**Submission on Tranche 2 Water Consent Applications** **16 December 2021**

[redacted]

1. I object to all the consent Tranche 2 Resource Consent Applications and all aspects of the applications.

2. Water use in Central Hawkes Bay is unsustainable at current levels of consented abstraction. Evidence of this point is contained in the attached letter and appendix dated 5 June 2018. All the facts and references are still valid today.

3. The Surface Water User Group, which I am a member, engaged Aqualinc as our Hydrologists. I have attached their report that states that the rivers will be in ban earlier and for longer as a direct consequence if the Tranche 2 consent were to "promote the sustainable management of natural and physical resources" be approved. This is not an acceptable outcome for myself and the other surface water consent holders.

   Further, the townships of Waipawa, Otane and Waipukurau and the Farm Road Water Scheme all utilise direct river take consents, and when the river goes through ban levels this affects town peoples' water use.

4. The augmentation of the Waipawa and Tukituki Rivers does not alleviate the negative effects of the takes on other streams, springs, wetlands and waterways in Central Hawkes Bay. The consequences are large and complex, making them completely unknown. This uncertainty is unacceptable for the environment, the many farms and households that rely on these types of water and for irrigators that use water from sources other than the Waipawa and Tukituki Rivers.

5. Climate change is starting to affect farming and the environment in Central Hawkes Bay. A direct consequence of climate change could be hotter and drier summers, leading to more pressure on the water resources in Central Hawkes Bay. This uncertainty is another reason to stop the further allocation of the ground water resources.

6. Mental health and general wellbeing of our community is a critical aspect. Many farmers and residents in Central Hawkes Bay have needed to deepen wells or come up with water contingency plans. This is very stressful. Evidence of the feeling that this has created is evidenced by the attached signed petition of the Onga Onga and Tikokino residents. Also, the community meeting with the HBRC at the Town Hall in Waipawa in late 2018 saw a full hall with standing room only at the back, with not a single person in support of the Tranche 2 consent applications.

7. The consent applications are against the principles outlined in the National Policy on Fresh Water Management and against the principles of Te Mana o te Wai.

8. From a policy viewpoint granting the consents would be wrong given that the plan change needs to be notified in 2024 and as a community will be moving away from Plan Change 6. Mistakes in the Plan Change, such as Tranche 2 need to be removed in the next version. Granting the consents now would make unwinding them later difficult.

9. I wish to have the option and ability to join forces with other like minded people and organisations at the hearing.

10. I wish to be able to expand on any points that I have raised above and / or secure expert resource to present on any points.

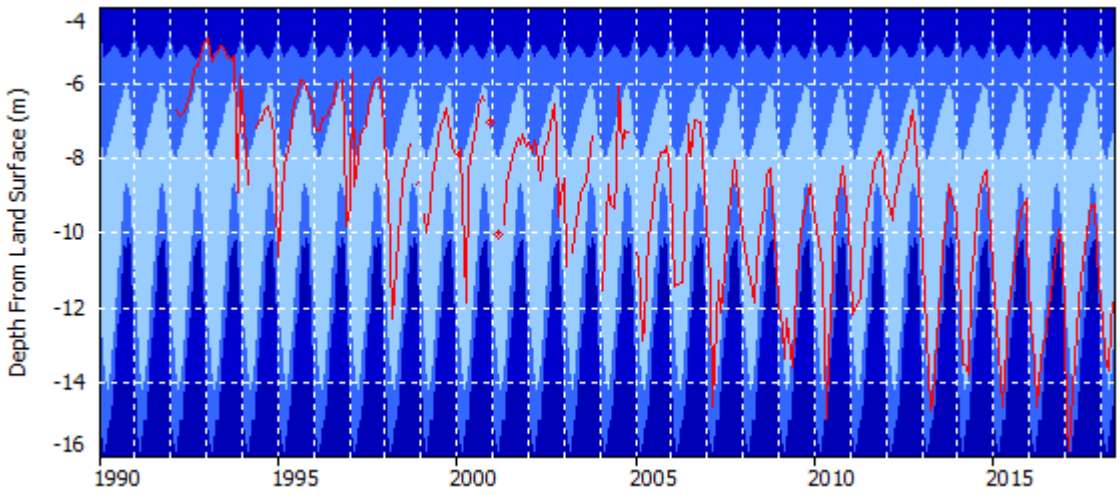
11. I wish to be heard at the hearing.

**Appendix One – Bore Levels at Various Locations on the Ruataniwha Plains**

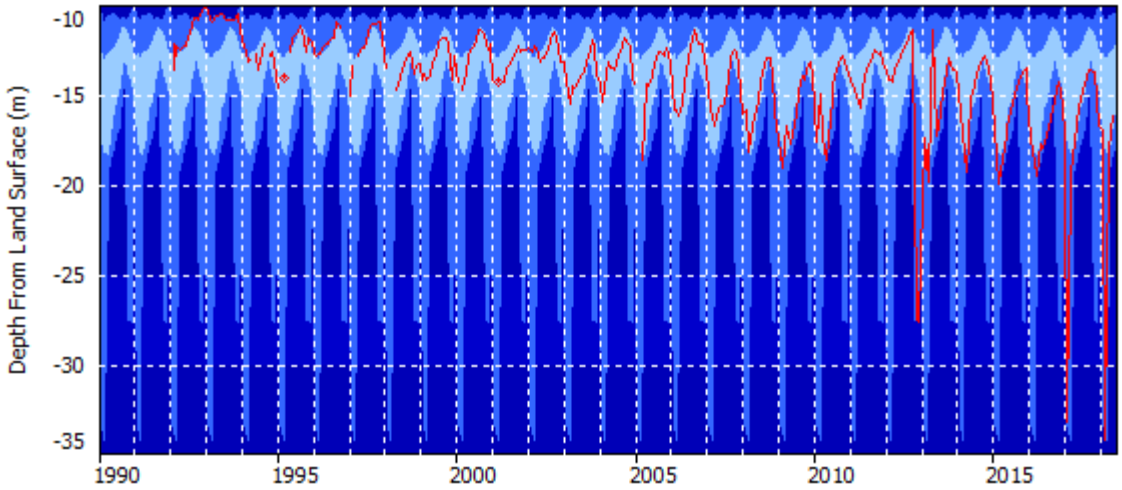
This information is downloaded from the HBRC website –

https://hbrc.govt.nz/hawkes-bay/rivers-and-lakes/river-levels/ on the Groundwater tab. The red line indicates the measured depth for all years since recording began.

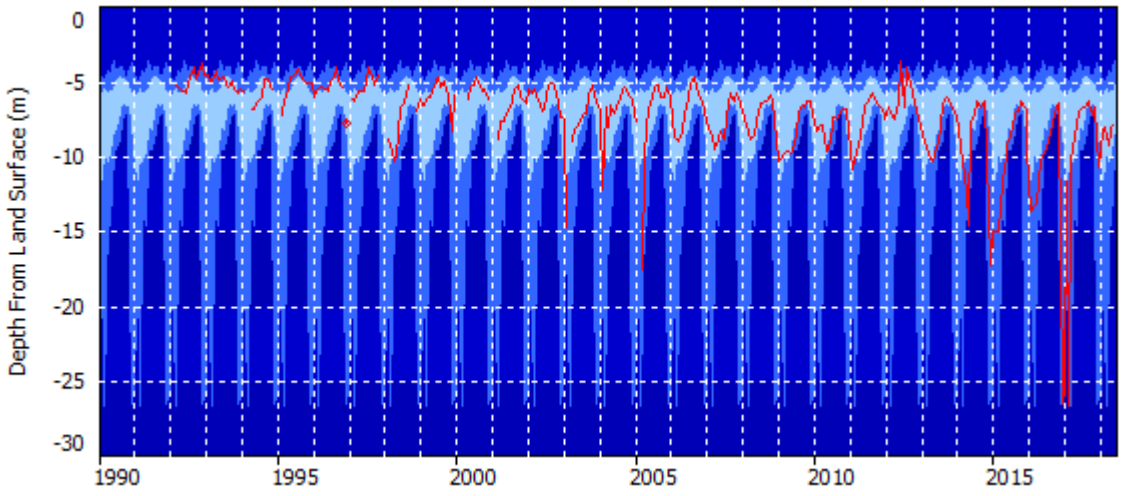
Bore 1426



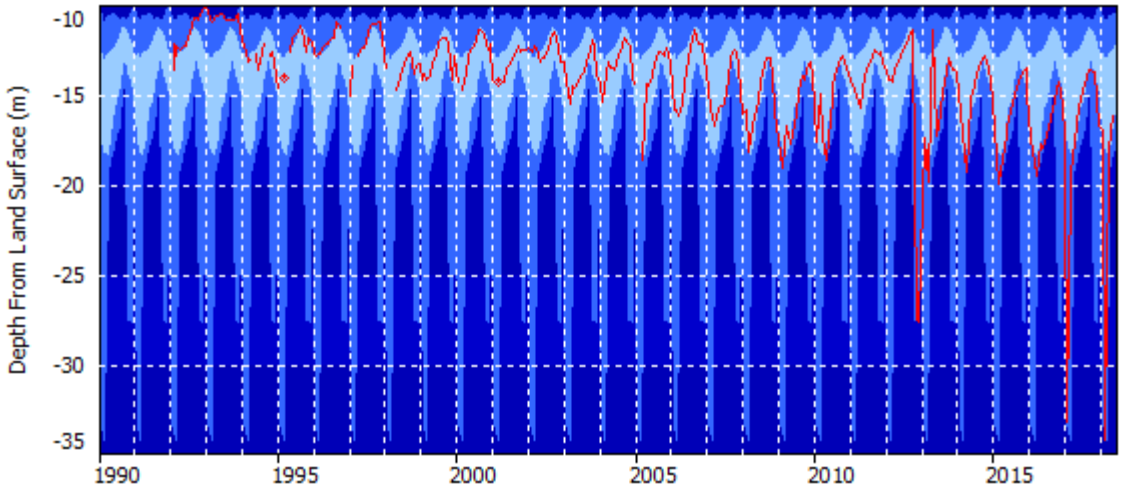

Bore 2220



Bore 1430




Bore 1475



Hawkes Bay Regional Council
P O Box 127
Waipawa 4240
New Zealand

[redacted]

4 June 2018

To: James Palmer, Rex Graham and Councillors

By email: james.palmer@hbrc.govt.nz; rex.graham@hbrc.govt.nz

Dear James, Rex and Councillors,

**Request to Publicly Notify the Tranche 2 Water Consents**

I am concerned about the Tranche 2 resource consent process that the HBRC is undertaking currently with a small group of land owners and their consultants. The consents are to take a further 15 million cubic metres of deep aquifer water from the Ruataniwha plains. This represents a 53% increase from the current 28.5 million cubic meters already consented.

Myself and many other parties are opposed to this consent due to the potential negative effects to a great number of people and the environment, all of whom depend on the Ruataniwha aquifer.

Many farmers and businesses that use stream depleting bores are facing the prospect of reduced water availability in the coming years due to the minimum flows in the Waipawa and Tukituki Rivers being increased. To put some figures on this, the ban flows will be at 5,200L/s as opposed to 3,500L/s at Red Bridge.

The townships within Central Hawkes Bay use water which comes from stream depleting sources. Waipawa and Otane use in the order of 650,000 cubic metres of water and Waipukurau uses approximately 1,500,000 cubic metres of water. While townships can continue to take water during ban periods for human welfare, it usually means very strict community water restrictions.

Most households on the Ruataniwha plains have their water sourced from bores.

The concern is based on some key facts and these are quotes from reports written by HBRC Hydrologists[1], and peer reviewed by Tonkin and Taylor and RPS Aquaterra, in reference to Ruataniwha within the last five years –

- "there is a high connection between surface and groundwater, including deep aquifers"

[1] Mainly from – Resource Management Group, Environmental Science, Ruataniwha Water Storage Scheme. Tukituki River Catchment. Assessment of potential effects on groundwater and surface water resources. EMT 13/05 HBRC Plan No. 4469

- "The average annual amount of river gain from the groundwater system is approximately 213 million m3, while the average annual river loss to groundwater is only 31 million m3. So the rivers gain water as they move downstream."

- "As a result of the increase in groundwater abstraction over the last 10 years, aquifer storage, rivers/groundwater relationship, and springs flow have been impacted. Modelling shows aquifer contribution to river flow has declined by 600 L/s while springs flow has declined by approximately 40 L/s."

- "Groundwater pumping was estimated to have increased gradually from 1996 to 2009 resulting in a cumulative aquifer storage loss of 66 million cubic metres"

- "The average groundwater contribution to river flow predicted over the last five years of simulation (2012-2016) is approximately 5402 l/s, which is 794 l/s less than the average (6196 l/s) for the period 1990-1995 (near-natural conditions)."

- "Continued abstraction of groundwater and surface water is predicted to reduce river flows significantly at three key surface water flow monitoring sites (Tukituki River at Tapairu Rd, Waipawa River at RDS and Tukituki River at Red Bridge) relative to natural conditions."

This backs up what I am witnessing at Swamp Road. Springs and water ways that have never been known to stop running have done so twice in the last five years. Many Onga Onga residents were forced to re-drill and lower their bores at the time the large irrigators started in 2004/2005. I believe that anything that risks further deterioration in our water sources is simply not worth it – and issuing a further 53% increase in consented groundwater is clearly a large threat.

My experience, and that of the residents at Onga Onga and Tikokino is backed up by measured data from HBRC monitoring bores. A sample of these bores is displayed in Appendix One. There is clearly a steady long term trend of decline in the depth of these bores since 1993. This is from the near natural condition pre large scale irrigation, and over the time of introduced irrigation from Tranche 1 up to now. The graphs show a trend of an aquifer in decline. I have put the results in the table below (as I interpret the graphs) –

| **Bore Number** | **Max / Min Depth in 1993** | **Max / Min Depth in 2017** |
|---|---|---|
| 1426 | –7m / –5m | –16m / –10m |
| 2220 | –13m / –10m | –34m / –14m |
| 1430 | –5m / –4m | –25m / –6m |
| 1475 | –13m / –10m | –34m / –14m |

These are particularly large falls in maximum depth, which occur in summer. The minimum depth, which occur in winter, clearly show that the aquifer is not recharging to the extent it did in 1993.

The Tranche 2 water was considered at the Board of Inquiry. The Board heard evidence that refuted much (but certainly not all) of what the HBRC, Tonkin and Taylor and RPS Aquaterra report

concluded. There was no other community, environmental or cultural representation that I am aware of that presented a differing view. The Board of Inquiry allowed the 15mcm of Tranche 2 aquifer water to be incorporated into Plan Change 6, specifically as a discretionary activity.

The water will be made available only if the consent applicants pump some aquifer water into the main stem of the Waipawa or Tukituki Rivers in the hope that this will keep them at the minimum flow, recognising that the aquifer feeds the rivers. It does not allow for the pumping of water to other people's bores, or wetlands, or springs or other waterways within Central Hawkes Bay – all of which are also fed by the aquifer, given that the deep aquifer and the surface water are connected. This can be further evidenced by the GNS Science Report[2] stating "Within the basin there is a marked interaction between groundwater and surface water. The flow patterns in rivers and streams within the basin vary according to a loss-gain relationship between aquifers and streams."

I understand that the HBRC now believes that the aquifer can sustain more abstraction and that the recharge will indeed occur over the winter months. I also recognise that the HBRC believe that modelling shows the time lag between water abstraction and effects on the surface is in the order of six months.

This all sounds fine, however, if any part of this modelling is wrong the consequences could be terrible. To this point, I will reference the entire email and letter that Forest and Bird wrote to Iain Maxwell dated 29 May 2018 as further direct support for my case. With that I too ask that the HBRC to publicly notify these consents.

**Request for Application Disclosure**

Further I request, pursuant to section 10 of the Local Government Official Information and Meeting Act 1987, copies of:

- All the applications (including but not limited to application numbers WP140291T, WP140512T, WP150016T, WP150044T, WP160193T, WP140555Tb, WP170155T and WP170166T) and any accompanying material, including the assessment of environmental effects; and
- Any section 92 requests for information by the Council and the applicant's response.

I make this request as I believe the public interest is greater than the individual's right to privacy.

**Request to Terminate the Tranche 2 Water**

I believe that there are very real risks to our environment, quality of life for the many residents of Central Hawkes Bay, and surface take water consent holders (there are 53 of us). I also know that virtually no one in Central Hawkes Bay knows of this significant issue. I know this as I have talked to many parties including –

[2] Goundwater flow pattern in the Ruataniwha Plains as derived from the isotope an chemistry signature of the water. U. Morgenstern et al, GNS Science Report 2012/23 August 2012

- Forest and Bird
- Fish and Game
- Maori leaders in Central Hawkes Bay
- Other surface water take users
- Business owners
- Other farmers
- General residents of Central Hawkes Bay

The consent process is discretionary meaning the HBRC has retained its discretion as to whether it will grant the resource consent. I am sure that you will, in considering these applications for a discretionary activity, be guided by the objectives and policies contained within the regional plan, the Regional Policy Statement (RPS), any National Policy Statement (NPS) and the requirements of the RMA.

Part of the HBRC Regional Resource Management plan states "Community Participation: The HBRC respects people and their needs, and recognises the need for community participation during the development and implementation of this Plan. The Council can be most effective when it has a shared vision and responsibility with the people of Hawke's Bay." The fact that almost no one in Central Hawkes Bay knows about this consent process, let alone participated in it, are grounds to exercise your discretionary rights and terminate the consent applications.

Further, as reference above, I have spoken to many Maori leaders in Central Hawkes Bay. All of whom either had only just become aware of the Tranche 2 water consents or had not heard of it at all (the latter being the majority). This could not be more counter to whole sections of the HBRC RRMP, namely section 1.5 "The Maori Dimension" and 1.6 "Iwi Environmental Management Principles".

There are also wider linkages from the HBRC RRMP into the Resource Management Act and the National Policy Statement on Freshwater Management. At a minimum, I believe that this consent process to date has not been in the spirit of the HBRC RRMP.

The basis for Tranche 2 water may have made a lot of sense when the RWSS was going ahead. HBRIC would have been the largest consent holder and would not have utilised the water every year. This would have allowed for aquifer recharge on non use years. However, now that HBRIC have dropped their application, the Tranche 2 water will likely be utilised every year – if consented.

