream	10 ha setback	20 ha setback	100 ha setback (40% of the forest)

Table 1: ORC draft setback impacts.

Because of their smaller size, draft setbacks could have an unduly large impact on small to medium sized forest owners, removing large portions of their land under forests. The impact of the draft setbacks on small to medium growers particularly needs to be investigated and tested.

ETS liabilities will be triggered for all forest owners captured by the scheme. The interim analysis indicates an upper figure of $980million.

The proposed consent regime provides the industry with no certainty for business continuity, an average loss across the region of 37% of forested land is estimated. This is a significant loss of productive land for which to date, there is no scientific justification to be more stringent than the NES-CF regime.

Climate change

Government legislation provides the legal framework for New Zealand to meet its various international obligations regarding climate change. While the legislation is not local government legislation, a proposal which will cause 37% of forest land to not be replanted appears to adversely affect the ability of New Zealand to meet its obligations towards our Nationally Determined Contribution (NDC). There will be social and economic implications on the region as New Zealand

will have to consider, amongst other methods, tax regimes to pay for carbon credits to meet its obligations.

Indigenous Biodiversity

Otago's plantation forests support a wide and rich matrix of indigenous biodiversity. Native flora and fauna thrive in existing indigenous 'reserve' areas and within the exotic forest itself. The larger forestry companies have significant indigenous areas which under the NES-CF and in accordance with the Forest Accord[5] cannot be converted to exotics. These companies have the financial means to support the viability of these indigenous areas.

FOA funds research into karearea populations located in some exotic Otago forests. Funding is via the Forest Growers Levy Trust. The levy is imposed on all logs delivered to domestic and overseas customers. If the forest industry viability and production is adversely affected, then these funds for research are conversely affected. We consider that this would be one of those unintended consequences that could arise from the proposed changes.

Water yield

The FOA website presents various fact sheets prepared by Scion. One of the fact sheets deals with forest water dynamics and provides a scientific and balanced view of the impact of tall trees on water yield[6].

Most of the forest hydrology models used in New Zealand today are based on a small number of studies conducted in the 1960-70s. Also in use are algorithms developed for agricultural soils, which are very different from forest soils. Presently, there's no way to know how accurate these current models are, and much has changed since the data was initially gathered.

Scion is leading a new five-year research programme called 'Forest Flows', supported by the Ministry of Business Innovation and Employment (MBIE). The programme aims to create a biophysical model of forest hydrology that accurately predicts water retention and release for entire catchments, while also providing data on changes in water quality over time. And whilst the project will be completed in 2024, the preliminary findings from the Forest Flows research have been collated for this submission and are presented in Appendix 1.

Note on making this submission public

We do not object to the submission being made public.

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[5] https://www.nzfoa.org.nz/resources/file-libraries-resources/agreements-accords/10-nz-forest-accord/file
[6] https://www.nzfoa.org.nz/resources/file-libraries-resources/environment/factsheets/846-forest-water-dynamics/file

Appendix 1: Forest Flows Programme: discussion of water yield

For FOA submission to ORC
6/11/2023
Dean Meason
Scion

Water Yield

Estimates of catchment water use (water yield) by planted forests such as radiata pine have been traditionally investigated with paired catchment studies. They estimate changes in annual water yield by comparing total stream flow between catchments with different landuses. A number of paired sites were established in New Zealand from the 1950s to the 1970s, including Glendhu. The problem with such studies are fourfold; (1) they do not measure directly tree water use nor hydrological processes like evapotranspiration, (2) they typically do not measure groundwater, (3) they are case specific, thus empirical results of one catchment cannot be applied to another catchment, even if the catchment is nearby (Bren 2016) and (4) they rely on assumptions that may not be true (Meason et al. 2019). Davis and Fahey (2005) highlighted the large uncertainty in water yield from these previous studies and concluded more research was required.

