

# SUBMISSION ON

# Bay of Plenty Freshwater Engagement NPSFM 2024

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**To:** Bay of Plenty Regional Council

**Name of Submitter:** Horticulture New Zealand

## Contact for Service:

Sarah Cameron  
Senior Policy Advisor  
Horticulture New Zealand  
Ph: +64 21 446 281  
Email: [sarah.cameron@hortnz.co.nz](mailto:sarah.cameron@hortnz.co.nz)



# OVERVIEW

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## Our submission

Horticulture New Zealand (HortNZ) thanks Bay of Plenty Regional Council for the opportunity to submit on the freshwater engagement and welcomes any opportunity to continue to work with council and to discuss our submission.

The details of HortNZ's submission are set out in our submission below

# HortNZ's Role

## Background to HortNZ

HortNZ represents the interests of approximately 5,500 commercial fruit and vegetable growers in New Zealand who grow around 100 different fruit, and vegetables. The horticultural sector provides over 40,000 jobs.

There is approximately, 80,000 hectares of land in New Zealand producing fruit and vegetables for domestic consumers and supplying our global trading partners with high quality food.

It is not just the direct economic benefits associated with horticultural production that are important. Horticulture production provides a platform for long term prosperity for communities, supports the growth of knowledge-intensive agri-tech and suppliers along the supply chain; and plays a key role in helping to achieve New Zealand's climate change objectives.

The horticulture sector plays an important role in food security for New Zealanders. Over 80% of vegetables grown are for the domestic market and many varieties of fruits are grown to serve the domestic market.

HortNZ's purpose is to create an enduring environment where growers prosper. This is done through enabling, promoting and advocating for growers in New Zealand.



## HortNZ's Resource Management Act 1991 Involvement

On behalf of its grower members HortNZ takes a detailed involvement in resource management planning processes around New Zealand. HortNZ works to raise growers' awareness of the Resource Management Act 1991 (RMA) to ensure effective grower involvement under the Act.

# Executive Summary

The Bay of Plenty region is unique with 80 percent of New Zealand's largest export crop grown (kiwifruit) - there are also significant avocado plantings. The economic returns from horticulture to the region are more than \$1.7b and the horticulture industry provides over 8000 permanent and 20,000 seasonal jobs. Horticulture thrives in the Bay of Plenty because of the free draining soils, warm weather, and high sunshine hours.

## Freshwater Vision

We seek an integrated approach to freshwater management, where the freshwater vision not only directs instream freshwater outcomes, but also directs freshwater limits. The freshwater vision we have for the bay of Plenty is:

Food production in the region/FMU is supported by innovative and sustainable land and water management practices that:

- Maintain food security for New Zealanders
- Support the transition to low emissions land use
- Improve resilience to the effects of climate change
- Support the use of Highly Productive Land for primary production

## Te Mana o te Wai

Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

- We seek a definition for human health that recognises that food is essential for human health
- We seek a regional interpretation of Te Mana o te Wai, where the management of freshwater supports lower emissions land use and improves climate change resilience.

## Freshwater Values

Water is used throughout the horticultural production process, including, irrigation, washing, processing and fighting frosts. All horticultural operations result in discharges.

The freshwater values we seek are recognised area:

- Irrigation, cultivation and food supply
- Commercial and industrial use
- Food Production.

## Community Engagement

Collecting information on values is an important process of setting a freshwater vision, but the freshwater vision is about catchments and freshwater receiving environments.

In our view, more community consultation will be required to meet the vision and value setting within the NPSFM framework.

# Horticulture Sector

## 1. Horticulture in Bay of Plenty

Freshfacts<sup>1</sup>, published annually since 1999 by Plant & Food Research, provides a year-by-year report on horticulture in New Zealand. This is based on the Statistics New Zealand Agricultural Production Census with most recent data to 2017. The next Agricultural Production Census is being held in July 2022, gathering information about farms, fields, orchards, and forests to identify trends and provide current statistics that benefit the agricultural sector, inform decision-makers, and measure New Zealand's growth.

Table 1: Area planted in fruit (hectares).

Apples	Grapes	Kiwifruit	Summerfruit	Avocados	Citrus	Berryfruit	Nuts	Olives	Other	Total
67	75	9227	7	1834	62	42	28	26	79	11447

Table 2: Area planted in vegetables (hectares).

Asparagus	Broccoli Cab & Caulis	Peas & Beans	Sweetcorn	Other	Total
4	10	1	14	28	57

Table 3: Indoor crops (hectares).

Capsicum	Mushroom	Salad Green	Tomato	Other	Total
42	1	16	2	12	73

### 1.1. Social and Economic Contribution

People are part of the natural environment, and the social, economic, and cultural wellbeing of all people must be provided for within natural environmental limits. Horticulture produces healthy food to support the essential health needs of people and provides jobs and export earnings which support the social, economic, and cultural wellbeing of the Bay of Plenty and national population.

#### 1.1.1. GROSS DOMESTIC PRODUCT AND EMPLOYMENT

Kiwifruit is the biggest hort producer in the region with 11,053 hectares (over 80% of New Zealand total). The average orchard size being 3.3 hectares (green) and 3.8 hectares (gold)<sup>2</sup>. The kiwifruit industry in the region generates 7,506 fulltime equivalent jobs and 19,474 seasonal jobs<sup>3</sup>. Full time employment is expected to grow to 25,091 by 2029/30.

<sup>1</sup> [Fresh Facts](#)

<sup>2</sup> <https://www.zespri.com/content/dam/zespri/nz/annual-reports/Zespri-Annual-Report-2021-22.pdf>

<sup>3</sup> NZKGI/Zespri Regional Contribution Brochure

Kiwifruit plays a major role in national and Bay of Plenty GDP. The GDP for the region in 2020/21 was \$1.78b<sup>4</sup> and is expected to grow to \$2.04b by 2029/30<sup>5</sup>.

The second biggest hort producer in the region, the New Zealand avocado industry value eclipsed \$227m in the 2020-21 season, with \$167m delivered by avocado exports and \$60m in sales in the New Zealand market. 54% (2,198 hectares) of New Zealand's avocado production came from the Bay of Plenty region in 2020.