An entire excerpt[3] from the Acting Manager – Land Management, HBRC to James Palmer, Group Manager – Strategic Development, HBRC sums up this point:

"The key issue we see if the RWSS does not proceed is that augmentation will have to occur

[3] Ruataniwha Water Storage Scheme Review Appendices. Hawke's Bay Regional Council, 2017, Ruataniwha Water Storage Scheme Review Appendices, www.hbrc.govt.nz/assets/Document-Library/RWSS-Reports/Appendices-to-RWSS-report.pdf. HBRC Publication No. 4924

from groundwater, rather than stored water. This will mean that the 15 M m3/yr available will not be able to be used in full for irrigation, and it is anticipated that ~40 % of the volume taken for irrigation will need to be taken to augment effects of the take (i.e. 6 million m3/yr). This will reduce the potential economic benefits of the Tranche 2, and will mean that the available allocation will not spread to as many potential users as it might otherwise. Other inefficiencies include the need for establishment of multiple augmentation systems (wells, pumps, telemetry and associated operation and maintenance (including pumping from depth)). There may also be an environmental cost in that the augmentation offered by the RWSS would occur further up the catchment (and potentially to a wider range of streams) than can likely be achieved by consent holders abstracting water for irrigation and augmentation on the plains."

There are further complications that I do not believe have been considered either at all, or certainly not enough. These relate to the augmentation system drawing deep aquifer water and pumping it into the rivers. This is a material break from the natural process in which the aquifer feeds the rivers. Issues relating to the quality and temperature of the water that will be pumped into the rivers need to be considered.

The type of water that could be augmented is characterised by the GNS Science Report[4] "Groundwaters with extreme hydrochemistry were found, including high phosphate (>1 mg/L) and ammonia (>4 mg/L) from natural sources, and extremely low silica (<0.1 mg/L) in stagnant deep old groundwater. This is likely to be related to highly anaerobic processes in layers with high carbon content (e.g. swamp deposits), and ion stripping in peat layers."

What effect will this have on the environment, the river, the plant and fish life, the people that use the river and draw the water for their households? This is the majority of residents in Central Hawkes Bay since the townships get their water from surface takes on the Waipawa and Tuki Tuki Rivers.

While Tranche 2 is in Plan Change 6, it is discretionary and I request that you use these rights to terminate the process and protect our environment and residents who live in Central Hawkes Bay. Again, I ask that the HBRC publicly notify these consents.

I am happy to discuss and / or present to you at any time.

Thanks for your consideration,

Alistair

[redacted]

[redacted]

[4] Goundwater flow pattern in the Ruataniwha Plains as derived from the isotope an chemistry signature of the water. U. Morgenstern et al, GNS Science Report 2012/23 August 2012

2018 4 11 JULY H.B. TODAY



Bill Stevenson, from Ongoanga, holds a letter he sent to the HBRC about his concerns over possible new water rights in the Ruataniwha basin. Photo / Warren Buckland

# Residents' petition over water fears

**Nicki Harper**
nicki.harper@hbtoday.co.nz

Ongaonga and Tikokino residents worried about the impact on their water supply if consent applications are approved to take groundwater from the Ruataniwha Basin are this week signing a letter to be sent to the Hawke's Bay Regional Council laying out their concerns.

Between 2014 and 2017, eight applicants, including major dairy operations, applied to the regional council to collectively extract 17 million cubic metres of "tranche 2" groundwater from the Ruataniwha Basin.

The Board of Inquiry into Tukituki Plan Change 6 determined that an additional 15 million cubic metres a year of tranche 2 groundwater could be extracted as a discretionary activity if the adverse environmental effects, particularly on surface water flows and river ecology, could be mitigated by river flow augmentation.

As such, any tranche 2 groundwater consent holder would be required to release up to 40 per cent of the water they take into rivers and streams at times of low flows.

The regional council's investment arm, HBRIC Ltd, the company promoting the dam and the Ruataniwha Water Storage Scheme (RWSS), had a claim to 10 million cubic metres of tranche 2 groundwater but withdrew its application last October, leaving the eight remaining applications.

These applications were currently on hold, awaiting more details on the augmentation schemes, but in the meantime residents in the Central Hawke's Bay townships have said allowing such a water take could have severe environmental and social consequences.

This week signatures were still being gathered for a letter to the regional council, adding to about 70 collected so far, to be sent on Friday this week.

Resident Bill Stevenson said that the townships had struggled with a depleting drinking water supply since 2004 when big irrigators began accessing the water. In 2012, five houses ran out of water and over the years many had to modify their existing bores to go deeper to reach the diminishing groundwater.

"I've done a rough estimate and I would say the people of Ongaonga have spent about $100,000 since 2004 on ensuring they have water."

He said protecting the loss of groundwater recharge on shallow bores and limited surface water could be the most important step the regional council could take to meet the community needs for a reliable, sustainable, safe water supply.

In the letter to the council, the residents called on the council not to approve any additional takes of tranche 2 water until it could be sure such extraction would not be likely to have an adverse effect on the townships' wells.

"If access to shallow groundwater via existing bores and wells in Ongaonga and Tikokino cannot be protected, then the Hawke's Bay Regional Council needs to make provision to provide a convenient and suitable alternative solution at the cost of commercial consent holders," the letter said.

An update on the issue was being provided to the council's environment and services committee, and in a report to that meeting, group manager regulation Liz Lambert said all the consent applications under tranche 2 needed to demonstrate that any effects on the surface and groundwater resources were acceptable.

"HBRC's science suggests that the allocation is not sustainable, therefore the applications have been placed on hold until further information is provided by the consent applicants."

This process would take two to three months, after which the council would decide on whether to publicly notify the consents.

| Delay led to assault on nurse

Concerned Residents of Ongaonga and Tikokino

[redacted]

18 June 2018

Chairman Rex Graham
Hawke's Bay Regional Council
Private Bag 6006 Napier 4142

CC: Councillors, Chief Executive
James Palmer, ~~Niki Harper~~

Dear Sir

**Protecting Existing Shallow Drinking Water Source for Residents Ongaonga and Tikokino**

We the undersigned residents of Ongaonga and Tikokino are extremely disturbed with the apparent lack of concern by the Hawke's Bay Regional Council (HBRC) over the existing and proposed consents for water take from the Ruataniwha Basin Groundwater (Tranche).

Before setting out the relevant facts, it is appropriate to say something about the regime in place in the Hawke's Bay region for the over allocation of rights in respect of water, which reflects the scarcity of the resource.

The residents of Ongaonga and Tikokino rely on water for our health and our lifestyle. In addition, for Māori, water is an important spiritual and cultural resource that is regarded as a taonga. The existing and proposed consents for water take from the Ruataniwha Basin Groundwater (Tranche) interfere with our property rights, specifically our right to access safe and reliable drinking water from the existing shallow bores and wells in the communities of Ongaonga and Tikokino.

The Hawke's Bay Regional Council needs to protect the shallow groundwater resources of the Ruataniwha basin to ensure that there is enough access to safe and reliable drinking water from the existing bores and wells in Ongaonga and Tikokino for now and for the future.

**Background**

The residents of Ongaonga and Tikokino have been under stress over being able to access drinking water sources since 2004. In 2012 we had 5 houses run out of water on the 28th December and the Hawke's Bay Regional Council were rung and Mr Maxwell said he would look into it and ring Mr Bill Stevenson back. Mr Stevenson's stated our communities would be better served if he came to Ongaonga for a meeting.

Mr Maxwell arrived at the property at 10:00 am and in attendance were the former Mayor of Central Hawke's Bay Peter Butler, Councillor Debbie Hewitt and reporter Niki Harper and four local residents who had lost access to water from their existing bores and wells. Those present were told that the consent process for a water take from the Ruataniwha Basin Groundwater was complete and that there **would be no more consents granted**.

Many households in the villages of Ongaonga and Tikokino have had to modify existing bores at considerable personal expense in order to be able to access and secure shallow groundwater from existing bores and wells for drinking water and domestic use.

In addition, any further water take from the Ruataniwha Basin Groundwater (Tranche) means that individuals will be unable to supply water to their households and as such they will be forced to seek consents to drill new or extend the depth of their existing bores in order to be able to draw water for drinking and domestic household use.

[redacted]

## Our Concerns

In our view, it is essential that shallow Ruataniwha basin groundwater resources are protected and well managed. The way the Hawke's Bay Regional Council has and continues to not address the rapidly emerging issue of the over-allocation of groundwater resources, is affecting the ability of residents in Ongaonga and Tikokino to be able to access this critical natural resource.

If the Hawke's Bay Regional Council exceeded the allocation of water by a small amount, we could understand that the issue could be considered as minor. However, if we lose our water access, we will not be able to survive. Shallow ground water is the only alternative that would be able to supply the required quantity and provide a reliable and clean supply for both drinking and domestic household use.

Protecting the loss of groundwater recharge on shallow bores and limited surface water is possibly the most important step the Hawke's Bay Regional Council can take in meeting our community needs and delivering sustainable drinking water supplies for the residents of Ongaonga and Tikokino.

Whilst alternative sources of potable water have been sourced and trucked in by several residents in Ongaonga and Tikokino over recent years as a direct result of the availability of groundwater to recharge their shallow bores due to the water take by local agriculture and dairy farm consent holders.

Furthermore, the maximum allowable rate of take per consent holder could, theoretically, provide for the drinking needs of all but, perhaps, but for those residents in Ongaonga and Tikokino the proposed consents for a water take from the Ruataniwha Basin Groundwater (Tranche's) would appear to be inequitable.

All of which raises the question, that it seems like a blatant disregard for the finite availability of groundwater to recharge the existing shallow bores and wells of residents of Ongaonga and Tikokino, and the Regional Council seems to have been complicit in allowing this to continue.

In our view, there is an additional issue with the consents for a water take from the Ruataniwha Basin Groundwater (Tranche 1, 2 & ?) in that it is uncertain how much water is available, given this the take or use must be reasonable, and the taking or use must not, or must not be likely to, have an adverse effect on the availability of drinking water from the existing shallow bores and wells of residents of Ongaonga and Tikokino.

## Conclusion

To summarise briefly, in our view the Hawke's Bay Regional Council needs to exercise its regulatory functions to protect the Ruataniwha basins shallow groundwater resources for the residents of Ongaonga and Tikokino.

If there are, or are likely to be, adverse environmental effects caused by a particular take, then water takes from the Ruataniwha basin must ensure that there is enough access to safe and reliable drinking water from the existing shallow groundwater bores and wells in Ongaonga and Tikokino for now and for the future.

In addition, if access to shallow groundwater via existing bores and wells in Ongaonga and Tikokino cannot be not protected, then the Hawke's Bay Regional Council needs to make provision to provide a convenient and suitable alternative solution at the cost of commercial consent holders so that our communities may continue to access to safe and reliable drinking water from the existing shallow groundwater bores and wells in Ongaonga and Tikokino for now and for the future.

Yours sincerely

Undersigned residents of Ongaonga and Tikokino

[redacted]

[redacted]

AQUALINC RESEARCH LIMITED

[redacted]

# Memorandum

| | | | |
|---|---|---|---|
| **To:** | Alastair Haliburton | **Of:** | Hawke's Bay |
| **From:** | Ian McIndoe | **Date:** | 21 Aug 2018 |
| **Subject:** | Summary of position | | |

## SURFACE TAKE CONSENT HOLDERS GROUP – POSITION REPORT

## Background

In 2012, Hawke's Bay Regional Council (HBRC), through its investment company Hawke's Bay Regional Investment Company (HBRIC), made the decision to support water infrastructure development in the region. This culminated in the Ruataniwha Water Storage Scheme proposal, which was taken through to the point where feasibility studies were completed and consents were obtained for the development.

The Ruataniwha Water Storage Scheme was intended to improve environmental and economic outcomes in the Tukituki catchment. It aimed to give farmers a reliable source of water all year round, even in the very dry summer months. It would also give farmers more options for land uses, with new opportunities to grow and diversify.

The Scheme included a 90 million m³ storage reservoir located in the upper Makaroro River, storing water during periods of high flow and over winter. Water would be released in summer to improve river flows for aquatic life and recreational river users, while also providing secure water to Growers.

In 2014, the HBRC rules in the Hawke's Bay Regional Resource Management Plan controlling the use of water from the Tukituki River catchment were updated to improve the health of the river in what is called the 'Tukituki Plan Change', also known as Plan Change 6 (PC6). These rules are aimed at reducing sediment and nutrients in the river, and improving flows during summer months so that water quality improved. The rules included increases in minimum flows that became effective in July 2018, with further increases in some rivers in 2023.

**Ruataniwha Water Storage Scheme – discontinuation**

Water supply from the Ruataniwha Water Storage Scheme was promoted to Growers and other water users in the Tukituki Catchment for several years, and this community became familiar with the development and the assumption that it would indeed be realised in due course.

As we all now know, the project became embroiled in challenges, and was ultimately discontinued in late 2017. Water supply promotion was suspended in April 2017.

With the dam in place, the PC6 impact of the increase in minimum flows on abstractive users (Growers) was expected to be minimal, as low flows would be supplemented by flows released from the Dam. Until April 2017, while aware that minimum flows had been raised under PC6 and that reliability would be impacted, Growers did not see the need to consider alternatives, as the Dam

would mitigate the effects of higher minimum flows. The Dam, and the response to PC6 changes, were linked.

The discontinuation of the Scheme created immediate implications for many water users in the Tukituki catchment. The increases in minimum flows on rivers and streams implemented through PC6 will now have a more direct effect on the reliability of water supply for existing surface water abstractors, as river and stream flows will no longer be supplemented by water released from the Dam.

# Surface Water Consents – degree of change

A Committee representing the consent holders for surface water takes was convened because those consent holders are now in a precarious position in respect to summer water access. The Committee believed that the resolution of the situation would be far better handled on a collective basis of some form, rather than leaving it to individual consent holders to find their own solutions.

The Committee obtained funding from HBRC and other industry partners to assess the situation and to investigate solutions to the water problem on a collective basis.

As the first part of the project, the Committee engaged Aqualinc to assess the impact of the change in minimum flows on the surface water consent holders, to calculate reliabilities pre and post PC6 minimum flows, and from that to determine the volume of water that would be needed to return water supply reliability back to pre PC6 levels, and thereby maintain a level of reliability in their production systems.

There are 48 surface water consent holders in Central Hawke's Bay potentially affected by the Plan Change. Of those, 39 consent holders, collectively holding 49 surface water consents, joined the study.

The methodology to determine reliability and assess the volumes of water required to maintain pre PC6 reliability for the 39 consent holders was as follows:

- Use the Irricalc water balance model to calculate daily irrigation demand for each consent, taking into account historical rainfall and evapotranspiration data, soil type, crop type and irrigation method.
- Determine the daily reliability of the water supply for each consent, taking into account the relevant historical river flows (Tukituki River, Tukipo River, Makaretu River, Kahahakuri Stream, Waipawa River and Mangaonuku Stream), minimum flows and consented take rates.
- Compare the supply with demand to identify shortfalls on a daily basis.
- Summarise the daily data into reliability assessments and shortfall volumes.

The study found that:

- Supply-demand reliability is variable, ranging from 54% to 100%, depending on the individual circumstances of each consent. Some are very reliable, and some are not.
- The median reliability of current consents prior to PC6 was 96%, which means that 50% of the consents have reliability greater than 96% and 50% have reliability less than 96%.
- Under the PC6 minimum flows, median reliability falls to 91%.
- Under the post 2023 rules, median reliability falls slightly again overall, but has a significant effect on eight consents.

For supply demand reliability, 96% can be regarded as good. At 91%, it is marginal, **which will have a significant effect on agricultural production in dry years**.

The number of days of restriction expected in total each season and the number of days of restriction in the worst season (such as would have happened in the 2012/13 growing season), have also been determined.

While overall reliability was good pre-July 2018 and marginal post-July 2018, the number of days of restriction increases significantly post-July 2018. The restrictions will occur more frequently and last

for longer. Median days of restriction will increase from 0 to 15 days per season, and consecutive days of restriction will increase from 0 to 9 days per season. In the worst seasons (such as 2012/13), days of restriction will increase from 48 to 86 days.

The effect on annual volumes of water required for current irrigation and under PC6 rules has also been determined.

The average annual volume of water required for the 39 consent holders to drive reliabilities back to current levels is about 882,000 cubic metres per year. However, to obtain the current reliability in 9 years out of 10, (which would be a realistic target for water storage), about 2,330,000 cubic metres of water would be required. This would be a pragmatic volume of water to store collectively in a dam if refilling of storage during the irrigation season was not possible. If refilling was possible, a lower storage dam volume could be used.

The total volume requirement of 2,330,000 cubic metres is not equally spread over the consents. On a per hectare basis, the required volume varies significantly across the area, ranging from 95 $m^3$/ha to 4840 $m^3$/ha.

# Impact of PC6 change and reliability implications

Reliability of water supply for irrigation is the essential driver behind increased irrigation efficiency, reducing waste and ensuring supply commitments demanded by higher value markets can be met.

Without a reliable supply of water, Growers take a prudent "just in case" approach to irrigation management and keep soil moistures as high as possible to mitigate against pending restrictions. The soil is used for water storage. While this approach helps to maintain production, it is counter-productive to reducing nutrient leaching and improving surface water quality because irrigation losses and drainage due to rainfall are increased.

**With a reliable supply of water, a "just in time" approach can be taken, and irrigation applications managed to reduce nutrient leaching and drainage, while maintaining production**. (Aqualinc's recent work for the Fertilizer Association fully demonstrates this principle).

The increase in minimum flows under PC6 will result in additional restrictions and lower reliability for surface water consent holders. While supply-demand reliability provides an overall measure of reliability and is useful for comparison purposes, a single reliability figure does not illustrate the impact of timing, magnitude, frequency or the duration of restrictions. That can only be examined by assessing the impact of restrictions on production.

# Case Studies – Impact of the PC6 Change

The impact of the additional restrictions, in terms of lost production and revenue for these businesses, has been assessed by four case studies covering a range of crops.