Unlike pasture, New Zealand hydrology studies for both native and planted forest catchments have demonstrated that a significant amount of rainfall is retained from storm events, thus reducing the flooding impact downstream (Fahey and Rowe 1992). Conversely, almost all rainfall from storms on pasture catchments immediately runoff into the stream. Analysis of streamflow of the pasture and radiata pine catchments from the Purukohukohu Experimental Basin in the central North Island found that total summer base flow was higher for the radiata pine forested catchment than the adjacent pasture catchment for 19 of the 23-year time period (Scion 2020, Figure 1). Conversely, there was more streamflow from the pasture during stormflow (rainfall) events (Figure 1). Thus, planted forests act as water storage during the winter months and may release the winter rainfall as low flows during the drier months. It is unclear from previous studies if planted forests had a positive, neutral, or negative impact on low stream flows (Meason et al. 2019). With the massive changes in the primary sector in the last 30 years, results from forest hydrological studies from the 1950s-1970s may not be suitable for answering today's questions about water.

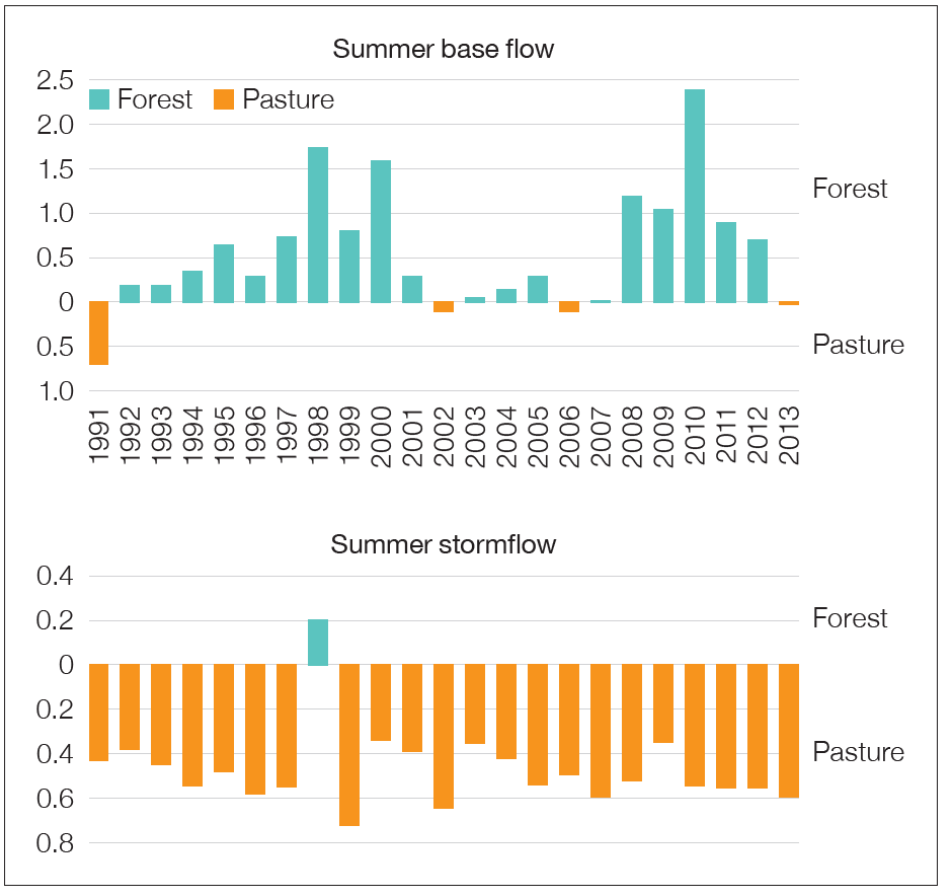

Figure 1: Relative difference in total summer base (top graph) and storm (bottom graph) stream flow between the radiata pine forest catchment and pasture over 23 years at the Purukohukohu Experimental Basin (Scion 2020).