### **1.1.2. DOMESTIC FOOD SUPPLY**

There is only a small amount of outdoor vegetable growing within Bay of Plenty. This vegetable growing supports the local Bay of Plenty market. The indoor vegetable growing makes up 15 percent of New Zealand's indoor growing area. The main indoor crops grown in Bay of Plenty are capsicums (over 50 percent for domestic supply), and salad greens (for domestic supply).

Thirty percent of avocados are for domestic supply, and therefore the domestic market is important to the economic resilience of the avocado industry. NZ does not import Avocados<sup>6</sup>. 80 percent of avocados eaten in New Zealand are estimated to be produced in the Bay of Plenty.

## **2. Freshwater and Horticulture**

Water is used throughout the horticultural production process; from growing the crops, washing, and processing produce for market, to fighting frosts (some fruits). To service these activities, the industry requires enough water supply at specific times, particularly in summer.

For some crops, such as vegetables that are grown above ground and fruit with skins that may be eaten, the quality of the irrigation water is important to manage food safety risks.

All horticultural operations result in discharges, these are mainly non-point source discharges associated with rainfall or with irrigation. Non-point discharges can be managed with good irrigation practices, and land and fertiliser management to reduce the contaminant loading of discharges.

### **2.1.1. ABSTRACTIONS**

The reliability of water supply for crops during growth periods is very important to ensure quality as well as yield of each crop. During dry periods, access to reliable water at specific times in a crop's growth cycle is essential to sustaining crop yields and maintaining quality and quantity of supply required by the market. Over irrigating can be just as harmful to crop yields and quality as under irrigating.

Growers are already efficient users of water. Horticultural activities have high technical efficiency, technical efficiency is a measure of the rate at which resource, materials and labour are converted into goods. Horticultural activities also have high allocative efficiency, this relates to the value generated from the water resource used<sup>7</sup>.

If there isn't sufficient water reliability to produce a marketable yield, it can impact on the quality of produce which will have a flow on effect, both to consumers through higher prices,

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<sup>4</sup> NZKGI/Zespri Regional Contribution Brochure

<sup>5</sup> [IBR-Report-on-Kiwifruit.pdf \(waikato.ac.nz\)](https://www.waikato.ac.nz/industry/IBR-Report-on-Kiwifruit.pdf)

<sup>6</sup> <https://industry.nzavocado.co.nz>

<sup>7</sup> Stuart Ford Evidence for Horticulture New Zealand Change 9 March 2018

and to the price and margin received by growers and the flow on effect throughout the supply chain.

Within the horticulture sectors, there are studies underway to better understand abstraction requirements:

- In conjunction with Bay of Plenty Regional Council, several case studies are underway with kiwifruit growers to understand the impact of irrigation on yield, fruit quality and orchard gate returns. This work is due to be presented to council in September
- A three-year study to understand the water requirements for Sungold kiwifruit is underway. Year one has been completed however results are not expected to be published until after year two (July 2023). The study is being expanded into other regions where Sungold is grown on different soils to provide more in-depth insights. Year three will provide repetition and will cement results.

### 2.1.2. HARVESTING, STORAGE, AUGMENTATION AND RECHARGE

While horticultural crops are efficient users of water compared with pastoral irrigators, the need for a reliable supply of water for horticultural crops is higher than for pastoral farming, because pastoral agriculture is not solely dependent on irrigation and has alternative means of providing the feed to produce the gains made from irrigation<sup>8</sup>.

Water harvesting, and storage for direct use or augment or recharge is a method than can provide the irrigation reliability required by horticultural crops with lesser impacts on freshwater outcomes.

A recent study funded by MPI<sup>9</sup>, looked at the opportunity to expand horticulture if more water storage was provided. This study indicated there was significant potential for horticultural expansion in the Bay of Plenty, within existing freshwater limits, provide water could be harvested at time of higher flow and stored for use at other times.

Table 4 Potential expansion and diversification in Bay of Plenty (with storage)

Region	Current area <sup>1</sup>	Topographic filter			Hydrological Filter	Financial viability filter					Future land-uses in viable areas	Likely water quality constraints
	2020 Mapped irrigated area (ha)	Straight forward potential area (ha)	Possible potential area (ha)	Total potential area (ha)	New irrigable area based on hydrology (ha)	Area of greatest potential (ha)	Ranking Greatest potential	Area with some potential (ha)	Total Land with good or some potential (weighted)	Ranking Greatest & Some potential (weighted)		
Bay of Plenty	13,072	234,244	58,708	292,952	133,970	104,231	2	22,708	111,725	2	Kiwifruit, Dairy, Avocado	Low

### 2.1.3 CROP SURVIVAL WATER

Crop survival water is a sub-set of a consent holders' abstraction limit that is available between primary and secondary low flow cease-take thresholds for the sole purpose of avoiding plant death or plants sustaining damage to the degree that they require removal.

The provision for crop is analogous to "survival water" for livestock farming but applies to the rootstock of permanent horticultural crops. The provision of this water is very important for the horticulture growers because unlike farmers, growers are unable to move the crops in times of drought or provide an external food source to maintain farm viability.

In the Bay of Plenty Plan Change 9 (withdrawn), economic evidence was presented that estimated that jobs losses of 15% in the kiwifruit sector and 20% in the avocado sector could

<sup>8</sup> Stuart Ford Evidence for Horticulture New Zealand Change 9 March 2018

<sup>9</sup> www.mpi.govt.nz/dmsdocument/47770-Water-Availability-and-Security-in-Aotearoa-New-Zealand

occur if root stock survival water was not provided within the freshwater limit design<sup>10</sup>. Hydrological evidence indicated that if the freshwater limit could be designed to include provision for a root stock survival water and have minimal impact on the flow regime sought by council to achieve the freshwater outcomes.

When regional plans<sup>11</sup> provide crop survival water within an appropriate 'boundary' - this enables an economic value to be met, this achieves efficient allocation, and enables ecological objectives to be met. It also provides for the irrigation value of reliability - which is particularly critical to horticultural growers.