The potential yield loss has been estimated from the Irricalc daily water balance data for different crops, different climatic zones and different minimum flow conditions. The yield loss pre and post-July 2018 resulting from the changes to minimum flows (noting that for some consents the number of minimum flow sites has increased), has been compared.

**CASE #1**

This is a 300 ha irrigated cropping farm, taking water from the Tukituki River, with restrictions based on flows at Red Bridge.

Crops grown include lucerne (approximately 60 ha), pumpkins (approximately 20 ha) and maize (approximately 40 ha).

**Lucerne**

Figure 1 presents the percentage of lucerne yield loss that would have occurred in the growing seasons from 1972/73 through to 2016/17, had the pre and post July 2018 allocation rules been in place.

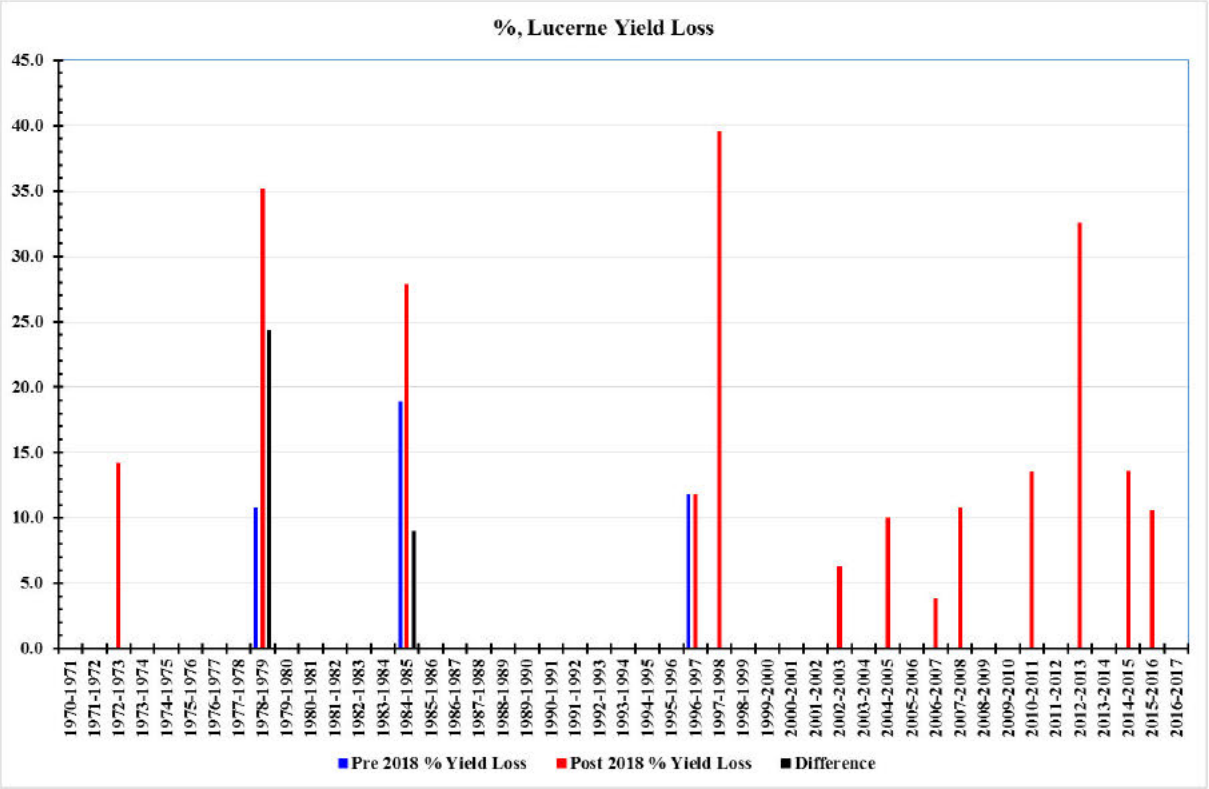



*Figure 1: Lucerne percentage yield loss for Case #1.*

It shows that under the pre-July 2018 rules, lucerne yield loss would have historically occurred in three growing seasons out of 44 years of record. Under the post July 2018 rules, yield loss would have occurred in 13 growing seasons out of 44. In seasons such as 1997/98, losses would have been approaching 40%. The frequency of restrictions has increased markedly, creating much more uncertainty in yields.

Table 1 summarises the number of irrigation days irrigation can occur (taking into account restrictions), plus yield loss expressed in terms of tonnages (tonnes DM/ha) and revenue ($/ha) on average, the worst case (maximum) and in a 1 in 10 year event.

*Table 1: Lucerne yield and revenue loss*

| | | Irrigating Days | Yield Loss % | @ 17t DM/ha | @$150/t DM ($0.15/kg) |
|---|---|---|---|---|---|
| **Pre 2018** | Average | 239 | 1 | 0.17 t/ha | $26/ha |
| | Maximum | 243 | 19 | 3.2 t/ha | $480/ha |
| | 90%-ile | 233 | 0 | 0 t/ha | $0/ha |
| **Post 2018** | Average | 229 | 5 | 0.85 t/ha | $128/ha |
| | Maximum | 243 | 39.5 | 6.7 t/ha | $1005/ha |
| | 90%-ile | 201 | 14 | 2.4 t/ha | $357/ha |

Table 1 shows that there is a significant reduction in the number of irrigating days post July 2018, resulting in a substantial effect on yield loss and revenue.

On 60 ha of lucerne, the reduction in revenue associated with the post 2018 minimum flows is $6,120 on average. In a 1 in 10 year event, the revenue reduction is $21,420, and in the worst case, $31,500.

Lucerne is primarily used for stock feed. In the years when the highest restrictions occur, it is almost certainly due to drought, and demand for stock feed increases sharply. Paradoxically, in the years when demand is highest and the benefit of the crop is greatest, restrictions mean that production is limited.

**Pumpkins 20 ha**

Figure 2 presents the percentage of pumpkin yield loss that would have occurred in the growing seasons from 1972/73 through to 2016/17, had the pre and post July 2018 allocation rules been in place.

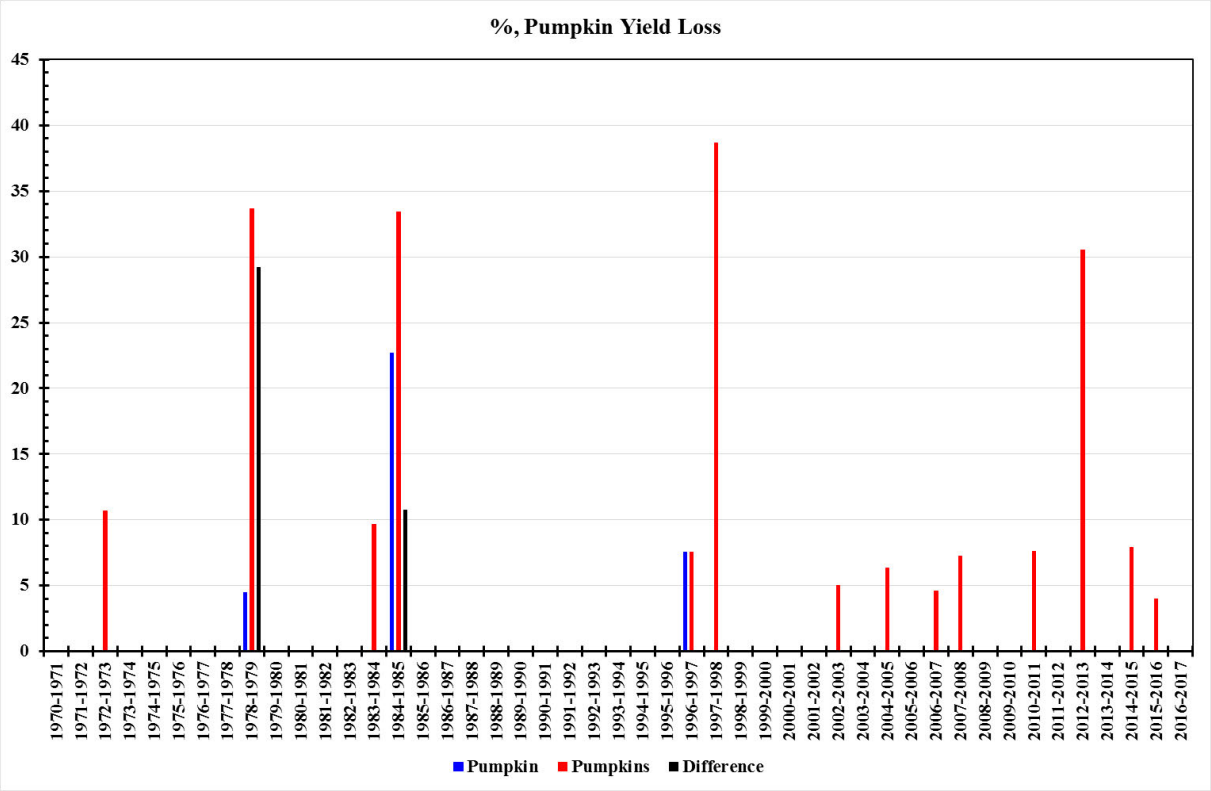



*Figure 2: Pumpkin percentage yield loss for Case #1.*

Pumpkin yields were also impacted by pre-July 2018 water supply reliability in 3 seasons out of 44. As with lucerne, pumpkin yields would have been significantly impacted in 14 seasons post July 2018. The frequency of restrictions has increased markedly, creating much more uncertainty in yields. Uncertainty impacts on the decision to grow high value crops such as pumpkins. High inputs are required to achieve high outputs, and without water supply certainty, the risk of not getting a return on those inputs means that high value crops may not be grown.

Table 2 presents a summary of the number of irrigation days available (taking into account restrictions), plus yield loss expressed in terms of tonnages (tonnes DM/ha) and revenue ($/ha) on average, the worst case (maximum) and in a 1 in 10 year event.

*Table 2: Pumpkin yield loss and value*

| | | Irrigating Days | Yield Loss % | Loss @ 20 t DM/ha | Value @$3400/t DM ($0.34/kg) |
|---|---|---|---|---|---|
| **Pre 2018** | Average | 239 | 1 | 0.2 t/ha | $696/ha |
| | Maximum | 243 | 23 | 4.6 t/ha | $15,640/ha |
| | 90%-ile | 233 | 0 | 0 t/ha | $0/ha |
| **Post 2018** | Average | 229 | 4.5 | 0.9 t/ha | $3,060/ha |
| | Maximum | 243 | 39 | 7.8 t/ha | $26,520/ha |
| | 90%-ile | 201 | 10 | 2 t/ha | $6,800/ha |

Table 2 shows that there is a significant reduction in the number of irrigating days post July 2018, resulting in a substantial effect on yield loss. That translates into a very high loss of revenue.

On 20 ha of pumpkins, the reduction in revenue associated with the post 2018 minimum flows is $47,280 on average. In a 1 in 10 year event, the revenue reduction is $136,000, and in the worst case, $217,600.

### Maize

Figure 3 presents the maize yield loss (kg/ha) that would have occurred in the growing seasons from 1972/73 through to 2016/17, had the pre and post July 2018 allocation rules been in place.

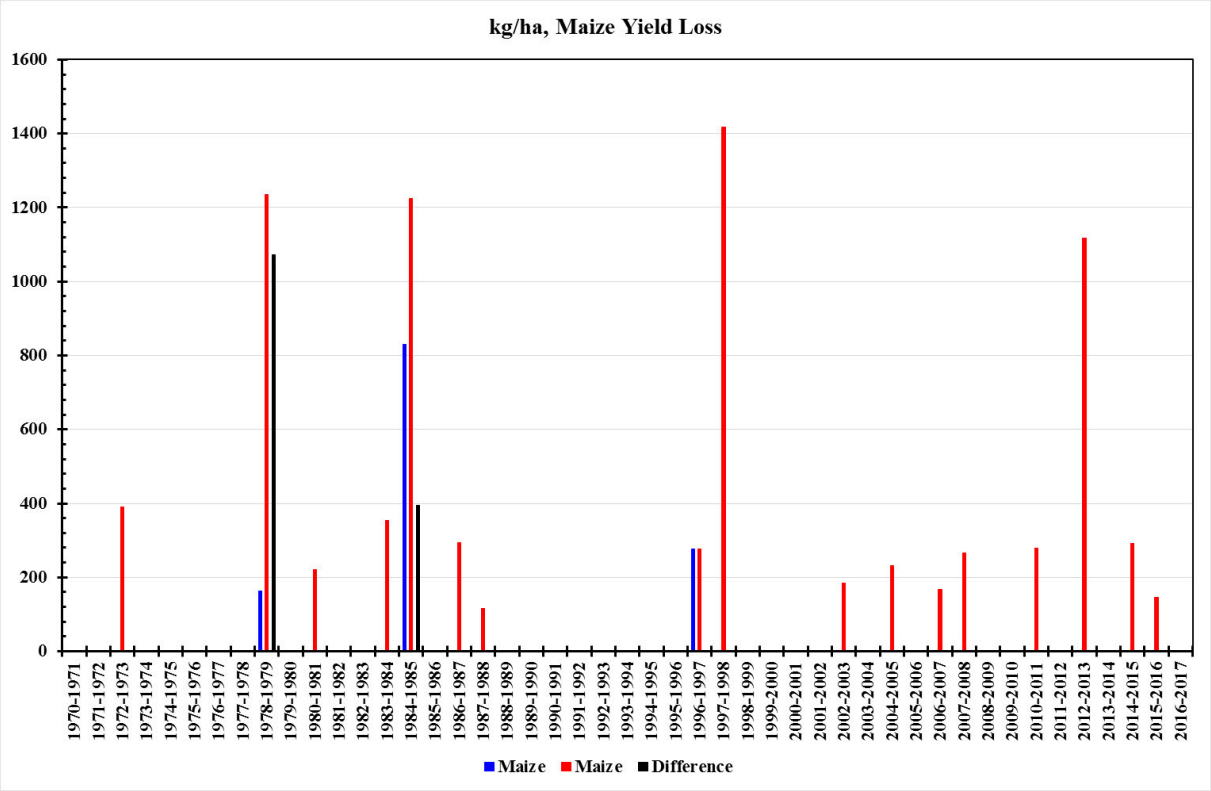



*Figure 3: Maize yield loss for Case #1.*

Maize yields would have been affected by pre-July 2018 water supply reliability in 3 seasons out of 44. However, yields would have been impacted in 17 seasons out of 44 under post July 2018 minimum flows.

Table 3 presents a summary of the number of irrigation days available (taking into account restrictions), plus yield loss expressed in kg/ha and revenue ($/ha) for average, worst case (maximum) and 1 in 10 year events.

*Table 3: Maize grain yield and revenue loss*

| | | Irrigating Days | Grain Yield Loss, kg/ha | @ $0.215/kg |
|---|---|---|---|---|
| **Pre 2018** | Average | 239 | 27 | $5.80/ha |
| | Maximum | 243 | 830 | $178/ha |
| | 90%-ile | 233 | 0 | $0/ha |
| **Post 2018** | Average | 229 | 175 | $38/ha |
| | Maximum | 243 | 1417 | $305/ha |
| | 90%-ile | 201 | 368 | $79/ha |

Table 3 shows that there is a reduction in the number of irrigating days post July 2018, resulting in a substantial effect on yield loss.

On 40 ha of maize, the reduction in revenue associated with the post 2018 minimum flows is $1,288 on average. In a 1 in 10 year event, the revenue reduction is $3,160, and in the worst case, $5,080.

**CASE #2**

This is a 940 ha irrigated dairy farm taking water from the Tukituki River, with two takes (300 litres/sec and 100 litres/sec for storage). Irrigated area is about 850 ha. Restrictions are based on Tukituki flows at Tapairu, with the two takes having different minimum flow conditions.

Figure 4 presents the percentage pasture yield loss that would have occurred in the growing seasons from 1987/88 through to 2015/16, had the pre and post July 2018 allocation rules been in place.

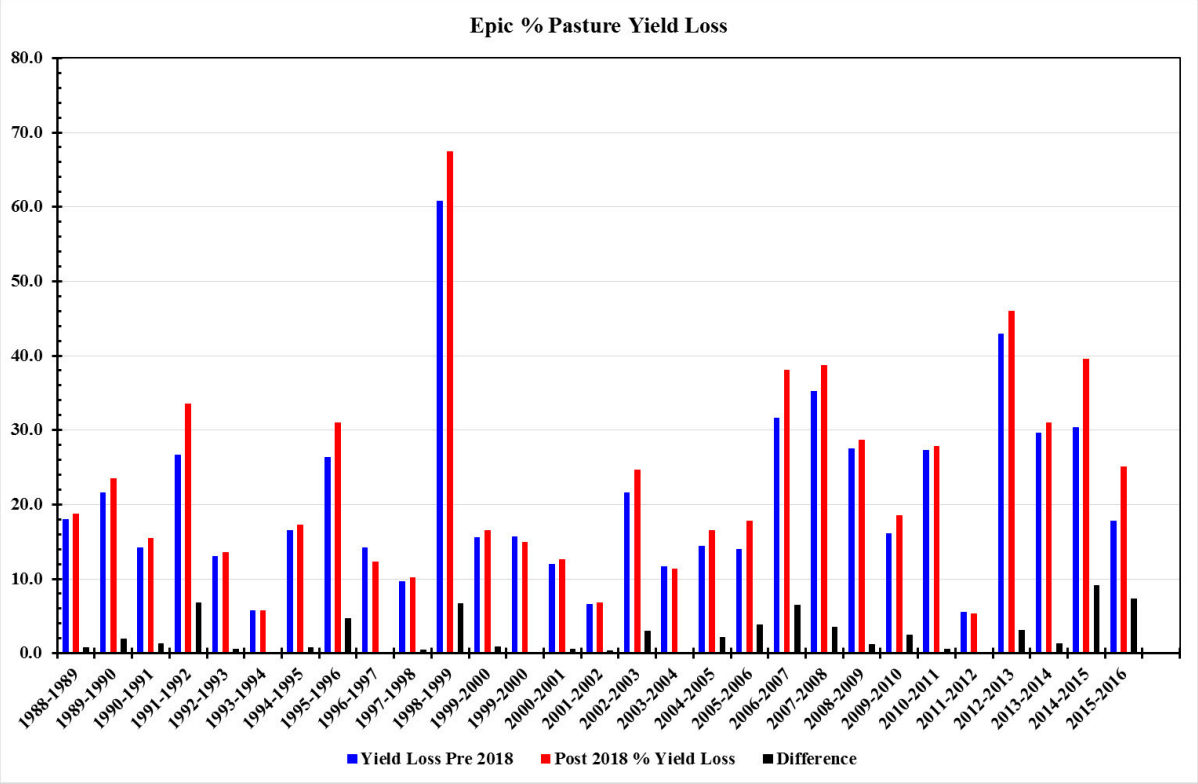



*Figure 4: Pasture yield loss (% of 14,000 kg DM/ha/season) for Case #2.*

Figure 4 shows that, pre July 2018, water supply restrictions would have impacted on pasture yield in all seasons to some degree, with the greatest effect (60%) occurring in the 97/98 growing season.