Recent research in Australia has brought into question how the results from paired catchment studies, which are typically located in small headwater catchments, scale up to regional catchments (Benyon et al., 2009). A study in southwest Victoria in 2008 found there was no change in large catchments stream flow despite large scale afforestation over tens of thousands of hectares from the late 1990s to the mid-2000s (Sinclair, et al., 2008a, 2008b). The scaling issue with hydrological processes is recognised internationally as an important issue for interpreting and extrapolating catchment studies (e.g. Vereecken et al., 2015) and this is also an important issue for New Zealand (Meason et al. 2019).

The Forest Flows MBIE Endeavour Programme (www.forestflows.nz), led by Scion's Dean Meason, was developed to address the above problems. Its primary objectives are to directly measure planted trees water use, quantify water storage and release from planted forest catchments across a rainfall gradient (long term total annual rainfall 800-3000mm). It uses an integrated series of terrestrial and remote sensing measurements to identify the mechanisms controlling water use, storage and release. It has also developed a new process-based hydrological model that is directly applicable for existing and future planted forests. Preliminary results from four of the five primary research sites found that annual radiata pine tree water use ranged from 13.5% to 36.7% (Figure 2), well below estimates from earlier New Zealand studies (Davie and Fahey 2005). The majority of the remaining precipitation left the catchments as stream water or groundwater. The Forest Flows programme is currently compiling its biophysical data and will be providing full results in early 2024.

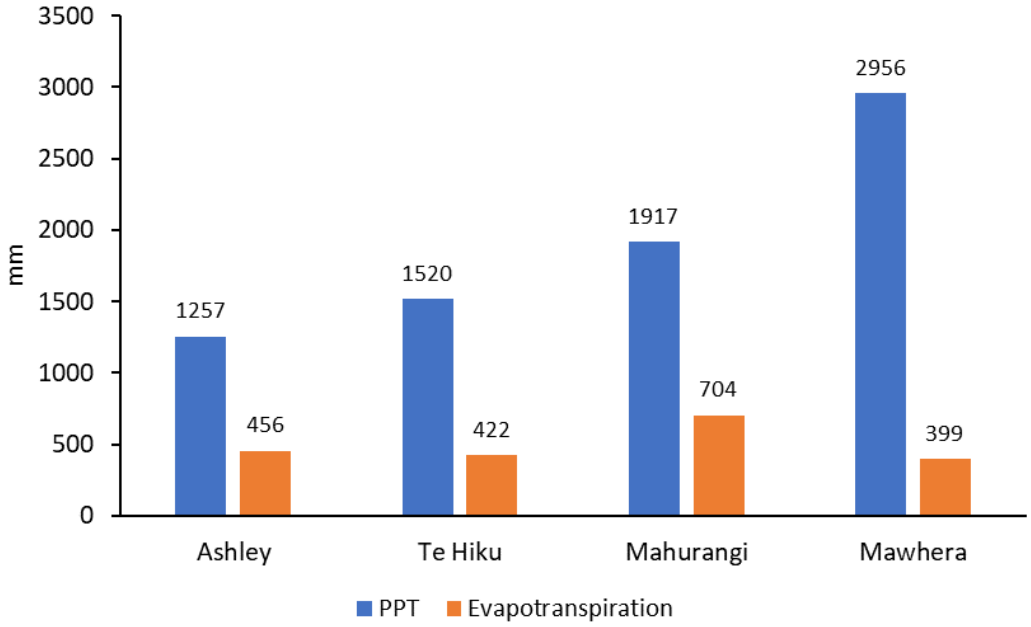

Figure 2: Preliminary water balance calculations of annual evapotranspiration of radiata pine planted forest catchments and 2022 annual rainfall for four of the Forest Flows MBIE programme primary research sites; Ashley Forest (Canterbury), Te Hiku Forest (Northland), Mahurangi Forest (Auckland), and Mawhera Forest (West Coast).

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