#### **2.1.4 DISCHARGES**

Freshwater receiving environments in the region are under pressure from discharges of point source and non-point source discharges. Discharges are an inherent part of horticultural food production. Accounting for the discharges and understanding the level of horticultural production that target attribute states can accommodate is essential.

#### **2.1.5 SEDIMENT**

Sediment can be released during the construction phase of orchards, which can be managed through erosion and sediment control practices. In the operation phases of orchards, this loss of sediment is predicted to be low.

There is relatively small area of cultivated vegetable growing land in the Bay of Plenty. Cultivation for vegetable growing can result in elevated sediment loss, the risk of sediment loss from cultivated land can be managed through erosion and sediment control practices

#### **2.1.6 NUTRIENTS**

Considerable research, monitoring and modelling has been undertaken by the kiwifruit sector in recent years to understand the nutrient balances in kiwifruit orchards of all N.Z. regions including the Waikato. The research also seeks to generate knowledge to increase nutrient use efficiency through good management practice<sup>12</sup>. The 2020 average modelled leaching value for Bay of Plenty was 29 Kg-N/Ha/Yr. Updated modelling will be available for Waikato and will be provided to council by New Zealand Kiwifruit Growers Inc in the coming weeks<sup>13</sup>.

New Zealand Avocados propose to partner with council on a multi-year study to better understand nutrient losses from avocado trees.

In supporting outdoor vegetable growing, there is research underway through the Sustainable Vegetable Systems research project<sup>14</sup>. This research is improving the way vegetable nutrient uptake and loss is represented in modelling. The project is also developing decision support tools for growers.

Indoor vegetable growing is a very efficient growing system with minimal discharges. Nutrients are periodically discharged to land.

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<sup>10</sup> Stuart Ford Evidence for Horticulture New Zealand Change 9 March 2018

<sup>11</sup> Root Stock /Crop Survival Water is provided within Tasman, Hawkes Bay, Gisborne, Auckland and Northland Regions.

<sup>12</sup> <https://canopy.zespri.com/EN/industry/pubs/journal/Documents/Monitoring-nitrogen-balances.pdf>

<sup>13</sup> [Monitoring-nitrogen-balances.pdf \(zespri.com\)](https://www.plantandfood.com/en-nz/article/working-with-the-industry-on-sustainable-vegetable-systems-svs)

<sup>14</sup> <https://www.plantandfood.com/en-nz/article/working-with-the-industry-on-sustainable-vegetable-systems-svs>



### **2.1.7 E. COLI**

Some orchards and vegetable operations may include stock, but generally stock numbers within orchards and vegetables are minimal. *E.coli* losses from horticulture are nil or negligible.

Orchards do include toilets. Technical work undertaken by PDP for HortNZ, has indicated the *E. coli* losses associated on orchard toilets is likely to be low risk provided design criteria are met<sup>15</sup>.

### **2.1.8 CROP ROTATION**

Crop rotation is an inherent and essential part of sustainable and regenerative commercial vegetable growing. Consents and Freshwater Farm Plans for commercial vegetable growing must allow growers to consent and plan for their owned and leased land.

Consenting commercial vegetable growing as a stand-alone activity requires a hybrid discharge land-use consent (RMA Section 9 and Section 15). The freshwater management unit is the smallest spatial unit that commercial vegetable growing can be managed at.

The specific location of the properties used for commercial vegetable growing within the freshwater management unit must be able to change during the life of the consent.

### **2.1.9 CODES OF PRACTICE AND GAP FARM PLANS**

The horticulture sector has numerous Codes of Practice supporting good management practices for discharges (Erosion and Sediment Control, Nutrient, Glasshouse Nutrients, Vegetable Wash Water, Minimising Soil Movement from Vehicles). The GLOBAL GAP and NZGAP farm planning framework provide a robust system of assurance for verifying on-farm practice, The NZGAP Environmental Management Systems add-on, provides a comprehensive framework for managing water quality impacts from growing operations.

## **3 Key Issues for the Horticulture Sector**

This section provides context about the wider national level values and issues that relate to horticulture. The way freshwater is managed within the Bay of Plenty will have a bearing on the outcomes for these nationally important matters.

### **3.1 Food Security for New Zealanders**

Food security is a nationally critical issue which needs to be addressed at a strategic level. While New Zealand is a net food exporter, many of the vegetables and some of the fruit that we grow are only for domestic food supply.

For most vegetable crops, the domestic market is the primary market, but many growers produce export crops within their rotations for practical (soil health) and economic reasons.

New Zealand and our Pacific Island neighbours are too remote to import many fresh vegetables from elsewhere in the world. Most vegetables that New Zealand imports are processed vegetables. In 2019, the most imported vegetables were canned tomatoes and frozen potatoes<sup>16</sup>.

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<sup>15</sup> PDP 2019 Kiwifruit Orchard Wastewater Systems

<sup>16</sup> Plant and Food, Fresh Facts 2019

Some fruit crops grown in New Zealand have a predominately export focus – for example, it has been estimated by NZIER that 95% of kiwifruit and 83% of apples are exported<sup>17</sup>. These two crops account for approximately 75% of New Zealand’s fruit and vegetable exports<sup>18</sup>. The next largest fruit export crops are avocados, cherries, and blueberries.

Many fruit crops are grown mainly for the domestic supply. For example, nectarines, peaches and plums, oranges, mandarins, feijoas, tamarillos, and strawberries<sup>19</sup>. Over 30% of Avocados are produced for the domestic market.<sup>20</sup>

Regulatory decisions on how freshwater is managed have consequences for domestic food supply. In some regions the design of freshwater discharge limits prevents the expansion of vegetable growing, such that it cannot keep up with population growth. In some regions the design of freshwater abstraction limits is increasing the cost of irrigation such that it is less economically viable to grow lower margin domestic crops. Growers supplying the domestic are price-takers. They cannot usually pass on increased costs to retailers, unless the supply is shorted. Shorting the market results in fewer vegetables being consumed at a higher price.