Post July 2018, the change in minimum flows has exacerbated the effect particularly in the more restrictive seasons.

Table 4 presents a summary of the number of irrigation days available (taking into account restrictions), plus yield loss expressed in kg/ha and revenue ($/ha) for average, worst case (maximum) and 1 in 10 year events. Dry matter has been converted to milk solids (MS) at a rate of 12 kg DM/kg MS. Milk solids has been valued at $7/kg.

*Table 4: Pasture dry matter yield loss (kg DM/ha/season) and revenue loss ($/ha)*

| | | Irrigating Days | Yield Loss % | @ 14000 kg DM/ha | Kg MS @ 12kg DM/kg MS, $7 |
|---|---|---|---|---|---|
| **Pre 2018** | Average | 166 | 20.7 | 2900 kg DM/ha | 242 kg MS/ha, $1692/ha |
| | Maximum | 239 | 60.7 | 8500 kg DM/ha | 708 kg MS/ha $4957/ha |
| | 90%-ile | 121 | 32.0 | 4480 kg DM/ha | 373 kg MS/ha $2613/ha |
| **Post 2018** | Average | 156 | 22.3 | 3122.6 kg DM/ha | 260 kg MS/ha $1821/ha |
| | Maximum | 239 | 67.4 | 9436 kg DM/ha | 786 kg MS/ha $5504/ha |
| | 90%-ile | 110 | 39.0 | 5460 kg DM/ha | 455 kg MS/ha $3185/ha |

Table 4 shows that while there is significant yield loss potential pre July 2018, the dry matter yield loss increases under the post July 2018 rules.

On 850 ha of pasture, the reduction in revenue associated with the post 2018 minimum flows is $109,650 on average. In a 1 in 10 year event, the revenue reduction is $486,200, and in the worst case, $464,950. This relates purely to loss of pasture production, and takes no account of likely costs and impacts of supplementary feed that might have to be purchased, or worse still drying off and shutting down of production.

**CASE #3**

This is an irrigated property that grows potatoes (about 20 ha), peas, other process crops and pasture. Pre 2018, the minimum flow condition is the Tukituki River @ Tapairu; after 2018 the minimum flow condition is the Tukipo River @ Ashcott Rd or Tukituki River @ Tapairu or Tukituki River @ Red Bridge.

Figure 6 presents the percentage of potato yield loss that would have occurred in the growing seasons from 1987/88 through to 2016/17, had the pre and post July 2018 allocation rules been in place.

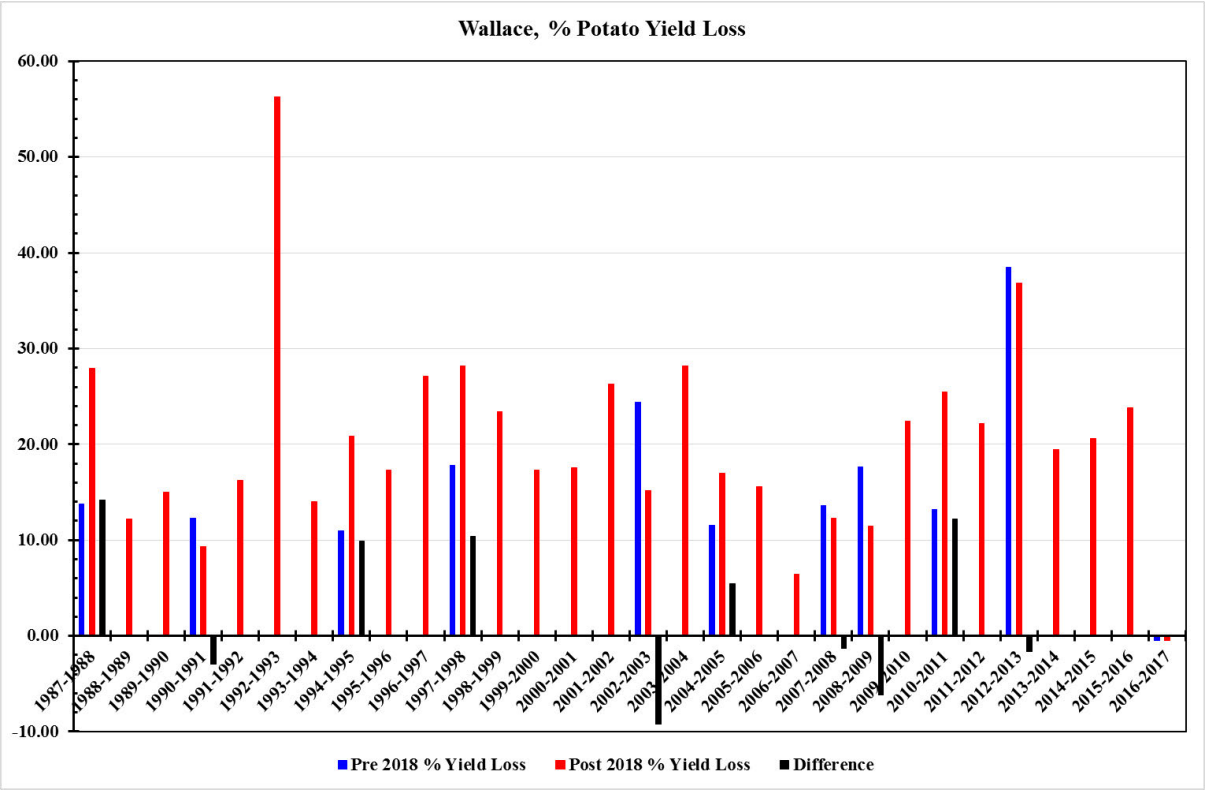



*Figure 6: Potato yield loss (%) for Case #3*

Figure 5 shows that the post July 2018 yields are sometimes higher and sometimes lower than the pre July 2018 yields. This is a result of the change in minimum flow sites from the Tukituki River alone to minimum flows at three monitoring sites.

Table 6 presents a summary of the number of irrigation days available (taking into account restrictions), plus yield loss expressed in % and tonnes/ha and revenue ($/ha) for average, worst case (maximum) and 1 in 10 year events.

*Table 6: Potato yield loss (%, tonnes/ha) and revenue loss ($/ha)*

| | | Irrigating Days | Yield Loss % | @ 60 t/ha | @$400/t |
|---|---|---|---|---|---|
| **Pre 2018** | Average | 224 | 6 | 3.6 t/ha | $1,440/ha |
| | Maximum | 243 | 38 | 22.8 t/ha | $9,120/ha |
| | 90%-ile | 166 | 17.7 | 10.6 t/ha | $4,248/ha |
| **Post 2018** | Average | 66 | 21 | 12.6 t/ha | $5,040/ha |
| | Maximum | 168 | 56 | 33.6 t/ha | $13,440/ha |
| | 90%-ile | 33.6 | 28 | 16.8 t/ha | $6,720/ha |

Table 6 shows that there is a significant reduction in the number of irrigating days post July 2018, resulting in a substantial effect on yield loss and revenue.

On 20 ha of potatoes, the reduction in revenue associated with the post 2018 minimum flows is $72,000 on average. In a 1 in 10 year event, the revenue reduction is $49,400, and in the worst case, $86,400.

## Effect of change in minimum flows

While there is a degree of variation depending on water sources and restriction points, for all case studies, the frequency of restrictions is expected to increase markedly under the new minimum flows. In addition, the magnitude of the impact of the restrictions will also increase.

The potential loss of revenue on the high value crops in the years of low reliability is large. This loss will apply generally to high value land growing process or specialist crops. While the average loss appears to be modest, it is the uncertainty about not knowing what the reliability will be that creates the greatest difficulty for Growers in these circumstances.

**For crops that have very high input or establishment costs, Growers will be less likely to take the risk of large production and revenue losses arising from low river flow seasons.** Decisions about when to plant crops has to be made early in the season generally, and once Growers are committed, it is difficult to change course.

Because of the hydrological nature of the rivers and streams being used for irrigation water supply, low flows are usually associated with east coast droughts. These droughts also increase irrigation demand and lower yields on dryland properties.

Livestock farmers have more flexibility than cropping farmers in the options they have to address water shortages. Generally, grass grown on a property is the most cost-effective stock feed. Alternatives such as storing feed (hay or baleage), buying in feed such as baleage or palm kernel are available, but inevitably are more expensive. In addition, the price of stock feed normally spikes up during drought conditions and may be difficult to obtain.

At times, it is necessary for livestock farmers to dry cows off, move stock out of the district for grazing, or sell them. This has implications for subsequent years, as there is always a carryover effect of destocking. **The cost of these decisions is always large, as the capital value of the stock will be impacted by the weather conditions at the time they are sold, and again when replacements are purchased.**

## Potential further effect of Tranche II Ground Water allocation

The PC6 process also increased the available groundwater allocation from the Tukituki Basin. Called Tranche 2 groundwater, the Plan allowed for an additional 15 million $m^3$ of deep groundwater to be abstracted, subject to the effects of the abstraction on surface water low flows being mitigated. It is likely that the mitigation of the effects of groundwater abstraction would have originally have been expected to be carried out by releases of water from the Ruataniwha Dam.

By referring to the data generated for the Plan Change 6 / Board of Inquiry development process, we know that the likely impact of the proposed Tranche 2 groundwater allocation / abstraction was estimated to be in the vicinity of 650 litres/sec in terms of mean annual low flow (MALF). This represents a significant flow, when compared with the PC6 low flow levels in total.

While there is a requirement for the Tranche 2 applicants to make provision to mitigate the impact of their abstraction on river flows, this provision would only be triggered by, and target maintenance of, low flow levels.

**This means that should the Tranche 2 allocation proceed, the river flows can be expected to hit the low flow cut-offs earlier and for longer than had previously been the case. In this case, the historic river flow data would overstate the expected future flows. The result is that the impact of restrictions on Surface Water Consent holders would be more severe than this report suggests.**

## Options to Recover

The options open to consent holders to return reliability from marginal back to good may include the following:

- Share existing surface water allocations within water user groups
- Share existing groundwater
- Obtain Tranche 2 groundwater
- Build storage on individual properties
- Build larger community storage

We assess these as follows:

- **Sharing existing surface water allocations**

The current consented flow rates of each consent and the areas irrigated were used to calculate the irrigation system capacity associated with the consents. These numbers were then compared with reasonable use figures generated by the Irricalc modelling to check their appropriateness. The consents were classified into the following groups.

Consents with the water application rate / depth that is:

- More than 10% less than the reasonable use value
- 5% - 10% less than the reasonable use value
- Up to 5% less than the reasonable use value
- Equal to the reasonable use value
- Up to 5% greater than the reasonable use value
- 5% - 10% greater than the reasonable use value
- More than 10% greater than the reasonable use value

This study found that about a third of the consents are allocated an appropriate amount of water, but it appears that the majority of the rest are either being significantly oversupplied or undersupplied, with not much in between. 14 consents have insufficient water to fully irrigate the stated area while 21 consents seem to have surplus water.

The surplus water amounts to 341 litres/sec and the shortfall water amounts to 609 litres/sec, which means that, overall, the water is undersupplied by 268 litres/sec compared to the reasonable use value.

On that basis, while reorganising the allocations, for example through water user groups and global consents, may improve the situation for some consent holders, it is not a solution to the water shortfall problem. **There is not enough water collectively in the existing consents to satisfy an efficient demand.**

- **Tranche 1 groundwater**

In the Ruataniwha Basin, there are 60 existing consents to take groundwater from the Ruataniwha Basin. Most (47) of the consented groundwater takes in the Basin are located in Groundwater Allocation Zone 3 (south of the Waipawa River). There are 13 consented groundwater takes from Groundwater Allocation Zone 2 (north of the Waipawa River). The major consented use

is irrigation (90% of the consented 28-day volume), followed by industry (9%) and potable supply (1%).

The Tranche 1 groundwater allocation limit for the Ruataniwha Basin is 28.5 million m3/year (excluding the Otane Basin), and is fully allocated.

As with the surface water, it is possible that surplus or unused Tranche 1 groundwater could be available. Logistically, it will be very difficult to establish whether that is the case, get agreement from groundwater consent holders to transfer water, obtain consents for the use of the water, and put in the infrastructure to abstract the water. While there may be individual cases where it may work, it is not a short-term viable solution.

This approach could be evaluated properly, and it would have to be integrated into a much wider community solution.

- **Tranche 2 groundwater**

With the demise of the Ruataniwha Dam, mitigation now has to be provided by the Tranche 2 groundwater users themselves, by, for example, discharging some of the abstracted groundwater to surface waterways at strategically beneficial times.

Consent applications for all, in fact in excess of, the Tranche 2 groundwater allocation have been submitted to HBRC. Processing of the applications has been deferred until technical analyses of the impact of deep groundwater pumping on surface waterways has been carried out. At the current time, Aqualinc has been contracted by one of the applicants to carry out the analysis and advise on the flow and volume of water that would need to be discharged to surface water ways to mitigate the effect of the Tranche 2 groundwater abstraction and use.

**Given that the Tranche 2 groundwater has all been applied for, it is unlikely that it will be an option for surface water consent holders to use to make up the identified water shortfalls**.

**In the event that the current technical analysis did not support the allocation of some or all of the Tranche 2 water that has been applied for, then it would be likely that these applicants would also wish to see some global development effort in regard to water supply availability and reliability**.

- **High flow surface water**

An allocation of high flow surface water from the Tukituki River is available under the Plan. At minimum flows above 22 cumecs at Red Bridge, 2 cumecs (2000 litres/sec) of high flow water has been allocated. High flow allocations of 0.5 cumecs are available in the Tukituki River at Tapairu Rd and in the Waipawa River, but these are treated cumulatively with the Red Bridge allocation. The intended use is for it to be used to fill storage during the winter months of high water flow, to make available to use during the summer surface water restrictions.

The Ruataniwha Dam project was a large, single-solution version of this method.

At this point, we do not know how much of the high flow water has been taken up. This needs to be investigated.

High flow water is unsuitable for run-of-river irrigation supply. However, **it could be used for individual storage or collective storage solutions involving a small group of users, or for larger community solutions**.

- **Storage on individual properties**

Whether storage on individual properties is feasible depends on:

(a) finding a suitable site on the property
(b) have a supply of water to fill the storage
(c) the cost of storage

A small number of consent holders have taken this option. However, the cost of building small storage dams has become prohibitively expensive. In previous years, typical storage costs for small dams have been about \$5/$m^3$ of dam storage volume. This has increased to \$8/$m^3$ and now may be \$10/$m^3$ or more.

For example, for Consents WP040532Ta and WP040531Ta, where a storage volume of 200,000 $m^3$ is required to make up lost reliability, the capital cost of building a suitable dam would be up to \$2,000,000, or about \$7000/ha. Based on an annual required shortfall volume of 80,200 $m^3$, the cost of stored water is in the order of \$3.00 per $m^3$ of water used. This is very expensive water, if only used for this purpose.

If the full 200,000 $m^3$ of water could be used every year, the cost/$m^3$ would fall to \$1.20.

The storage cost may be able to be reduced further, if inter-seasonal refill water is available, but the analysis to determine whether this is possible has not been completed.

A key issue with storage is that **the amount of time to design, consent construct and commission storage dams is many months and perhaps years**. Building on-farm storage, assuming it was economically viable, cannot be completed in time to be of benefit to consent holders in the 2018/19 growing season.

- **Medium off-river storage**

With respect to the water shortfall of 2.3 million $m^3$ imposed on the surface water consent holders as a result of PC6, as an example, the \$40 million Sheffield Irrigation Scheme in Western Canterbury includes an off river storage reservoir of 2.15 million $m^3$ capacity and a piped distribution system servicing 4300 ha (roughly the same area as the Ruataniwha surface water irrigators).

Water is gravity fed into the dam from one source and pumped into the dam from another source. While the dam cost is not available assuming that it was \$10 million, the construction cost would be \$4.65/$m^3$. If it was \$15 million, it would be \$7/$m^3$.

In reality, there will always be some infrastructure, such as a distribution system, associated with the use of a reservoir.

The cost of water for Sheffield Scheme shareholders (covering dam cost, other infrastructure cost, operations and maintenance) is in the order of \$3000/ha capital cost plus \$700/ha annual cost, making a cost/m3 of water used of approximately \$0.27/m3.

Two important factors in the viability of the Sheffield storage are (a) the reservoir is able to be refilled or topped up to varying degrees within the irrigation season and (b) the storage is an integral part of the supply of water for the 30 scheme shareholders. It is not simply using winter high flow to store water for an entire irrigation season.

If a suitable site for a 2 million cubic metre dam in the Ruataniwha catchment could be found, to be economically viable it would need to (a) have a degree of refilling during the irrigation season, (b) be used for more than making up water shortfalls resulting from the change in minimum flows, and (c) have associated infrastructure that was not prohibitively expensive.

**Again, a medium size dam could not be completed in time to be of benefit to surface water consent holders in the 2018/19 irrigation season**.

- **Large in-stream storage**

Large in-stream storage, of which the Ruataniwha Dam was an example, provides several advantages over storage on individual properties or medium size dams collectively servicing a number of properties:

  - The construction cost of the dam per cubic metre of live storage is usually lower than for small and medium dams.
  - It is refilled on a continuous basis, as all water from the catchment above the dam passes through the storage.
  - The cost of water per cubic metre used is much lower than for small dams and generally lower than for medium size dams, because of the refilling aspect.
  - Large storage can take full advantage of demand diversity, which arises from a large number of irrigators doing different things at different times. Not everyone takes their full entitlement all of the time.
  - Water can be released for a number of purposes, such as for enhancing environmental flows.

Large dams also have disadvantages, such as finding suitable sites, getting community support, consenting, a long lead time from conception to operation, financing, and many other issues as was found for the proposed Ruataniwha dam.

A large dam certainly could not be completed in time to be of benefit to consent holders in the 2018/19 irrigation season, and has to be regarded as a long-term project.

# A community approach – serving the future needs of all parties in the Tukituki Catchment

The reality of the current situation for the existing surface water consent holders is that while the size of the problem with respect to shortfalls has been quantified, there are no immediately viable solutions that they can implement that will restore water supply reliability back to the pre-PC6 levels for the coming growing season.

There is little or no surplus surface water, or significant quantities of high flow water available. There are inherent difficulties in obtaining unused or subservient Tranche 1 groundwater. Applications for Tranche 2 groundwater exceed the volume available, and the consents may or may not be granted.

Within two or three irrigation seasons, it may be technically possible to construct small storage dams on some individual properties, or even implement storage covering two or three properties. However (a) they may not be economically viable, and (b) there may not be enough surplus high-flow water available to fill them. They would almost certainly need access to more reliable water such as unused water within the normal surface water allocation block to make them viable.

With the discontinuation of the Ruataniwha Dam, the objectives of HBRC with respect to supporting development and improving water quality have been made significantly more difficult to achieve. The same water issues that were present several years ago remain, and as far as reliability of supply to Growers, have been worsened.

Anecdotally, the groundwater (deep) bores in the Tukituki Catchment are experiencing drops in static water level. This would likely mean that these Consent holders are interested in future planning for water supply reliability.

The Municipal Water supply systems in the two main towns of Central Hawkes Bay (Waipawa and Waipukurau) are also exposed to the issue of water reliability. Their supplies are drawn in the most part from surface water systems – and the prospect is for ever increasing urban water restrictions during low river flow periods going forward.

Ultimately, it could also be suggested that the Tukituki catchment river systems themselves have experienced a reduction in summer water reliability – given the discontinuation of the Ruataniwha Project. On this basis, it might be suggested that these waterways are also an “interested party” to a communal plan for future water reliability.

HBRC recently called for expressions of interest to purchase all or part of the consents and intellectual property (IP) associated with the Ruataniwha Scheme.

Central Hawkes Bay interests, in the form of Water Holdings CHB, purchased rights to the IP of the project for the wider benefit of Central Hawke's Bay community. Their objective is to utilise the intellectual property and consents to find a community-based solution to the Central Hawke’s Bay water problem and to realise the original benefits of the proposed scheme.

**Given the scale of challenge in the existing surface water consent holders of finding a solution to their reliability problems, logic now suggests that the surface water consent holders join the broader community, consisting of a wide range of interest groups, to work together to find and implement a solution to the water challenge**. Water Holdings CHB have purchased the consents and IP with this in mind.

While a community proposal could take several years to come to fruition, it is the only realistic way of finding a long-term solution that secures the future water needs of all parties, including the waterways themselves.

With all of the above in mind, the Surface Water consent holder group, as the most immediately affected, feel that they must lead and contribute to the effort to find whole of catchment solutions for all stake-holders.

## Future Scheme concepts

Critical to progressing a community solution is to obtain full clarity and understanding of the surface water and groundwater hydrology – how much water is available in the catchment, and how much is required for all uses including abstractive (municipal, rural water supply, irrigation, industry, etc) and in-stream (environmental, recreational, etc) use. From that, catchment shortfalls in groundwater and surface water flow and volume can be identified, collective storage needs determined and solution concepts considered.

From a community perspective, a community approach provides greater opportunities for multipurpose solutions that not only serve the interests of abstractive users, but just as importantly, provides benefits to the waterways – rivers and streams.

The hydrology sets the framework for infrastructural solutions. Only after the hydrology is properly understood and agreed should the engineering investigations begin. The IP and knowledge gained from the Ruataniwha Dam investigations will provide useful background information to look at alternatives.

While a dam of the scale of the Ruataniwha Dam may not be feasible, storage of some form will be essential. That storage may be multiple reservoirs, groundwater, or a combination of both. The solution will need to integrate surface water resources with groundwater to obtain the full benefits for the community.

Surface and groundwater integration should reduce infrastructure distribution costs and therefore increase affordability.

The key steps required to progress a project at a community level are:

- Identify all of the interest groups- regional & local government, community, agricultural, industrial, and environmental.
- Set up a management group & chair/champion.
- Assess stakeholder needs or wishes with respect to water.
- Develop a “water demand” profile (spatially and temporally).
- Quantify water availability (surface water and groundwater) at catchment level (spatially and temporally).
- Compare supply and demand to identify shortfalls.
- Assuming supply volume collectively exceeds demand volume, quantify storage requirements to address the timing issue.
- Develop conceptual options to enable demand to be met.
- Review and refine options to come up with an option shortlist.
- Present to the community to obtain a mandate to proceed (or not).
- Proceed to pre-feasibility investigations.
- Present to the community to obtain a mandate to proceed (or not).
- Proceed to full feasibility investigations.
- Present to the community to obtain a mandate to proceed (or not).

Some of this information will already be available through the IP held by Water Holdings CHB, so will not need to be repeated. Early on in the process, a review of available information will be required.

A high-level proposal will be developed by Aqualinc and provided as soon as possible to progress this matter.

| | |
|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#55] |
| **Date:** | Thursday, 16 December 2021 9:55:01 pm |

Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Tui Craven
Address: [redacted]
Phone Number [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
The specific parts of the application that my submission relates to are (please enter the relevant number): This submission relates to applications for resource consent to take groundwater from the 'tranche 2' allocation in the Ruataniwha Basin.
My submission is: (you may attach submission detail to this form)
* Include the reasons for your views: I have significant concerns about the issuing of consents to take groundwater from the 'tranche 2' allocation of the Hawke's Bay Regional Resource Management Plan (RRMP). I am worried that issuing these resource consent in an area of Aotearoa where rivers, streams, lakes, and wetlands are already under significant stress could effectively destroy these ecosystems. And I am concerned that this will undermine the aspirations many New Zealanders (and Hawke's Bay residents) have for freshwater, including for future generations.

I also feel the issuing of these consents would be contradictory to the legislation, policies, and plans guiding the management of freshwater and the environment in Aotearoa and Hawke's Bay.

In particular, the Resource Management Act (RMA) and National Policy Statement for Freshwater Management 2020 (NPSFM) set out direction for the environment and freshwater. For example, the core principle of the RMA is to "promote the sustainable management of natural and physical resources", which 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 while—
a. sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
b. safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
c. avoiding, remedying, or mitigating any adverse effects of activities on the environment.

And the NPSFM sets out an objective for freshwater that is based in the concept of Te Mana o te Wai – the idea that the health and wellbeing of freshwater and its ecosystems must be put first in all decisions relating to freshwater.

The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:
a) first, the health and well-being of water bodies and freshwater ecosystems
b) second, the health needs of people (such as drinking water)
c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

The policies of the NPSFM speak to this vision—e.g. to give effect to Te Mana o te Wai (Policy 1), to phase out over allocation and avoid future over-allocation (Policy 11), and to manage freshwater as part of New Zealand's integrated response to climate change.

I do not think that these resource consents, the 'augmentation' that supposedly mitigates them, or the land uses

that will be associated with them are consistent with te mana o te wai or the aspirations New Zealanders have for freshwater.

Some of the potential effects of the proposed groundwater takes are summarised in a letter Paul Barrett, Team Leader Consents at HBRC, recently wrote regarding the proposed tranche 2 groundwater takes:

… There remains significant uncertainty over the scale of residual adverse effects resulting from Tranche 2 abstraction. We have concerns over the potential scale of adverse effects on wetlands, streams and wells across the Basin, but particularly in areas where there is already significant Tranche 1 abstraction occurring. We also still have concerns about how the Tranche 2 proposal will work in extreme years (worse than a 1 in 10 year event) and the scale of effects in these years when augmentation may not be able to continue. Furthermore, we have concerns over the impacts on water quality from farm system changes as a result of irrigation and note that a number of the properties are located in catchments where the instream nitrogen target is already significantly exceeded. Land use consent is already required for these properties and would not likely be granted to allow for any increase in nitrogen loss. We note that for dairy farms wishing to expand irrigation, land use and discharge consents are required under the NES FW and that a consent cannot be granted unless they are able to demonstrate that expansion will not lead to any increase in load or concentrations of contaminants in the catchment.

I am also worried about the potential effect of the water takes on other values of groundwater, such as:

a. Physical habitat, including for microbes, archaea, biofilms, and stygofauna—whose functions include degrading contaminants and enhancing groundwater quality.
b. Water purification and disease control
c. Genetic resources (e.g., enzymes and compounds which might be useful for medical applications)
d. Buffering of floods and droughts
e. Social values (e.g., reliance on groundwater as an essential component of everyday life for many communities)
f. Indigenous cultural values
g. Spiritual values
h. Nutrient cycling
i. Biodiversity conservation (e.g., of genotypes and species)
j. Bequest values (the ability to pass on a system of all values to future generations, whakapapa, kaitiakitanga, whanau ora, wairuatanga, etc.

I am also worried about what the impact of the proposed activity will be with the impacts of climate change, which is predicted to have a significant drying effect in Hawke's Bay, and could result in reduced levels of aquifer recharge (and 'mining' of the water in the aquifer).

I am confident that there are better ways to develop health and resilience for the region, and its industries, in the face of climate change. This requires industries to work within environmental health limits (ecosystem health limits) and, given our current trajectory, actively restore the natural environment as part of a shared catchment plan. Climate change is, in essence, driven by over exploitation of the natural environment and its ongoing degradation. I find that it is not logical to increase exploitation and drive degradation with our activities as a response build resilience against an issue of over exploitation and environmental degradation.

I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: I seek the applications be declined.
I wish to be heard in support of my submission: No
If others make a similar submission, I will consider presenting a joint case with them at the hearing: No
I wish to attend any pre-hearing meeting that may be convened.: No

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|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#54] |
| **Date:** | Thursday, 16 December 2021 10:21:15 pm |

Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Dianne Smith
Associated Organisation (of applicable): Mataweka Marae
Address: [redacted]
Contact Person (if different to above, or if submitter is an organisation): Dianne Smith
Phone Number: [redacted]
Mobile Number [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
The specific parts of the application that my submission relates to are (please enter the relevant number):
Opposition to all 10 consent applications of abstraction of Tranche 2 ground water from the Ruataniwha Basin
Opposition to the 20 year term of consent
My submission is: (you may attach submission detail to this form)
* Include the reasons for your views: Opposition to the proposed increased take of Tranche 2 ground water from the Ruataniwha Basin by these new water consent applications from new and existing wells. Also oppose the granting of 20 year consent takes.

The Ruataniwha Aquifer which sustains the mauri of the Tukituki and Waipwa Awa has been severly diminished over decades, due to the over-allocation of water consents to the agricultural and horticultural communities in Tamatea. This continued and an ever-increasing abstraction of an already over allocated water take from our Tupuna Awa directly contravenes Te Mana o te Wai or the vital importance of water for everyone, not just a select few. The principles contained within the National Policy Statement for Freshwater Management 2020, clearly states that Tangata Whenua may exercise their right to the principles of: Mana Whakahaere, Manakitanga and Kaitiakitanga. Therefore, not only are we Tangata Whenua, but we exercise our Kaitiakitanga as Mana Whenua of Waipawa over our Taonga tuku iho; being the Tukituki and Waipawa Awa.

Tangata Whenau within the Rohe of Tamatea, but more specifically Mana Whenua of Waipawa have not been formally engaged through any of these Tranche 2 applications or processes. Therefore it would seem that the views of Tangata and Mana Whenua have not been considered and are largely absent on these extremely important and vital matters pertaining to freshwater management allocations. Hence a strong opposition to the current applications.

I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: We as Mana Whenua in Waipawa wish to retain the Mana Whakahaere over our Tupuna Awa o te Waipawa raua ko Tukituki. Therefore, we oppose any further abstraction of freshwater via these applications for water consents and also oppose the 20 year consent term, as being currently applied for.

We recommend that Tamatea and Waipawa Mana Whenua are able to assert their Mana Whakahaere over the freshwater allocation process and seek to address this inequity over the management of freshwater by being a considered equal partner and decision maker at the consent/policy making table.
I wish to be heard in support of my submission: Yes
If others make a similar submission, I will consider presenting a joint case with them at the hearing: Yes
I wish to attend any pre-hearing meeting that may be convened.: Yes

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|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#56] |
| **Date:** | Friday, 17 December 2021 6:24:35 am |

Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Paul Bailey
Address: [redacted]
Phone Number: [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We support the above application
My submission is: (you may attach submission detail to this form)
* Include the reasons for your views: One of the more surprising developments in the ongoing saga of water security in Central Hawke's Bay has been the application by eight landowners for an additional 16 million cubic meters of water to be taken from the Ruataniwha Aquifer under Tranche 2. This follows very closely after HBRC has applied for consents for their proposed Managed Aquifer Recharge trial.

One has to wonder what is going on here. If there is sufficient capacity in the aquifer to draw down an additional 16 million cubic meters of water why does HBRC deem it necessary to undertake MAR trials? Of course you could ask the opposite. Given HBRC is proposing a MAR trial, how can there be enough surplus capacity in the aquifer to draw down an additional 15 million cubic meters of water?

We were told that the SKYtem aerial survey which was undertaken in 2020 was going to deliver many of the answers with respect to the capacity and makeup of our aquifers. It is my understanding that the data from this survey has yet to be analysed in full. I appreciate that these things take time to be done properly and I would hate to see this rushed. However it does beg the question, why have HBRC and the eight farmers rushed in with their consent applications before this data is made available? After all, the $5 million investment we made in SKYtem is not insignificant. Are we not better to wait for the analysis to be completed rather than pre-empting it's findings?

I remain concerned about how HBRC is attempting to maintain the status quo and the application for the additional water take consents only exacerbate this. Water security in Central Hawke's Bay is about more than just ensuring security of supply for the farming community. Do either proposals do anything to make what are now deemed to be 'inefficient' bores in Ongaonga and Tikikino 'efficient' as they have been in the past 140 years or so? Do the proposals do anything to replenish what were once the free flowing streams & creeks on the Ruataniwha Plains which have become ephemeral over the last 20-30 years? Do the proposals do anything to protect Inglis Bush Scenic Reserve from drying out? These are just an example of some of the negative consequences arising out of what would now be considered inappropriate water use on the Ruataniwha Plains.

A cynic could easily come to the conclusion that the two proposals are interrelated and that HBRC is simply going to be subsidising the new water takes with MAR. Personally I don't think this is the case. I am aware that the Tranche 2 consents have been hanging over HBRC like the sword of Damocles since Plan Change 6 became operative. I believe HBRC has simply been the victim of the timing of the Tanche 2 applicants' timing.

We need to do more than just attempt to maintain the status-quo. We need to rethink the strategy around water security and acknowledge that having intensive dairy operations on the Ruataniwha Plains is an inefficient use of water which has had serious consequences for the environment. Not only with the lowering of the water table but also the increasing nitrogen issues we are facing. I always like to keep in mind that Napier City uses about 10 million cubic meters of water a year and we have eight farmers proposing to profit from the use of 160% of this volume. This is on on top of water they already have consented. That is a statistic worth remembering.

Water security is not a simple issue. If it were, the challenges would have been resolved already. I just wish that the people involved in dealing with it could be more imaginative in their processes and look outside the box for

solutions that bring social, environmental, and economic equity. I remain convinced that the solution to water security in Central Hawke's Bay is not tinkering around the edges, but is in exiting the most intensive, inappropriate users from the area.
I seek the following decision from the Hawke’s Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: Applications to be declined in full
I wish to be heard in support of my submission: Yes
If others make a similar submission, I will consider presenting a joint case with them at the hearing: No
I wish to attend any pre-hearing meeting that may be convened.: Yes

| | |
|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#57] |
| **Date:** | Friday, 17 December 2021 7:17:46 am |

Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: John Hamilton
Associated Organisation (of applicable): John Hamilton Farm
Address: [redacted]
Phone Number: [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
The specific parts of the application that my submission relates to are (please enter the relevant number): APP-123547
I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: 1. Not allow further water access

I wish to be heard in support of my submission: No
If others make a similar submission, I will consider presenting a joint case with them at the hearing: No
I wish to attend any pre-hearing meeting that may be convened.: No

Submission to Hawkes Bay Regional Council on Resource consent applications to take Tranche 2 water from the Ruataniwha Basin

*Mark Corkran*
[redacted]

I submit that no consent should be approved for Tranche 2. The health of the Tukituki is already perilous and the granting of further consents imperils river health further.

My submission is as an individual but primarily on behalf of my grandchildren, who love to fish and swim in the Tukituki when they can. It is sad at times to find the river low, slimy with weed and un-swimmable. The 2018 Aqualinc report concludes: "...should the Tranche 2 allocation proceed; the river flows can be expected to hit the low flow cut-offs earlier and for longer than had previously been the case…" So things will only get worse if Tranche 2 water takes are allowed.

If the HBRC grants these consents, it seems likely that the activities of some applicants - already the largest dairy farming businesses in the area but who are asking for additional water for their operations, will have more than minor adverse effects on the environment.

It is the view of some that the council's inability or unwillingness to roll back these largest consents is simply wrong.

That in excess of 40% of all allocated water goes to just 6 large intensive dairy farms, seems criminal. At the same time the local community have been told by councils and businesses that we are short of water and needed a dam to remove this risk. While it is apparently acceptable for these businesses that public money, and water is being used for their private benefit and profit. It is not.

Surely what is required is more efficient use of the water we have, rather than pouring millions of litres each year onto the land with all the downstream effects such as home bores and rivers running dry, and sedimentation and pollution of our water ways. We need healthy rivers and water ways to have healthy communities.

Surely that was a lesson from the 2016 Havelock North water debacle. Have we learned that yet?

It is sad and disappointing; unforgiveable in fact in the eyes of younger generations that there are people still telling us that; "Yes we agree there must be change, but not today."