Otago University has recently modelled the potential health impacts of increased vegetable prices. This study found that the health consequences of an increase in vegetable prices of 43 - 58 percent related to proposed freshwater limits,<sup>21</sup> would be a loss of 58,300 - 72,800 Quality Adjusted Life Years and health costs of \$490 - \$610 million across the population<sup>22</sup>.

Food security in New Zealand is supported by both self-reliance and self-sufficiency. In a review of food security policy for New Zealand, Sapere conclude, that while objectives of increased food self-sufficiency and food self-reliance may seem in opposition to each other, this would only be the case if the domestic production sector remained static. A more diverse and productive domestic food sector would likely help serve both goals and improve the overall level of food security in New Zealand<sup>23</sup>.

The Regional Policy Statement and Regional Plan and in particular freshwater policy should seek to prioritise the health of people by supporting the resilience of the domestic food system.

### 3.2 Transition to a Low Emissions Economy

In the context of greenhouse gas emissions reduction targets, the Paris Agreement highlights the importance of food production and food security, recognising the “fundamental priority of safeguarding food security ...” and noting the need to adapt and foster resilience and lower emissions, in a manner that does not threaten food production.

<sup>17</sup> NZIER, 2019. Farm share of retail prices. Analysis of domestic farmer margins in a globalised world

<sup>18</sup> Fresh facts 2020 data, as a proportion of total horticultural exports (excluding wine, hops, and ‘other horticulture’).

<sup>19</sup> FreshFacts 2021

<sup>20</sup> <https://industry.nzavocado.co.nz/stronggrowth/>

<sup>21</sup> <https://www2.deloitte.com/nz/en/pages/primary/articles/pukekohe-hub.html>

<sup>22</sup> <https://www.hortnz.co.nz/assets/Environment/Reports-research/The-health-and-health-system-cost-impacts-of-increasing-vegetables-prices-over-time.pdf>

<sup>23</sup> <https://www.hortnz.co.nz/assets/environment/reports-research/Review> of food security policies

Plant based balanced diets are recognised as key mitigation strategy in the IPCC 6<sup>th</sup> Assessment Report<sup>24</sup>.

The Eat-Lancet Commission<sup>25</sup> found that food is the single strongest lever to optimize human health and environmental sustainability and without action, the world risks failing to meet the United Nations Sustainable Development Goals and the Paris Agreement.

The report recommended a transformation to healthy diets by 2050 requiring substantial dietary shifts, with global consumption of fruits, vegetables, nuts and legumes having to double, and consumption of foods such as red meat and sugar being reduced by more than 50%.

*"The food we eat and how we produce it will determine the health of people and planet, and major changes must be made to avoid both reduced life expectancy and continued environmental degradation."*

Research has illustrated the connection between eating patterns, climate change and health outcomes and eating more plant-based foods and minimising food waste were one of the most important ways individuals could reduce their personal climate footprint, while also having health gains and health system savings<sup>26</sup>. This research reported annual diet-related emissions reductions of between 4 percent (following New Zealand Dietary Guidelines) to 42 per cent (waste free vegan diet), the latter being equivalent to one-fifth of the current emissions reduction needed to meet New Zealand's commitment under the Paris Climate Agreement.

### **3.2.1 DIVERSIFICATION TO HORTICULTURE**

Diversification to horticulture presents an opportunity to reduce emissions while increasing food production, as identified by the Climate Change Commission.

In New Zealand, there is 1,000,000 hectare of land that could potentially be converted to horticulture. If this land was converted to horticulture, it would be as effective at reducing New Zealand's agricultural emissions as a methane vaccine<sup>27</sup>.

The Climate Change Commission's advice<sup>28</sup> to government assumed (in the demonstration path) converted of 2,000 hectare of land per year to horticulture from 2025 but noted that this could increase if "if barriers - such as water availability, labour, supply chains and path to market - are addressed." The following was listed as a critical outcome - "Opening up opportunities for more conversion to lower emissions production systems and land uses, including horticulture".

The Resource Management Amendment Act 2020 made changes to Section 61 and 66, to include as matters to have regard to when developing Regional Policy Statement and Regional Plans: *'any emissions reduction plan made in accordance with section 5Z1 of the Climate Change Response Act 2002'*.

The Government has developed an emissions reduction plan to guide the cap in-line with our 2050 Target. New Zealand will not achieve its 2050 emissions reduction target, without

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<sup>24</sup> <https://www.ipcc.ch/report/ar6/wg2/>

<sup>25</sup> Eat-Lancet. (2019). Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems. The Lancet.

<sup>26</sup> Drew, J et al. (2020) 'Healthy and Climate-Friendly Eating Patterns in the New Zealand Context'. Environmental Health Perspectives <https://ehp.niehs.nih.gov/doi/full/10.1289/EHP5996>

<sup>27</sup> BERG. (2018). The report of the biological emissions reference group

<sup>28</sup> Ināia tonu nei: a low emissions future for Aotearoa.

reductions of emissions from agriculture. Focus area four within the Emissions Reduction Plan is Transition to Lower Emissions Land Use and Systems<sup>29</sup>.

The Regional Policy Statement and Regional Plans and in particular freshwater policy, should seek to support transition to low emissions food production.

### 3.3 Climate Change Adaptation and Natural Hazards

The way we manage water will be critical to the way we adapt to climate change and manage risks from natural hazards.

Our freshwater management for climate change adaptation and natural hazards will need to respond to changes in rainfall patterns and changes in the frequency of droughts and floods. Our response will include augmenting and recharging our waterbodies from harvested flows, storing water for irrigation and drinking, reusing water for urban activities, managing risks from fluvial and coastal flooding including decisions around what land we choose to drain, protect or retreat from.

The Resource Management Amendment Act 2020 made changes to Section 61 and 66, to include as matters to have regard to when developing Regional Policy Statement and Regional Plans: '*any national adaptation plan made in accordance with section 5ZS of the Climate Change Response Act 2002.*' The Draft National Adaptation Plan has a goal of embedding climate resilience in government strategies and policies and has a strong emphasis on collaboration<sup>30</sup>.