This council must show leadership today and not allow that attitude to continue. Council must decline these applications and begin to undo some of the harm that has already been done by its past decisions.

*Mark Corkran*

| | |
|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#59] |
| **Date:** | Friday, 17 December 2021 8:43:54 am |

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Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Graham Anderson
Address: [redacted]
Phone Number: [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
The specific parts of the application that my submission relates to are (please enter the relevant number): The combined effect of taking additional water from the Ruataniwha Basin - Tranche 2
My submission is: (you may attach submission detail to this form)
* Include the reasons for your views: The report conducted by PATTLE DELAMORE PARTNERS LTD dated 29 September 2021 raises a number of concerns that I do not believe have been addressed adequately for the proposal to go ahead as presented.

The main issue is point 12 -Cumulative effect on wells

The existing seasonal range of groundwater levels in bore 15048 is around 5 to 6 m, which provides some indication of the potential scale of existing cumulative effects in this area including the effects from pumping from deeper takes and natural seasonal variations. It is worth noting that groundwater levels in the bore appear to show an overall long term declining trend, although the scale of that effect is small, in the order of 1 m over 15 years. Greater seasonal variations have occurred since 2011, which may reflect an increase in local abstraction at that time. There are other bores in the Ruataniwha Basin that display greater declining trends and seasonal variations.

*This data suggests well levels are already declining, without further water being extracted

I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: I seek for the proposal to be declined

If this was not possible then all suggested pump testing should be carried out and only go ahead if no effects on current groundwater levels/existing wells can be proven
I wish to be heard in support of my submission: No
If others make a similar submission, I will consider presenting a joint case with them at the hearing: No
I wish to attend any pre-hearing meeting that may be convened.: No

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|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#60] |
| **Date:** | Friday, 17 December 2021 8:41:38 am |

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Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Trevor Le Lievre
Address: [redacted]
Phone Number [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
The specific parts of the application that my submission relates to are (please enter the relevant number): APP-123563, APP-123991, APP-123541, APP-123547, APP-123565 & APP 124498, APP-123566 & APP-124500, APP-123546, APP-125281
My submission is: (you may attach submission detail to this form)
* Include the reasons for your views: Please refer written submission
I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: I ask that all applications to take Trance 2 water be declined
I wish to be heard in support of my submission: Yes
If others make a similar submission, I will consider presenting a joint case with them at the hearing: Yes
I wish to attend any pre-hearing meeting that may be convened.: Yes
Attach a File: https://napier.wufoo.com/cabinet/7d3b0f70-92ac-45d3-b03b-883abbdfe549 - 540.25 KB

**Dr Trevor Le Lievre**
[redacted]

**SUBMISSION**

Tranche 2 Water Consent Applications

16 December 2021

**Opposition to Tranche 2 Applications**

1. I object to all the Tranche 2 Resource Consent Applications, and all aspects of the applications.

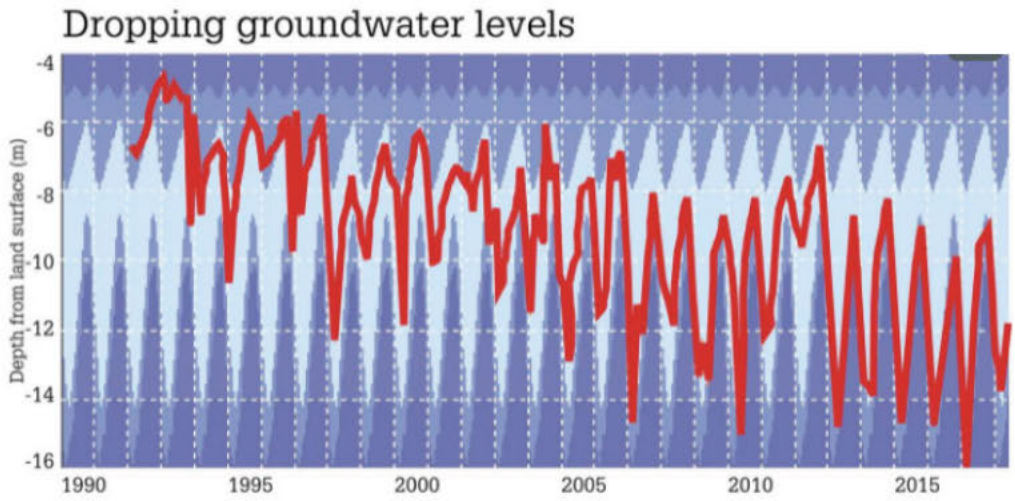
**Reasons for Opposition**

2. Water use in Central Hawkes Bay is unsustainable at current levels of consented abstraction. This is due to historical over allocation by past Regional Councils, including issuing consents retrospectively on the specious grounds of infrastructure investment having already been made. As evidence please find **attached** an article published in the then-Dominion newspaper dated, 1 August 2018.

3. That period of over allocation facilitated investment in large-scale, predominantly dairy, agribusiness. This has resulted in 6 large dairy farms holding consents for 42% of allocations from the combined sources of the Ruataniwha Basin groundwater and upper Tukituki surface water areas.

4. Over allocation is manifest in the falling water table in the Ruataniwha basin, which is having a devastating effect on both the rural communities and smaller-scale farming enterprises that rely on bores for sustenance and income, respectively.

5. This advent is plainly illustrated in the graph below[1]:




This reading from Bore 1426 near Ongaonga, from the HBRC website, shows the groundwater level decline over the years, similar to other bore readings on the Ruataniwha Plains.

[1] Hawkes Bay Today, 9 June 2018. https://www.nzherald.co.nz/hawkes-bay-today/news/alarm-over-applications-to-draw-large-volume-of-ruataniwha-groundwater/5FC3HHGZIQ3SNOKU63ESULZTWQ/

6. Intensive dairy enterprises – and indeed, all forms of intensive farming that increased access to water encourages – are responsible for disproportionate levels of nitrate leaching into our waterways.

7. Nitrogen pollution is already a significant problem in Central Hawkes Bay groundwater with some bores recently recording nitrate levels over twice the maximum acceptable level for drinking water, while the trend for nitrate levels in the Ruataniwha aquifer is upwards. Moreover, these measurements are benchmarked against the New Zealand drinking water standard of 11.3 mg/L, which is far too low, with studies showing that levels as low as 0.87 mg/L can create health risks, most notably for bowel cancer.

8. It is counter-intuitive that greater allocation of water would be allowed, as this would only encourage further intensive farming and increased nitrate leaching.

9. The logical response to the current over allocation is to claw back large consents on a stepped basis to allow farming operations to scale down, and to pay consent holders compensation. In addition, a sinking lid policy should be implemented, whereby as consents lapse they are not renewed for the same volumes. It has also been suggested that the Regional Council buy out farms owned by large water users, and change farming practices to low water use enterprises.

10. To allocate more water from an already depleted aquifer will simply enable a handful of corporate landowners who already use a disproportionate volume of aquifer water to endure, and intensify, their inappropriate land use practices.

11. As an environmental mitigation measure, the applicants for Trance 2 water will be required to pump water back into the rivers ('augmentation') during low flow periods; however:

    (a) This will only put water back into the main river stems, and will not provide any benefit to natural wetlands, springs or spring-fed streams away from the main rivers;

    (b) While the interconnectedness between aquifer and river water is known, there are complexities in calculating the actual effects on rivers from depleting the aquifer – the Council itself states that it cannot determine with confidence that adverse environment effects from the abstraction and augmentation scheme will be negligible;

    (c) Complementary systems involving wells, pumps and telemetry instruments, along with associated operation and maintenance, will be required to ensure the extraction and augmentation scheme works – do the Council have the resources and political will to enforce this regime?

    (d) The augmentation is based on modelling alone, and its efficacy is unknown. It is expected that further extraction from the aquifer will trigger minimum river flow restrictions earlier in summer, and for longer, affecting farmers and business who extract water from bores that are fed by river water;

    (e) This scenario is highlighted in a 2018 report by Aqualinc which states:

        *"...should the Tranche 2 allocation proceed, the river flows can be expected to hit the low flow cut-offs earlier and for longer than had previously been the case…";*

**Alternative Vision**

12. Central Hawkes Bay is predicted to be an area that will be majorly affected by climate change. Increasing reliance on water consumption under this scenario is a fool's errand that will never keep ahead of nature.

13. Instead, the vision needs to shift from "greater water use"" to "wise water use". We need to be committing resources to building resilience by clawing back large water consent allocations and changing farming practices, rather than encouraging further dependence on high water use practices

**Consultation Process**

14. I consider that the consultation process is flawed for the reasons outlined in my **attached** Talking Point, published in the Central Hawkes Bay Mail on 16 December 2021, where I argue *inter alai* that:

> *Local newspaper advertisements have recently appeared, with public submissions closing on Friday, December 17. This barely meets the minimum 20 days required notice, with the expectation that ratepayers will comprehend a complex set of issues and then draft submissions, heading into the busiest time of the year.*

15. I believe that the timing of the consent process is cynical, and that the allocation of Tranche 2 water requires a robust and more lengthy consultation process which pro-actively reaches out to the communities who will be affected by this crucial decision, rather than the passive medium of newspaper and website advertisements.

16. I ask that the submission panel consider this point when assessing submissions, and contemplate what the weight of submissions might look like were a more fully informed population empowered to participate in this process.

17. Thank you for taking the time to consider this submission.

**Outcome Sought**

18. I ask the submission panel to **decline all applications to take Tranche 2 water**.

**Dr Trevor Le Lievre**
Waipukuaru, Central Hawkes Bay

# Farms get nod to take scarce water

The Dominion 1st August 2008

MARTY SHARPE

WATER for irrigation in Hawke's Bay will be even scarcer after the regional council broke with its policy and staff advice to approve new water consents from the Tukituki and Waipawa rivers.

Approval to take water was granted to dairy farmers who had invested heavily before gaining resource consent.

The Fish and Game Council has challenged the decision as a "dangerous precedent to already stressed waterways". The appeal is likely to end up in the Environment Court.

"The message this sends is that you can expect to get resource consent on the basis of your investment in infrastructure," spokesman Iain Maxwell said.

A hearings panel of regional councillors Alec Olsen and Christine Scott, chaired by former councillor Adrienne Williams, granted four consents to the Wai-iti Trust, Ashcott Water Company and P C Franklin to take water from the Tukituki and Waipawa rivers and a Waipawa tributary, the Manga-o-nuku Stream.

The approval, granted in May after a hearing in January, allows consent holders to take 215,000 cubic metres of water from the rivers each week for five years. Two other applications were declined.

Regional council research has shown the rivers were already overallocated. The health of the Tukituki River has been contentious in Hawke's Bay; its low flow levels and a blue-green algal growth found in its lower reaches led to public concern last summer.

The effects of water taken from the river are unknown and are the subject of a study by the regional council over the next five years.

Council staff advised that granting the consents would have a big impact on the river's flow and on existing lawfully established consents.

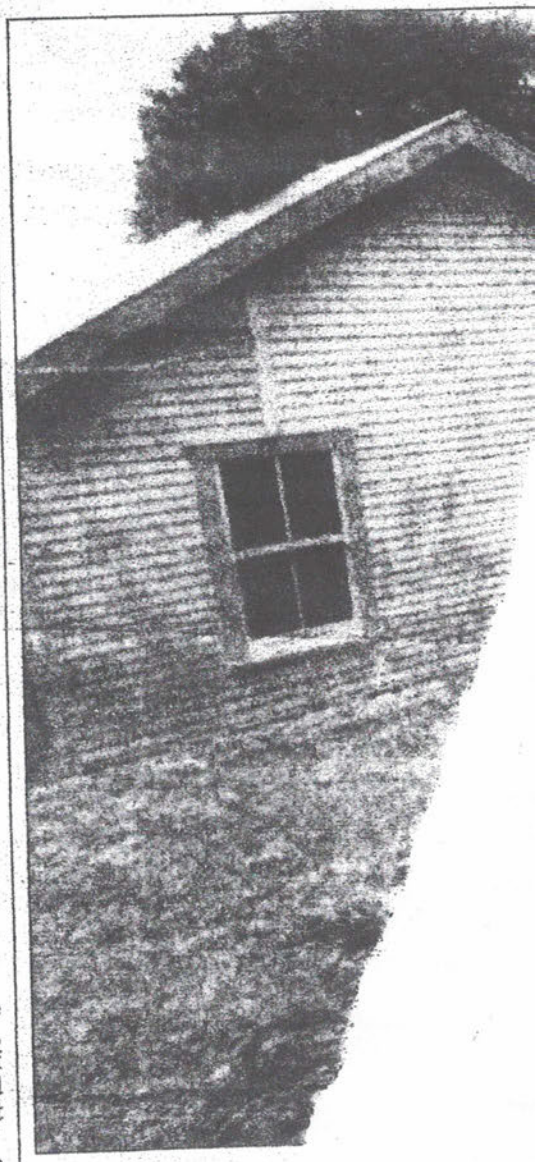
The applicants said they had invested heavily in irrigation infrastructure on the understanding they would get consent.

Donald Fraser, of Ashcott Water Company, said he had spent $2 million on a dairy conversion, and his partner in the company, Peter Barry, had spent $1 million on dairy conversion.

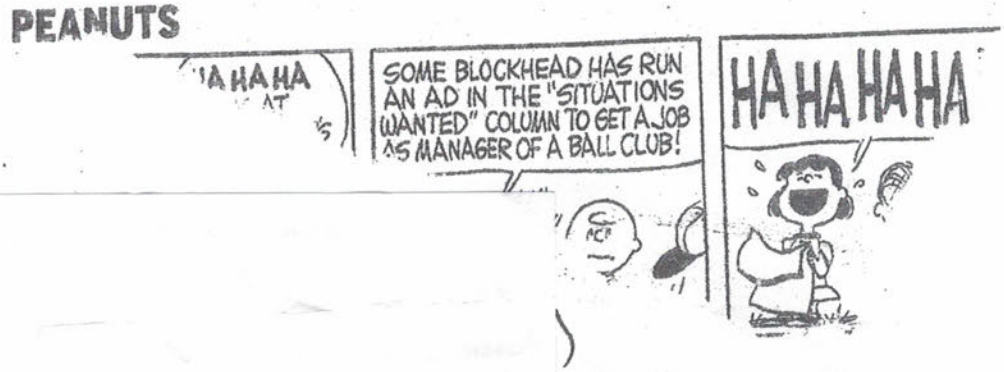
The applicants disputed that the new consents would affect river flow, but did not provide an assessment of environmental effects, as required under the Resource Management Act.

The commissioners decided the applicants' investment required a "pragmatic approach", and, though they acknowledged there would be less water for others, approved the applications.

## Sometimes



**Hillside hazard:** 'I'm sur
says Brooklyn resident
because it was built ir
wouldn't have survi



## TALKING POINT

**Dr Trevor Le Lievre**

# Water is for us all, not the greedy few

**Dr Trevor Le Lievre says water is the new gold of the 21st century.** Photo / File

Water is the new gold of the 21st century, insofar as it is increasingly being sought by those with economic power as a means to increase their wealth.

However, unlike gold, this natural resource is an essential requirement to sustain life on Earth.

For this reason, water is often referred to as "water commons", meaning it is available for use by all humanity and ecosystems, to be judiciously managed for the benefit of present and future generations.

Alas, because humans are fallible and inclined to be greedy, the management of this finite resource is delegated to elected officials who are accountable to the wider population.

Locally, it is our regional council that is delegated a licence by society – a "social licence" – to manage water quality and to issue consents for its use, to ensure that it is neither degraded nor depleted.

Tragically for the water commons, in my view successive councils have failed abysmally in discharging both of these most basic of tasks.

In Central Hawke's Bay, the Ruataniwha aquifer is over-allocated, I believe.

Excessive demand for water coincided with the introduction of large-scale irrigation for intensive dairying in around 2004, and the issuing of new consents was halted in around 2012 – too late.

In the halcyon days, councils were issuing consents to large dairying ventures.

The upshot? Big dairy farms now take the lion's share of water to irrigate stony soils through the summer months, at no cost to their business besides infrastructure establishment and operational outgoings.

As compensation, we get toxic nitrates leaching into our waterways from both cow urine and synthetic fertilisers.

Methane emissions are an added bonus.

In my view, there is currently no political will to enact the logical response, to claw back allocations and compensate consent holders, as councils defer to the power of vested-interest corporate agribusiness.

Instead, our rate and tax-payer dollars are being poured liberally into "water security" – the new euphemism for water storage – both below ground (manager aquifer recharge (MAR) and above (Tukutuki Water Storage Project, where the smart money is on a pending announcement to resurrect the failed Ruataniwha dam), in an attempt to sustain the unsustainable.

The regional council has discovered a fresh means to placate corporate farming's insatiable appetite for water.

'Tranche 2' denotes 15 million m3 of water contained in a deeper part of the aquifer, which the council says is available right now for allocation.

I believe eight farming ventures have applied for consents.

One applicant, a dairy enterprise, is seeking 3.7 million m3, on top of its current allocation of 4.7 million m3 from both the aquifer and river.

If the Tranche 2 allocation is granted, this will total an insane 8.4 million m3, well over the 5.7 million m3 water currently consented for all the townships of Central Hawke's Bay.

Editorial error

If granted, this will be more than twice the 3.2 million m3 water currently consented for the townships of Central Hawke's Bay.

The Resource Management Act requires the council to publicly consult, before hearing these consent applications.

Local newspaper advertisements have recently appeared, with public submissions closing on Friday, December 17.

This barely meets the minimum 20 days' required notice, with the expectation that ratepayers will comprehend a complex set of issues and then draft submissions, heading into the busiest time of the year.

I believe the council has forfeited its social licence to grant these additional consents, given its historical mismanagement of our aquifer.

Our councillors must extend this consultation period into 2022, and fully explain this proposal to constituents in town hall meetings around Central Hawke's Bay.

Only then, having secured the backing of a majority of fully-informed constituents, can they be permitted to proceed with what many now consider to be yet another breach of their responsibility to sustainably manage the water commons.

**Dr Trevor Le Lievre** holds a PhD in politics. He resides in CHB and is passionate about local environmental issues

**From:** Paul Barrett
**To:** Michaela Tinker
**Subject:** FW: Submission for Trance 2
**Date:** Friday, 17 December 2021 9:17:15 am
**Attachments:** ATT00001.png
ATT00005.png
Dominion_Christine Scott Water Consents - 1 August 2008.pdf
2021-12-16 - Tranche 2 Submission.pdf
2021-12-16 - CHB Mail - T Le Lievre Talking Point.pdf

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Hi Michaela, attachments for a submission attached – see below

Cheers

Paul


**Paul Barrett**
Team Leader Consents
06 835 9200 | 027 318 6051
Hawke's Bay Regional Council | Te Kaunihera ā-rohe o Te Matau a Māui
159 Dalton Street, Napier 4110 | hbrc.govt.nz
**Enhancing Our Environment Together | Te Whakapakari Tahi I Tō Tātau Taiao**




**From:** Trevor Le-Lievre [redacted]
**Sent:** Friday, 17 December 2021 9:00 AM
**To:** Paul Barrett <barrett@hbrc.govt.nz>
**Subject:** Re: Submission for Trance 2

Good morning Paul

I have just made my submission on Trance 2 online, and note there is only the ability to upload a single file. Can you please also include the 2 attachments cited in the submission, which I now attach to this email, along with the submission itself, as below:

1. Dominion Article (1/8/2008)
2. CHB Mail Talking Point (16/12/2021)
3. Tranche 2 Submission

Can you please acknowledge receipt of the same by return email?

Also, James Palmer in his response to my Talking Point published this week stated that submissions are being considered by a panel of independent commissioners. I have also been informed that the submissions are being heard by the Board of Enquiry convened to assess the Ruataniwha dam submissions. Can you please clarify (i) whether councillors would usually hear RMA submissions of this type; however in this case have delegated that task?, and (ii) if this is correct, who the task has been delegated to?

Regards

Trevor

| | |
|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#61] |
| **Date:** | Friday, 17 December 2021 9:06:27 am |

Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Jesse Friedlander
Associated Organisation (of applicable): Hawke's Bay Fish and Game Council
Address: [redacted]
Contact Person (if different to above, or if submitter is an organisation): Jesse Friedlander
Phone [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
The specific parts of the application that my submission relates to are (please enter the relevant number): • APP-123563

- APP-123991
- APP-123541
- APP-123547
- APP-123565
- APP-124498
- APP-123566
- APP-124500
- APP-123546
- APP-125281

My submission is: (you may attach submission detail to this form)
* Include the reasons for your views: 1. This submission relates to applications for resource consent to take groundwater from the 'tranche 2' allocation in the Ruataniwha Basin:

- APP-123563
- APP-123991
- APP-123541
- APP-123547
- APP-123565
- APP-124498
- APP-123566
- APP-124500
- APP-123546
- APP-125281

2. Hawke's Bay Fish & Game Council (Fish & Game) consider issuing of consents to take groundwater from the 'tranche 2' allocation of the Hawke's Bay Regional Resource Management Plan (RRMP) would be contradictory to the legislation, policies, and plans guiding the management of freshwater and the environment in Aotearoa and Hawke's Bay.

3. In particular, Fish & Game consider the issuing of consents would be contradictory to the NPSFM directions to manage freshwater in a way that gives effect to Te Mana o te Wai (Policy 1), to manage freshwater in an integrated way (Policy 3), to avoid the loss of river extent (Policy 7), to protect the habitat of trout and salmon (Policy 10), and to phase out existing over-allocation and avoid future over-allocation (Policy 11).

4. Fish & Game also consider that applications for consent to take and use water cannot be considered in isolation of the land use consents required under the RRMP and the National Environmental Standards (NES) for Freshwater, as to do so would be inconsistent with the NPSFM direction to managed freshwater in an

integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments (Policy 3).

5. Fish & Game consider those applications lodged under proposed plan change 6 should be assessed as non-complying activities.

6. Fish & Game seek that all applications be declined by Hawke's Bay Regional Council (HBRC).

I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: Hawke's Bay Fish & Game Council seek the applications be declined
I wish to be heard in support of my submission: Yes
If others make a similar submission, I will consider presenting a joint case with them at the hearing: Yes
I wish to attend any pre-hearing meeting that may be convened.: Yes
Attach a File: https://napier.wufoo.com/cabinet/cc6ae0ff-2252-4843-b061-748d60c6b812 - 1.12 MB

KMG STUD LIMITED
[redacted]

14-12-21

The Chief Executive
Hawke's Bay Regional Council
Private Bag 6006
Napier 4142

Dear Sir,

**SUBMISSION with respect to APP-123547, APP-123566, APP-124500, APP-123546**

1. This submission is with specifically with respect to the above Tranche 2 groundwater resource consent applications because they are most likely to impact on our property, however we believe our submission also has bearing on all Tranche 2 applications.

2. We are a small stud farm located on Ongaonga Waipukurau Road, dependent upon existing approved bore water extraction for both domestic water and our livestock. Such water is critical to our wellbeing, especially in times of draught.

3. The property has two existing bores, one of shallow depth (approximately 10m) and a deeper main bore (in excess of 25m).

4. The Ongaonga Stream runs for over 1km through the entire length of our property.

5. We have owned the property since January 2018. In that time-frame the shallow bore has become dry for most of the year and has therefore been rendered useless. We are now dependent upon the single deeper bore to supply both domestic and livestock water.

6. The Ongaonga Stream, which we are advised by a long-time former owner once was a flowing trout stream, has now almost dried up completely for much of the year. In the past 12 months it has flowed for only a few weeks following heavy rain, rapidly drying out to stagnant puddles, and then nothing at all above ground over its entire length on our property.

7. We are gravely concerned at the continued effects of climate change, and the cumulative effects of ongoing water extraction and wastage in surrounding irrigated properties, both of which must have bearing on reducing height of the water table in the Onga Onga area being felt by ourselves, and, we understand, by numerous residents of Onga Onga village whose household water supply bores are struggling to maintain domestic supply.

8. We have no issue with existing water extraction and irrigation of surrounding agricultural properties provided it is very strictly controlled to prevent further falling of the water table in the area.

9. We do have issue, however with:

    a. New irrigation bores and increases in the permitted water take, and
    b. Wastage of irrigation water.

10. We submit that:

    a. no new bores should be permitted that increase the water take, and therefore contribute to further lowering of the water table
    b. that permitted water takes should be held at existing levels, or preferably by reduced to allow for the increasing effects of climate change on the water table
    c. that resource consent conditions should include conditions to prevent wastage of extracted water, and that such extraction should be confined to evening, night-time and early morning hours to minimize evaporation loss and maximize irrigation effectiveness.
    d. that applicants be held liable for the impacts of any increased water take and consequential lowering of the water table in the surrounding area. It should not be necessary for domestic bore water users to personally have to bear the costs of increasing their bore depths consequential on increased surrounding commercial water takes reducing the water table level.

11. We have observed local irrigation systems operating needlessly when it is raining all day, and operating inefficiently in the hottest parts of the day, when evaporation loss would be extreme, in the middle of draught. We believe this can easily be prevented by appropriate resource consent conditions.

12. We ask that Council take our submission into consideration, and are happy to attend any hearing and answer any questions on our submission.

Thank you

Pp KMG STUD LIMITED

Rob Kent
Director

**From:** Paul Barrett
**To:** Michaela Tinker
**Subject:** FW: Groundwater takes
**Date:** Friday, 17 December 2021 10:33:07 am
**Attachments:** noname
noname
noname
noname
noname
ATT00001.png
ATT00005.png

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**Paul Barrett**
Team Leader Consents
06 835 9200 | 027 318 6051
Hawke's Bay Regional Council | Te Kaunihera ā-rohe o Te Matau a Māui
159 Dalton Street, Napier 4110 | hbrc.govt.nz
**Enhancing Our Environment Together | Te Whakapakari Tahi I Tō Tātau Taiao**



**From:** Mary Ellen Warren [redacted]
**Sent:** Friday, 17 December 2021 10:31 AM
**To:** Paul Barrett <barrett@hbrc.govt.nz>
**Subject:** Re: Groundwater takes

No speaking thanks.
ME

On Fri, Dec 17, 2021 at 10:26 AM Paul Barrett <barrett@hbrc.govt.nz> wrote:

> Thanks Mary,
>
> Sorry you had trouble completing the online form.
>
> Can you please confirm if you wish to be heard and to speak to your submission?
>
> Kind regards
>
> Paul

**Paul Barrett**
Team Leader Consents
06 835 9200 | 027 318 6051
Hawke's Bay Regional Council | Te Kaunihera ā-rohe o Te Matau a Māui
159 Dalton Street, Napier 4110 | hbrc.govt.nz
**Enhancing Our Environment Together | Te Whakapakari Tahi I Tō Tātau Taiao**


**9001:2015**
**certified**

**From:** Mary Ellen Warren [redacted]
**Sent:** Friday, 17 December 2021 10:18 AM
**To:** Paul Barrett <barrett@hbrc.govt.nz>
**Subject:** Groundwater takes

I wasn't able to complete the form online it wouldn't let me go beyond page 1. Please accept this as my submission

There are two large issues that need to be studied prior to determining approval for these consents.

**How will future climate change affect rainfall and evaporation in th watershed and hence river levels and aquifer recharge.**

Has there been a recent survey of bores in the watershed. Based on limited personal experience there can be two bores on a farm property for each one permitted. **What are the implications of possible unregulated takes on this proposal.**

**Thanks**

--
Mary Ellen Warren
[redacted]

--
Mary Ellen Warren

| | |
|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#64] |
| **Date:** | Friday, 17 December 2021 1:26:19 pm |

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Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Amelia McQueen
Address: [redacted]
Phone Number: [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
The specific parts of the application that my submission relates to are (please enter the relevant number): APP-123563, APP-123991, APP-123541, APP-123547, APP-123565 and

APP-124498, APP-123566 and

APP-124500, APP-123546, APP-125281
My submission is: (you may attach submission detail to this form)
* Include the reasons for your views: Please find attached my full submission.

Given that specific data, future monitoring or mitigation plans have not been provided by the applicants and there are still many questions unanswered, my view is the applications should be declined.

I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: Please find attached my full submission.

My view is the applications should be declined.
I wish to be heard in support of my submission: Yes
If others make a similar submission, I will consider presenting a joint case with them at the hearing: Yes
I wish to attend any pre-hearing meeting that may be convened.: No
Attach a File: https://napier.wufoo.com/cabinet/d47e7fa8-dc1b-4956-a4e0-7146f450fb1e - 73.90 KB

**From:** HBRC
**To:** Michaela Tinker
**Cc:** janeen@sageplanning.co.nz
**Subject:** HBRC - (Ruataniwha Basin - Tranche 2) [#65]
**Date:** Friday, 17 December 2021 1:45:33 pm

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Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Clint Deckard
Address: [redacted]
Contact Person (if different to above, or if submitter is an organisation): Clint Deckard
Phone Number: [redacted]
Mobile Number: [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
The specific parts of the application that my submission relates to are (please enter the relevant number): Entirety
My submission is: (you may attach submission detail to this form)
* Include the reasons for your views: Submission

1. I believe it is unreasonable to expect interested parties to make considered, researched submissions on such an important and complex issue in 20 days just prior to the holiday season.
Given that the applicants have had many years to prepare and research for this application, the imbalance is stark.
2. I am very concerned that almost all the assumptions behind the original concept of increased extraction and river augmentation are based on models.
3. Models have many drawbacks;
Most models can't incorporate all the details of complex natural phenomena
Models are approximations
Models require trade-offs. You want as much predictive power as possible. At the same time, you also want the model to be as simple as possible. Nature is indifferent to the human need for simplicity and ease of comprehension.
4. A model can only be based on what is known at the time. However, once settled on, there is a natural reluctance to adapt the model.
5. Models used in the past to set water allocation limits have demonstrably failed to predict actual real world outcomes. The lowering of water table has actually been more than predicted as evidenced by the number of failed bores and native forest death.
6. I believe it is foolish to grant these applications before the results of the SkyTEM survey are fully analysed.
7. I understand the importance of reliable water supply for agriculture and have some sympathy for the applicants but do not believe this is the best way to address this issue.
Firstly, we must take stock of how the water we are already extracting is being used to ensure that this is wise use of a precious resource. Only then can we begin to explore new sources or management regimes.
I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: I ask that the applications be declined.
I wish to be heard in support of my submission: Yes
If others make a similar submission, I will consider presenting a joint case with them at the hearing: No
I wish to attend any pre-hearing meeting that may be convened.: Yes

| | |
|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#66] |
| **Date:** | Friday, 17 December 2021 1:57:09 pm |

Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Andrew Robb
Address: [redacted]
Phone Number: [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
My submission is: (you may attach submission detail to this form)
* Include the reasons for your views: To: Hawke's Bay Regional Council
Name of submitter: Andrew Robb

This is a submission on several applications, from Plantation Dairy and others, for resource consents to take 'Tranche 2' groundwater from the Ruataniwha aquifer.
(I am not a trade competitor for the purposes of section 308B of the Resource Management Act 1991. I am directly affected by an effect of the subject matter of the submission that adversely affects the environment; and does not relate to trade competition or the effects of trade competition.)

I oppose the allocation of more water from the aquifer for irrigation or for intensive farming.

1. Applications such as these are publicly notified so that decision-makers can take into account matters that may not be obvious on the face of the application. In other words, decision-makers must take into account the wider context of the applications and related considerations, and not just the narrow question raised by the applications.

2. It is widely known, and accepted by the Regional Council, that there is an over-allocation of water from the Ruataniwha aquifer. When those allocations were originally made, the impacts on aquifer levels, and the pollution that has resulted from the intensive industrial agriculture that the consented water takes enabled, were not fully known. The impacts of previous allocations have become much clearer in the years since then, and those impacts must be considered when further consents are applied for.

3. When the Board of Inquiry provided for the Tranche 2 water, the Ruataniwha Dam was still under consideration, and may have been expected to proceed. The failure of that dam project has changed the picture of water supply from the aquifer, and those changes must now be taken into account when the Tranche 2 takes are considered. In other words, although it was the Ruataniwha Board of Inquiry that provided for the Tranche 2 takes, the decision-makers on these applications must take into account the changed circumstances since that BoI made its decision. It should not be assumed that the decision-makers are bound to grant these applications; the wider picture and all relevant factors must be considered first.

4. Among those wider considerations is the best possible information about the nature of the aquifer itself. The HB Regional Council recently undertook a multi-million dollar aerial electromagnetic survey of the aquifers, to enable better decisions to be made on water allocation and use. The results of that survey have not yet been made public. It would be negligent of decision-makers to grant these applications at this time, shortly before the results of the aerial survey come to hand.

5. The HB Regional Council is already sufficiently concerned about the state of the Ruataniwha aquifer to spend millions of dollars on a trial of Managed Aquifer Recharge, near to where the applicants are seeking to take more water for irrigation. The long-term environmental impacts of Managed Aquifer Recharge are

unknown, but high-risk. It simply defies common sense and wise stewardship for the Regional Council to consider further allocations of aquifer water, at the same time as it is investigating a high-risk, high-cost engineering solution to replenish the aquifer nearby. If MAR turns out not to deliver the hoped-for results, what will the Council do then?

6. Another relevant consideration is the falling water tables around Tikokino and Ongaonga, leaving residents without domestic water from their existing wells. It is so unfair as to be irresponsible for the Board of Inquiry to be aggravating the problems of local residents, by allocating further groundwater to industrial farming enterprises, most of which already have consents to take huge volumes of water.

7. Similarly, a significant remnant of the original native forest at Inglis Bush is dying from lack of water, as established trees, hundreds of years old, experience falling water tables. Despite assurances from the Regional Council and the Department of Conservation over twenty years or more, no remedial action has been taken to reverse this crisis.

8. Neighbouring farmers, who do not irrigate but rely on surface water in creeks, springs and ponds, are likely to suffer if increased takes of Tranche 2 water lower water tables. The less-intensive farmers, with a smaller environmental footprint, should be supported and encouraged by the decision makers, not made to suffer for the benefit of the industrial agri-businesses.

9. Extraction of water from rivers and aquifers, and its pollution by industrial agriculture, is effectively alienating the natural heritage of all citizens and transferring it into private hands. It is outrageous that I cannot take the dogs for a walk along the river, or my children for a swim, during the hottest months of the year, because of the danger of them getting sick or dying from cyanobacteria poisoning. I am also a keen fly fisher, and there are times when long stretches of our rivers are unfishable because of alage in the water, and because the fish are almost dead from heat stress and lack of oxygen in the warm water. Toxic algae flourish when river water carries excessive nutrients, and the flow slows down and warms up. Cyanobacteria blooms have increased as water tables have fallen, and nitrogen and prosphorus levels have increased, as a result of industrial farming and irrigation in the river catchments. To consent to more water being taken from the aquifer, in the face of major environmental and social impacts of over-allocation, is unconscionable.

10. The pressure to take more and more water from the aquifer, and to rely on engineering solutions to meet ever-growing demand for water, shows a failure of imagination in dealing with water allocation issues. All decision makers must consider how best to use what water there is available. Because water has already been over-allocated, the Regional Council must face up to clawing back existing consents when they come up for renewal, as well as stemming the flow of new applications for consents to take even more water. Applications such as these, which promote existing harmful land uses, must be considered in the light of the Regional Council's overall goals and strategies to reduce demand for water, for instance, by changing land use, promoting more efficient use of consented water, and restoring natural ecosystems (natural bush cover, wetlands and ponds) that conserve and restore natural water cycles.

11. Another aspect of the wider context, which decision-makers must consider, is historical. For 150 years, since the arrival of Pakeha farming in Hawke's Bay, settlement and development of the land has removed surface water from the landscape, by the clearing of natural vegetation and planting of grasses, draining of swamps and wetlands, and confining of braided rivers between stopbanks. Now that the natural surface waters have almost completely disappeared and soils are depleted as a result of farming practices, industrial farmers complain that there is not enough water, and seek to drain the aquifers to remedy the effects of those past activities. The current applications for Tranche 2 water are evidence that this approach, which has largely created these environmental crises, including climate change, has not changed.