The Regional Policy Statement and Regional Plan, and particular freshwater policy should take an integrated approach to climate adaptation and natural hazard risk management, to optimise benefits to urban and rural communities and wider economic, social and cultural well beings.

### 3.4 Highly Productive Land

Highly productive land (HPL) is recognised as a resource with finite characteristics, life supporting capacity and long-term values for land-based primary production and domestic food supply.

For future generations, it is critical that Highly Productive Land (HPL) is protected from the continual trend of cumulative loss and loss of productive capacity due to reverse sensitivity and competition for natural resources.

The importance of HPL, and the need to manage this natural resource strategically, was clearly articulated in the consultation on the proposed NPS-HPL, including that the lack of clarity under the RMA means highly productive land is given inadequate consideration by local government<sup>31</sup>:

*"The value of this land for primary production is often given inadequate consideration, with more weight generally given to other matters and priorities. This absence of considered decision-making is resulting in uncoordinated urban expansion over, and fragmentation of, highly productive land when less productive land may be available and better*

<sup>29</sup> <https://environment.govt.nz/assets/publications/Aotearoa-New-Zealands-first-emissions-reduction-plan.pdf>

<sup>30</sup>: <https://environment.govt.nz/assets/publications/Draft-national-adaptation-plan.pdf>

<sup>31</sup> Valuing Highly Productive Land: A discussion document on a proposed national policy statement for highly productive land, Ministry for Primary Industries, August 2019.

*suited for urban use. This is preventing the use of this finite resource by future generations... National direction on highly productive land could provide councils with a clearer framework for managing this resource and assessing trade-offs between competing land uses ..."*

HPL is a finite resource and intergenerational asset that is under threat in New Zealand - most significantly due to urban development, as reported in 'Our Land 2021' which states that the area of HPL that was unavailable for horticulture because it had a house on it increased by 54% from 2002 to 2019<sup>32</sup>.

The productive capacity of HPL is dependent on access to water. If water is transferred away from HPL to serve urban communities, it could reduce the productive capacity of HPL and undermine the ability of HPL to support primary production reliant on irrigation, including low emissions fruit production and fruit and vegetables for domestic supply.

If HPL is located within the same receiving environment as a water body with water quality degraded by urban activities, food security can be compromised, because there may be insufficient assimilative capacity within receiving environments to receive discharges from both urban land and from HPL uses.

The Regional Policy Statement and Regional Plan should take an integrated approach to freshwater management that recognises the value of highly productive land and prioritises and supports the use of highly productive land for primary production.

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<sup>32</sup> [Our land 2021 | Ministry for the Environment](#)

# Submission

## 4 Long Term Freshwater Visions

Long-term visions are ultimately linked to environmental outcomes and limits, and therefore need to respond to values in water bodies and values associated with the use of water (assimilative capacity of freshwater to support abstractions and discharges) in catchments - in a manner consistent with the Te Mana o te Wai hierarchy of obligations.

Long term visions are required, to reflect the values of the catchment and give effect to the National Objectives Framework - e.g environmental outcomes must, when achieved, fulfil the relevant long-term visions, in turn environmental outcomes must be identified for every value.

Te Mana o te Wai requires an integrated approach. We seek an integrated approach to freshwater management, where the freshwater vision not only directs instream freshwater outcomes, but also directs freshwater limits.

We seek that Freshwater Management in Bay of Plenty FMUs (where food production is present) is designed so the FMUs will:

- Support the Health of New Zealanders, through supporting a resilient domestic food system
- Support the health of wider environment through climate change mitigation and adaptation
- Support the community social and economic well-being through recognising the importance of highly productive land for primary production.

### Outcome sought

HortNZ long term vision for regions/FMUs is consistent across all regions where fruit and vegetables are grown

Food production in the region/FMU is supported by innovative and sustainable land and water management practices that:

- Maintain food security for New Zealanders
- Support the transition to low emissions land use
- Improve resilience to the effects of climate change
- Support the use of Highly Productive Land for primary production

### 4.1 Te Mana o te Wai

Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community. To quote the Ministry for the Environment's factsheets and website:

*The hierarchy does not mean, however, that in every case the water needs to be restored to a pristine or prehuman contact state before the other needs in the hierarchy can be addressed<sup>33</sup>.*

*Making this the first priority in freshwater management does not mean that councils will ignore the health needs (or other needs) of people<sup>34</sup>.*

We consider that the obligation to the first hierarchy of Te Mana o te Wai is satisfied at a minimum if policies 3.11 (3) and (4) is meet for water quality and 3.17 (4) for flow regimes.

The level of ambition, beyond the minimum obligation to freshwater is directed by the Te Mana o te Wai hierarchy of obligations and may include an improved freshwater state beyond the minimum obligation, or not, depending on the values within the FMU.

#### **4.1.2 TE MANA O TE WAI AND HEALTH**

HortNZ's view is that all is connected in Te Mana o te Wai, and that the production of fresh vegetables and fruit take a central role because they are critical for human health, as well as economic, social and cultural well-being. The domestic supply of fruit and vegetables and maintaining food security for New Zealanders are as important as providing drinking water and sanitation.

The hierarchy of obligations in Te Mana o te Wai defines three priorities: First, the health and well-being of water bodies and freshwater ecosystems. Within this priority there is no discretion in the interpretation. The priority is clear.

The second priority is the health needs of people. Here some discretion in interpretation or the ability to further define Te Mana o te Wai is provided. The NPSFM-2020 states this includes uses such as drinking water.

In our opinion the health needs of people within the second hierarchy of Te Mana o Te Wai should be defined as:

- Instream water quality supports the health of people undertaking immersive activities, such as swimming, and food gathered from water bodies is safe to eat
- Abstractions and discharges support essential human health, including safe drinking water and sanitation, nutritious food, adequate shelter and warmth.

The reference to the health needs of people is important. It aligns with the purpose of the RMA *sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety.*

The third priority in the hierarchy of obligations in Te Mana o te Wai is the ability of people and communities to provide for their social, economic, and cultural wellbeing now and in the future. Again, there is no discretion in the interpretation. The priority is clear. As per the purpose of the RMA, the health needs of people and communities is a separate but parallel consideration to social, economic and cultural well-being matters. While food production, matters sit within the third priority, clearly the relationship of food production and water to

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<sup>33</sup> <https://environment.govt.nz/publications/essential-freshwater-te-mana-o-te-wai-factsheet/>

<sup>34</sup> <https://environment.govt.nz/acts-and-regulations/freshwater-implementation-guidance/clarification-of-the-essential-freshwater-programme-implementation-requirements/>

the health needs of people places the value of food production as far as it supports human health within the second priority.

The food security of New Zealand is achieved through both self-sufficiency and self-reliance. Some foods (most fresh vegetables and some fresh fruit) are produced predominately for domestic supply and cannot easily be replaced by imports. These food support food security through self-sufficiency. Freshwater management has the potential to have a stark impact on the cost and availability of these foods. Other foods produced mainly for export (meat, milk, kiwifruit), support the food security of New Zealanders by supporting self-sufficiency and self-reliance through trade. Freshwater management has the potential to impact on the production and trade of these foods, but the influence of freshwater management decisions on the cost and supply of these foods for New Zealanders is lesser.

HortNZ consider that food production for domestic food supply (and food security) is a critical part for providing an essential human health need, and accordingly that it fits within the second hierarchy priority. The High Court (Judicial Review against specified vegetable growing area in Manawatu decision) held that food security and TMOTW are not inconsistent nor unachievable, but that the council must undertake the balancing act. As noted in the Judicial Review<sup>34</sup> decision (paragraph 175), the requirement in respect of specified vegetable growing areas to have regard to the importance of the contribution of that area to the domestic supply of fresh vegetables and maintaining food security for New Zealanders in implementing 'any part' of the NPSFM 2020 (3.33 sub clause (2)) *"does not prioritise those factors over the health and wellbeing of waterways and freshwater ecosystems, but simply adds a further mandatory requirement to the mix"*.

The principle of care and respect describes the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation. One way we can provide for the health of nation is to recognise that food is essential for human health and that the Freshwater Vision for the Bay of Plenty should include maintaining food security for New Zealanders

#### **4.1.3 TE MANA O TE WAI AND CLIMATE CHANGE**

The broader meaning of Te Mana o te Wai must also inform the interpretation of the NPSFM. The broader definition of Te Mana o te Wai is about restoring the balance between water, the wider environment and the community. One the areas where the well-being of the wider environment is clearly out of balance is excess greenhouse gas emissions causing climate change.

The principle of stewardship describes the obligation to manage freshwater, so it sustains present and future generations. The management of freshwater to promote low emissions land use and climate change resilience is an effective way in which Te Mana o te Wai can be implemented in the Bay of Plenty, to support the health and well-beings of future generations.

##### **Outcome sought**

Define the health needs of people within the second hierarchy as:

- Instream water quality supports: the health of people undertaking immersive activities, such as swimming, and the food gathered from water bodies is safe to eat
- Abstractions and discharges support essential human health, including safe drinking water and sanitation, nutritious food, adequate shelter and warmth.



Include in the regional application of Te Mana o te Wai:

- Management of freshwater should support lower emissions land use and improve climate change resilience.

## 4.2 Relationship Between Long Term Visions and Values

In addition to compulsory freshwater values, section 3.9 (2) of the NPSFM states that regional council may identify other values applying to an FMU or part of an FMU and must in every case consider whether the values listed in Appendix 1B<sup>35</sup> apply.

In our option, the values included within Appendix 1B that must be considered and apply to each FMU are: Irrigation, Cultivation and Food Supply and Commercial and Industrial Use.

Section 3.9 (2) is clear that Councils *may* identify values for an FMU that are not listed within Appendix 1A and 1B. Food Production is an important value in the Bay of Plenty FMUs where food production is present. In our opinion a Food Production value should also be applied to relevant FMUs within the region.

### 4.2.1 IRRIGATIONS, CULTIVATION AND FOOD SUPPLY

While the title of this value is broad, the explanation within the NPSFM is specific to irrigation. This value has limitations for horticulture, as the value is about irrigation rather than food supply.

### 4.2.2 FRESHWATER OUTCOMES FOR THE IRRIGATION VALUE

This value relates to the flow regimes and instream water quality to support abstractions

- Flow regimes that provide the volume and reliability of water abstraction to support the activity reliant on irrigation
- Target attribute states that provide abstracted water of suitable water quality to support irrigation, (avoid clogging) and manage food safety risks when irrigating crops for human consumption.

### 4.2.3 COMMERCIAL AND INDUSTRIAL USE

This value relates to the economic opportunities for people, business and industries. This value is the economic contribution. Horticulture has high technical and allocative efficiency, and therefore is a very economically efficient user of the assimilative capacity of freshwater receiving environments that support both abstractions and discharges.

### 4.2.4 FRESHWATER OUTCOMES FOR THE COMMERCIAL AND INDUSTRIAL USE VALUE

This value relates to flow regimes and instream water quality to support abstractions and discharges:

- Flow regimes that provide the volume and reliability abstraction to support the activity for commercial matters such as frost fighting and crop washing, post-harvest and food processing

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<sup>35</sup> [National Policy Statement for Freshwater Management 2020 \(environment.govt.nz\)](https://www.environment.govt.nz/national-policy-statement-for-freshwater-management-2020)

- Target attribute states that provide abstracted water of suitable water quality to support the commercial activity, for example managing food safety risks for crop washing
- Target attribute states that provide for non-point and point-source discharges associated with the commercial activity, for example sufficient capacity within target attribute states to assimilate nitrate leaching from orchards operating at good management practice.

#### 4.2.5 FOOD PRODUCTION

Food Production is recognised as a value within other Regions<sup>36</sup>, and not solely related to irrigated food production. The economic contribution is not the sole benefit of food production, there are wider social and environmental benefits of food production. For example, the IPCC has high confidence that climate adaptation strategies that promote global adoption of balanced diets<sup>37</sup> contribute to emissions reduction and nutrition, health, biodiversity and other environmental benefits<sup>38</sup>. The National Emissions Reduction Plan includes low emissions land use (including low emissions food production) as a focus area.

We propose wording of the food production value would be as follows:

##### ***Food Production***

*The FMU or part of the FMU supports food production*

*Water quality and quantity supports food production including: the domestic supply of fresh vegetables, food security for New Zealanders, low emissions food production, climate change resilient food production and food production on highly productive land.*

#### 4.2.6 FRESHWATER OUTCOMES FOR FOOD PRODUCTION

This value relates to flow regimes and instream water quality to support abstractions and discharges:

- Flow regimes that provide the volume and reliability abstraction to support food production that contributes to balanced diets, such as water harvesting or root stock survival water to support land use change to horticulture
- Target attribute states that provide abstracted water of suitable water quality to support the commercial activity, for example managing food safety risks for crop washing
- Target attribute states that provide for non-point and point-source discharges associated with food production that contributes to food production, for example sufficient capacity within target attribute states to assimilate sediment discharged from vegetable growing land operating at good management practice.

In the current situation, we consider that the Food Production value applies to all FMUs within the Bay of Plenty region related to;

- Low emissions food production and,

<sup>36</sup> Otago RPS

<sup>37</sup> Balanced diets feature plant-based foods, such as those based on coarse grains, legumes fruits and vegetables, nuts and seeds, and animal-source foods produced in resilient, sustainable and low-greenhouse gas emissions systems, as described in SRCC

<sup>38</sup> [www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC\\_AR6\\_WGII\\_SummaryForPolicymakers.pdf](http://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf) and [www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM\\_Updated-Jan20.pdf](http://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf)

- Food production on highly productive land

#### **Outcome sought**

Include the values for all FMUs

- Irrigations, Cultivation and Food Supply
- Commercial and Industrial Use
- Food Production

### **4.3 Relationship of Long-Term Visions and Outcomes**

When freshwater outcomes are achieved, they fulfil the relevant long-term vision and the Te Mana o te Wai hierarchy of obligations.

Freshwater Outcomes are supported by target attribute states and environmental flows and levels, which enable monitoring of progress towards outcomes.

When communities decide the level of ambition to set for freshwater outcomes, they need to consider all the values that freshwater within the FMU supports, and to optimise the freshwater outcomes to restoring and preserving the balance between the water, the wider environment and the community over the long-term, and in the context of a changing climate.

### **4.4 Relationship of Long-Term Visions and Limits**

Freshwater limits are a way of managing freshwater abstractions and discharges to achieve freshwater outcomes. The way freshwater limits are designed will influence the achievement of the freshwater vision.

The Te Mana o te Wai hierarchy is relevant for designing freshwater limits. In some catchments, there may need to be trade-offs between water used for second hierarchy activities, for example water for domestic food supply versus water for drinking, or trade-offs between third hierarchy activities, for example water to irrigate high-value low emissions horticultural crops versus water for urban industrial uses.

In our view, values in the second hierarchy of Te Mana o te Wai does not equate to an exemption from contributing to the costs of providing for the first hierarchy. This is particularly important in the context of a changing climate where investment in water storage, augmentation and recharge may be required to support freshwater ecosystem health. The investment in infrastructure that supports the health of freshwater and provides for drinking water and irrigation for export and domestic crops is likely to provide greater benefits than an approach where second hierarchy activities are afforded priority to the lowest cost water, without consideration of wider costs and benefits aligned to achieving the regional freshwater vision and regional Te Mana o te Wai objective.

### **4.5 Freshwater Management Units**

We support the scale of the FMUs. We do not support setting FMUs at a more localised, sub-catchment or small river scales, as this would result in a complex planning, monitoring and

reporting framework, and a lot of repetition in the Regional Natural Resources Plan. However, we recognise that values and outcomes and limits can be applied at a sub-FMU scale.

For vegetable growing, the FMU is the smallest scale crop rotation should be managed at to support soil health and the resilience of the domestic food system

We support the ability to transfer water, we accept that transfers need to occur within hydrological units, that may be smaller than FMUs

**Outcome sought**

We support the FMU boundaries proposed.

## 4.6 Growth Management and Resource Management Frameworks in Bay of Plenty

The food production values of the Bay of Plenty region are already well recognised in growth and resource management strategies adopted for the region. It is HortNZ's opinion that visioning and value setting for freshwater management cannot be disassociated from the broader resource management outcomes sought for food production in the region:

There are critical areas of regulation that HortNZ will advocate for in regional plans that will support ongoing horticulture production for vegetables and fruit - for domestic supply and to meet export market requirements.

<b>Outcomes sought</b>	
<p><b><u>Vegetable crops</u></b></p> <p><b>Discharges and impacts on water quality</b></p> <ul style="list-style-type: none"> <li>• Policy and methods for diffuse discharges that enable crop rotation across owned and leased land, recognise horticultural systems and differing risk between different types of systems/crops</li> <li>• Policy and methods provide for consideration of domestic food supply and food security</li> <li>• Practical policy and methods for cultivation</li> <li>• Practical policy and methods for wash water discharges</li> <li>• Policy and methods enable (not disincentivise on-farm mitigations)</li> </ul>	<p><b><u>Fruit crops</u></b></p> <p><b>Discharges and impacts on water quality</b></p> <ul style="list-style-type: none"> <li>• Diffuse discharge policy and methods recognise typically low water quality impacts of perennial crops</li> <li>• Practical policy and methods for land preparation and orchard redevelopment</li> </ul> <p><b>Abstractions and impacts on flow regimes</b></p> <ul style="list-style-type: none"> <li>• Water security/reliability or irrigation takes</li> <li>• Rootstock survival water</li> </ul>

<b>Abstractions and impacts on flow regimes</b>	
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| <ul style="list-style-type: none"><li>• Water security/reliability or irrigation takes</li><li>• Rules that enable crop washing</li></ul> |  |
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## 5 Community Engagement

The NSPFM requires councils to engage with communities and tangata whenua about their long term wishes for the water bodies and freshwater ecosystems in the region when setting vision and also to express what communities and tangata whenua want the FMU, part of the FMU, or catchment to be like in the future.

We take the “wishes” part of this engagement to be related to instream freshwater outcomes. We take the “want” part of this engagement to be about the freshwater limits and social, economic, and cultural well beings that the use of land and water within the FMU supports

Understanding the link between the FMU activities and freshwater outcomes is not simple and there are trade-offs. The Te Mana o te Wai hierarchy assists in making these trade-offs, to restore and preserve the balance between the water, the wider environment, and the community.

The community and tangata whenua have roles in determining how Te Mana o te Wai applies to water bodies and freshwater ecosystems in the region

Understanding how visions and values apply to water bodies and what visions and values means in terms of policy is not easy for growers. Yet the importance of this process in determining the catchment limits and resource allocation into the future is of critical importance for horticulture sector.

HortNZ welcomes any opportunity for further engagement with council to help inform changes to the Regional Policy Statement and Regional Plan, and to further discuss the policy direction we are seeking.

## Submission on Freshwater Vision

Without limiting the generality of the above, HortNZ seeks the following decisions], as set out below, or alternative amendments to address the substance of the concerns raised in this submission and any consequential amendments required to address the concerns raised in this submission.

Additions are indicated by ***bolded underline italics***.

Provision	Reason	Decision sought
Freshwater Vision	<p>Te Mana o te Wai recognises that the health of water protects the health and well-being of the wider environment, and is about restoring and preserving the balance between water the wider environment and community</p> <p>The vision we have proposed draws on matters that are critical to well-being of the community and the wider environment. These matters are recognised within national direction.</p> <ul style="list-style-type: none"> <li>• NPSFM</li> <li>• Emissions Reduction Plan</li> <li>• Climate Change Adaptation Plan</li> <li>• NPS HPL.</li> </ul> <p>We seek an integrated approach to freshwater Management, where the</p>	<p><b><i><u>Food production in the region/FMU is supported by innovative and sustainable land and water management practices that:</u></i></b></p> <ul style="list-style-type: none"> <li>• <b><i><u>Maintain food security for New Zealanders</u></i></b></li> <li>• <b><i><u>Support the transition to low emissions land use</u></i></b></li> <li>• <b><i><u>Improve resilience to the effects of climate change.</u></i></b></li> <li>• <b><i><u>Support the use of highly productive land for primary production</u></i></b></li> </ul>

	<p>Vision not only directs freshwater outcomes, but also directs freshwater limits, that are designed in way that will:</p> <ul style="list-style-type: none"> <li>• Support the Health of New Zealanders, through supporting a resilient domestic food system.</li> <li>• Support the health of wider environment through climate change mitigation and adaptation</li> <li>• Support the community social and economic well-being through recognising the importance of HPL for primary production</li> </ul>	
Te Mana o te Wai	<p>Fruit and Vegetables are essential for human health. Fruit vegetables requires abstractions and discharges. The way freshwater limits are designed can impact on the cost and availability of fresh fruit and vegetables for New Zealanders.</p> <p>The domestic food system is national network, and freshwater decision made in every region in New Zealand has some role to play in supporting our</p>	<p><b><u>Define the health needs of people within the second hierarchy as:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Instream water quality supports; the health of people undertaking immersive activities, such as swimming, and food gathered from water bodies is safe to eat</u></b></li> <li>• <b><u>Abstractions and discharges support essential human health, including safe drinking water and sanitation, nutritious food, adequate shelter and warmth.</u></b></li> </ul>

	<p>food system and food security for New Zealanders</p> <p>Te Mana o te Wai is about restoring the balance between water, the wider environment and the community,</p> <p>One the area where the well-being of the wider environment is out of balance is greenhouse gas emissions and climate change</p> <p>Managing freshwater to promote low emissions land use and climate change resilience a keyway in which Te Mana o te Wai can be implemented in the Bay of Plenty</p>	<p><b><u>Include in the regional application of Te Mana o te Wai:</u></b></p> <p><b><u>Management of freshwater should support lower emissions land use and improve climate change resilience.</u></b></p>
<p>Appendix 1B Freshwater Value to be applied to all FMUs</p>	<p>This value applies to irrigation water. It is relevant in all FMUs</p> <p>It includes flow regimes that support sufficient abstraction volumes and abstraction reliability. It also includes the water quality of abstracted water to be used for irrigation.</p>	<p><b><u>The value of irrigation, cultivation and food production</u></b></p> <p><b><u>This irrigation, cultivation and food production value should be considered when establishing the outcomes and limits for flow regimes and instream water quality to support the quality, quantity and reliability of abstractions</u></b></p>
<p>Appendix 1B Freshwater Value to be applied to all FMU</p>	<p>This value applies to irrigation water. It is relevant in all FMUs</p>	<p><b><u>The value of commercial and industrial use</u></b></p> <p><b><u>The Commercial and Industrial Use value should be considered when establishing the</u></b></p>



	<p>It includes flow regimes that support sufficient abstraction volumes and abstraction reliability. It also includes the water quality of abstracted water to be used for irrigation.</p>	<p><b><u>outcomes and limits for flow regimes and instream water quality to support the quality, quantity and reliability of abstractions and instream water quality to support discharges.</u></b></p>
<p>A New Freshwater Value to be applied to all FMU</p>	<p>This value is required because not all food production is irrigated and the economic contribution is not the sole benefit of food production, there are wider social and environmental benefits of food production.</p> <p>The Bay of Plenty is very well suited to producing high value, low emission food products.</p>	<p><b><u>Food Production</u></b></p> <p><b><u>The FMU or part of the FMU supports food production</u></b></p> <p><b><u>Water quality and quantity supports food production including: the domestic supply of fresh vegetables, food security for New Zealanders, low emissions food production, climate change resilient food production and food production on highly productive land.</u></b></p> <p><b><u>This Food Production value should be considered when establishing the outcomes and limits for flow regimes and instream water quality to support the quality, quantity and reliability of abstractions and instream water quality to support discharges</u></b></p>