12. I believe this is a critical juncture for decision-making on water allocation. We are dealing with a variety of related social, environmental and other issues; we await the results of research and investigation into the aquifers (the aerial mapping and MAR pilot); and the Regional Council is developing a comprehensive strategy for water allocation into the future. Just this week, plans have been announced to resurrect the Ruataniwha Dam. There is growing recognition that the corporate industrial model of agriculture is at the heart of many complex problems the region faces. Now is NOT the time for the Council to be granting consents to extract even more water from an already over-allocated aquifer, to enable more intensive industrial farming.
I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of

any conditions sought: Therefore, I ask the Board to decline all applications to take Tranche 2 water.

Failing that, I ask the Board to stay all the applications until the results of
a) the aerial mapping of the aquifers and
b) the Managed Aquifer Recharge pilot, and
c) the proposed resurrection of the Ruataniwha Dam
have been published, analysed and considered by the people of Hawke's Bay.
I wish to be heard in support of my submission: Yes
If others make a similar submission, I will consider presenting a joint case with them at the hearing: No
I wish to attend any pre-hearing meeting that may be convened.: Yes

[redacted]

| | |
|---|---|
| **From:** | HBRC |
| **To:** | Michaela Tinker |
| **Cc:** | janeen@sageplanning.co.nz |
| **Subject:** | HBRC - (Ruataniwha Basin - Tranche 2) [#70] |
| **Date:** | Friday, 17 December 2021 3:09:48 pm |

Which consent does your submission relate to? Please click on the box below to select.:
APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281
Person Making the Submission: Anna Lorck
Associated Organisation (of applicable): MP for Tukituki
Address: [redacted]
Contact Person (if different to above, or if submitter is an organisation): Anna Lorck
Phone Number: [redacted]
Email: [redacted]
Are you a trade competitor for the purposes of section 308B of the RMA 1991: No
IF YES: Are you directly affected by an effect of the proposed activity that adversely effects the environment and does not relate to, or the effects of trade competition: No
: I/We oppose the above application
The specific parts of the application that my submission relates to are (please enter the relevant number): I object to all applications in their entirety.
My submission is: (you may attach submission detail to this form)
* Include the reasons for your views:

Anna Lorck
Member of Parliament for Tukituki
[redacted]

Submission:
As the Local Member of Parliament for Tukituki I am making this submission in support of constituents, representing both farmers and local residents, who have approached me to advocate their significant concern and opposition to the Hawke's Bay Regional Council's (HBRC) Tranche 2 resource consent.
Everyone who has contacted me has spoken passionately about needing a strong voice to advocate against Tranche 2.
Having grown up and lived in Central Hawke's Bay for 30 years, I retain a very strong connection to the district. I understand the significant water insecurity challenges and believe there needs to be a far better solution than more allocation of an already over allocated aquifer supply.
In making my submission, and as you hear from others, I ask that you consider whether this consenting allocation aligns to the goals of the National Fresh Water Management Policy and Te Mana o te Wai.
Access to water in the community is continuing to cause heightened anxiety for many, including those living in small rural townships. The resource consents, if granted, will allow the take of a further 15 million cubic metres of deep aquifer water from the Ruataniwha plains, which at over 53% is a significant increase.
Given this, I support the community opposition that not one more drop should be allocated because the resource is already over allocated.
I have also spoken to Forest and Bird over concerns they have made publically, especially in regard to the application having more than "minor adverse effects" on the environment.
There has been a decade-long trend of groundwater levels dropping in the Ruataniwha basin - on average by 1.5m over 10 years across the area. I also reinforce concerns over Climate Change which to ensure we protect our groundwater reserves.
Climate change made the applicants' models of future water regeneration potentially unreliable where augmentation would not be enough to offset the environmental impact of taking more groundwater.
Background:
The concern about high water-take is expressed by both farmers and residents who reside in rural communities. During the years, continuous and increased water-take has left both Ongaonga and Tikokino residents worried for their own water supplies since 2004. I understand, from what farmers have told me, that in 2012 five houses ran out of water completely. Many households in the villages of Ongaonga and Tikokino had to modify existing

bores at their own expense to access groundwater from their bores and wells. This will only continue to worsen through the impact of climate change.
Residents stated that any further water take from the Ruataniwha Basin Groundwater meant that individuals would be unable to supply water to their households and would be forced to seek consents to drill new or extend the depot of their existing bores in order to be able to draw water for drinking and domestic household use.
Concerned farmers have told me that the rapidly emerging issue of the over-allocation of groundwater resources will prevent residents' access to such a critical resource.
The townships and settlements within Central Hawke's Bay use water which from stream depleting sources.
Local farmers' and residents' concerns have been presented to me from the Resource Management Group, Environmental Science, and Ruataniwha Water Storage Scheme.

- The average annual amount of river gain from the groundwater system is approximately 213 million m3, while the average annual river loss to groundwater is only 31 million m3. So the rivers gains water as they move downstream.
- As a result of the increase in groundwater abstraction over the last 10 years, aquifer storage, rivers/groundwater relationship, and springs flow have been impacted. Modelling shows aquifer contribution to river flow has declined by 600L/s while springs flow has declined by approximately 40L/s.
- Continued abstraction of ground water and surface water is predicted to reduce river flows significantly at three key surface water flow monitoring sites (tukituki at Tapairu Rd, Waipawa River at RDS and Tukituki River at Red Bridge) relative to natural conditions.

Not only will this water-take negatively impact farmers, it will affect urban communities through increase water-restrictions. Tranche 2 also has the potential to create an unnecessary competitive environment among farmers in terms of water consumption. It is an absolutely vital source for the growth of healthy crops, grass and wellbeing of livestock. If water is not equally shared among the rural community, no farmer or farm will thrive.
The locals who have spoken with me have raised serious concerns that if the Tranche 2 consent were to go ahead, it would increase unnecessary competition for water consumption and put further pressure on the mental health on an already fragile rural community and wellbeing of their livestock, but most importantly, it would put the Ruataniwha aquifer at serious risk.

I request to speak to my submission.

I seek the following decision from the Hawke's Bay Regional Council:
* Give precise details, including the parts of the application you wish to have amended and the general nature of any conditions sought: I seek that the applications be declined.
I wish to be heard in support of my submission: Yes
If others make a similar submission, I will consider presenting a joint case with them at the hearing: Yes
I wish to attend any pre-hearing meeting that may be convened.: Yes

CENTRAL HAWKE'S BAY DISTRICT COUNCIL

Ruataniwha Street,
PO Box 127, Waipawa 4240
New Zealand

Phone: 06 857 8060
Fax: 06 857 7179

info@chbdc.govt.nz
**www.chbdc.govt.nz**

Friday 17 December, 2021

Mr Paul Barrett
Team Leader Consents
Hawke's Bay Regional Council
159 Dalton Street
Napier

Dear Sir,

**Revised Applications for Take, Use and Discharge of Tranche 2 Groundwater Ruataniwha Basin; APP-123563 APP-123991 APP-123541 APP-123547 APP-123565 APP-124498 APP-123566 APP-124500 APP-123546 APP-125281**

Eight parties have lodged resource consent (water permits) with the Hawke's Bay Regional Council (HBRC) to take and use Tranche 2 deep groundwater from the Ruataniwha Basin in Central Hawkes Bay for irrigation and for release to augment stream and river flows.

These parties are:

- Te Awahohonu Forest Trust (TAFT)
- Springhill Dairies (formerly Ingleton Farms)
- Tuki Tuki Awa
- Plantation Road Dairies
- I & P Farming (formerly Abernethy Partnership)
- Papawai Partnership
- Buchanan Trust No. 2
- Purunui Trust

Central Hawke's Bay District Council (the Council) objects to the notified water permit consent applications for the combined take of Tranche 2 groundwater from the Ruataniwha Basin. The Council objects to the granting of these water permits because of the potential negative effects to a great number of people and the environment, all of whom depend on the Ruataniwha Aquifer. The proposed water takes will also have a huge impact on those businesses and farms that are reliant on groundwater takes.

Council's objection to the HBRC granting consent to the eight water permit applications is based on a number of significant considerations which have the potential to impact directly and adversely on our rural communities and the growth and prosperity of our district.

In lodging this objection Council wished to note that it is fully aware of and appreciates the history and science surrounding the decision to notify the water permit applications and the significance of allocation of the Tranche 2 groundwater and augmentation provisions provided for in the HBRC Regional Resource Management Plan.

Council does however have serious reservations and concerns about the timing of the granting of the eight water permits applied for and the cumulative impacts the Tranche 2 groundwater extraction will have on groundwater levels and river flows across a wide area including creating potentially adverse effects on a Ruataniwha Basin-wide scale.

Council's concerns relating to the water permit consents are based on a number of factors that range from ensuring a future sustainable and resilient groundwater supply in the Ruataniwha Basin for our community and industries engaged in primary production to direct concerns relating to the continuity of groundwater supply to our rural community drawing groundwater from bores on the Ruataniwha Plains.

It is critical that reference is given to the fact that the Tranche 2 provisions were put in the plan by the Board of Enquiry at the time that Makaroro consents were given for large scale water storage and the intent was for the two to be connected – meaning the water taken from the ground would be offset by stored water release and would allow water takes across a wider footprint than just those in direct connection to the water distribution from the scheme. To be giving consents for these water takes now is in contradiction of the original policy intent.

Of particular concern is the potential for the eight water permit consents to be granted ahead of the availability of substantive and conclusive results from the SkyTEM Aquifer Mapping Project (SkyTEM). As a tool that accurately and cost-effectively enables identification of aquifers to depths greater than 300 metres the scientific data derived from the SkyTEM modelling will be used for numerous critical water management applications across our district providing invaluable knowledge as the region seeks to future proof the valuable groundwater resource.

It is our understanding that preliminary results for the Ruataniwha Basin of the SkyTEM mapping project are anticipated to be completed by mid to late 2022. SkyTEM is expected to improve the information and evidence base available to enhance the understanding of environmental opportunities and limits relating to the characteristics of groundwater in the region's aquifers especially in the Ruataniwha Plains and the Otane Basin. Given the importance and significance of the potential findings of SkyTEM we consider that granting water permit consents for extraction of Tranche 2 groundwater ahead of the results of SkyTEM mapping is questionable and may not represent judicious or wise management of a valuable and limited natural resource.

Council is also concerned that results from the significant work currently being undertaken on the Managed Aquifer Recharge Project (MAR), as part of the Regional Council's Regional Water Security Programme, should be available and accessible for assessment and consideration before water permit consents to extract Tranche 2 groundwater are granted. The Managed Aquifer Recharge modelling represents a unique and important opportunity to help ensure Hawke's Bay has long-term, climate-resilient, and secure supplies of freshwater to support future growth and development opportunities. The granting of Tranche 2 water consents will interfere with the interpretation of Hawke's Bay Regional Council's own MAR trial, particularly given that if the two coincide there will be no true baseline to compare the MAR trial to.

A third and significant contributing factor to the Council's objection to the granting of the eight water permits is the fact that the townships of Ongaonga and Tikokino have struggled with a depleting drinking water supply since 2004 when big irrigators began accessing groundwater in the Ruataniwha Basin. In 2012 five houses ran out of water and in recent years many residents in these townships have had to modify their existing bores to reach deeper groundwater reserves. Protecting the loss of groundwater recharge on shallow bores could be the most important step the HBRC can take to meet the needs of these rural communities.

And finally, access to water consents is already skewed to a small number of water users and the wider community benefit will not be realised if the whole of Tranche 2 consents are given to such a small number of applicants. A sustainable future for the catchment is reliant on diversity of land use, geographical spread of activities, and reducing intensity of water volumes used.

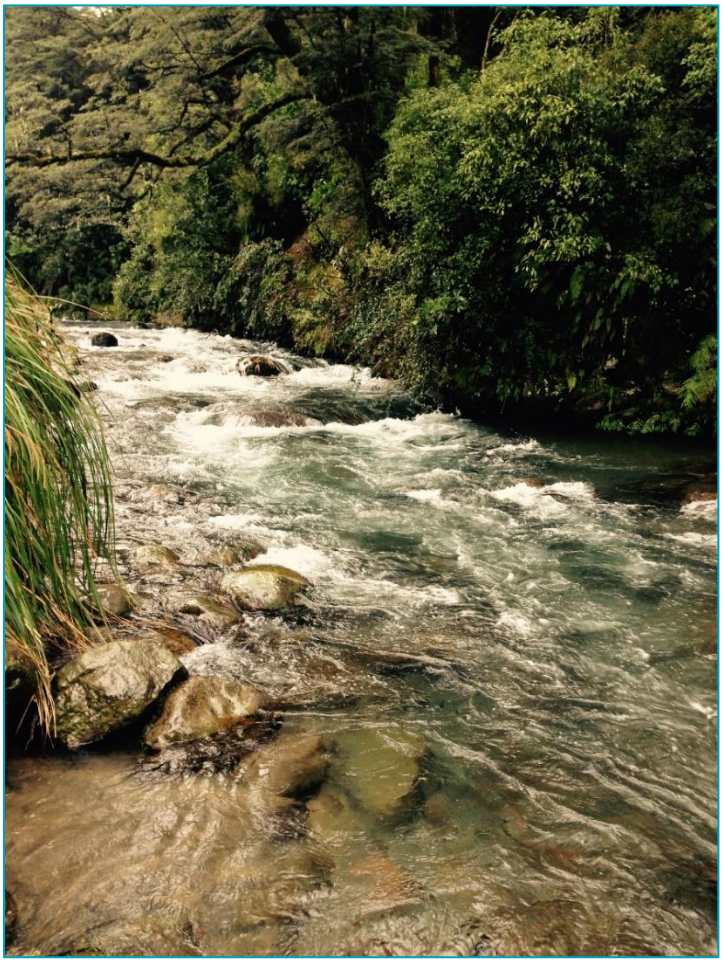
The issues of water security and the health of the Tukituki River, its tributaries and its people are becoming more urgent given the effects of recent droughts and the impact of climate change in the area. This issue that is also significant for hapu along the length of the river and for residents in the wider Central Hawke's Bay community. Water security is the greatest obstacle and opportunity to addressing the environmental social and economic challenges our community is facing. Our objection to granting these water permits is firmly based on ensuring that all future environmental, business and social aspirations of our community can be met in a sustainable and environmentally focused way.

Council believes that these water permits for extraction of Tranche 2 groundwater should not be approved until the results of SkyTEM and the MAR are available and confirmed to avoid creating potential adverse effects on our rural townships, industries and communities.

Yours sincerely

Alex Walker
**Mayor**

Monique Davidson
**Chief Executive**



# Choose Clean Water community-powered submission on Applications for Resource Consents – Groundwater Takes (Ruataniwha Basin - Tranche 2)

TO HAWKE'S BAY REGIONAL COUNCIL

17 December 2021

CHOOSE CLEAN WATER

Choose Clean Water

[redacted]

## 1. EXECUTIVE SUMMARY

1.1 Choose Clean Water welcomes the opportunity to make a submission on *'Applications for Resource Consents – Groundwater Takes (Ruataniwha Basin - Tranche 2)'.*

1.2 This community-powered submission seeks the application to be **declined.**

1.3 Along with Choose Clean Water, 811 supporters have joined this submission seeking the applications to be declined.

1.4 Of these 812 people, 149 have identified as being from the Hawke's Bay.

1.5 The names of the individuals who have joined this submission are attached to the end of this submission.

1.6 A representative of Choose Clean Water wishes to be heard in support of this submission.

## 2. CHOOSE CLEAN WATER

2.1 Choose Clean Water is a student-established and volunteer run freshwater campaign started in 2015 and aimed at improving New Zealand's freshwater policy and management in order to protect and restore the health of waterways for people and nature.

2.2 Choose Clean Water has advised government on freshwater policy since 2018.

## 3. SIGNATORIES

3.1 Supporters of Choose Clean Water and ActionStation elected to join this submission via an online form.

3.2 This can be accessed here: https://our.actionstation.org.nz/petitions/protect-hawke-s-bay-rivers

## 4. SUBMISSION

**4.1 We seek that these applications are declined.**

4.2 We have significant concerns about the issuing of consents to take groundwater from the 'tranche 2' allocation of the Hawke's Bay Regional Resource Management Plan (RRMP). We are worried that issuing these resource consent in an area of Aotearoa where rivers, streams, lakes, and wetlands are already under significant stress could effectively destroy these ecosystems. And we are concerned that this will undermine the aspirations many New Zealanders (and Hawke's Bay residents) have for freshwater, including for future generations.

4.3 We also believe the issuing of these consents would be contradictory to the legislation, policies, and plans guiding the management of freshwater and the environment in Aotearoa and Hawke's Bay.

4.4 In particular, the Resource Management Act (RMA) and National Policy Statement for Freshwater Management 2020 (NPSFM) set out direction for the environment and freshwater. For example, the core principle of the RMA is to "promote the sustainable management of natural and physical resources", which 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 while—
>
> a. sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
> b. safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
> c. avoiding, remedying, or mitigating any adverse effects of activities on the environment.

4.5 And the NPSFM sets out an objective for freshwater that is based in the concept of Te Mana o te Wai – the idea that the health and wellbeing of freshwater and its ecosystems must be put first in all decisions relating to freshwater.

4.6 The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:

a. first, the health and well-being of water bodies and freshwater ecosystems
b. second, the health needs of people (such as drinking water)
c. third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

4.7 The policies of the NPSFM speak to these obligations —e.g. to give effect to Te mana o te Wai (Policy 1), to phase out over allocation and avoid future over-allocation (Policy 11), and to manage freshwater as part of New Zealand's integrated response to climate change.

4.8 We do not think that these resource consents, the 'augmentation' that supposedly mitigates them, or the land uses that will be associated with them are consistent with Te Mana o te Wai obligations and principles, or the aspirations New Zealanders have for freshwater.

4.9 Some of the potential effects of the proposed groundwater takes are summarised in a letter Paul Barrett, Team Leader Consents at HBRC, recently wrote regarding the proposed tranche 2 groundwater takes:

> … There remains significant uncertainty over the scale of residual adverse effects resulting from Tranche 2 abstraction. We have concerns over the potential scale of adverse effects on wetlands, streams and wells across the Basin, but particularly in areas where there is already significant Tranche 1 abstraction occurring. We also still have concerns about how the Tranche 2 proposal will work in extreme years (worse than a 1 in 10 year event) and the scale of effects in these years when augmentation may not be able to continue. Furthermore, we have concerns over the impacts on water quality from farm system changes as a result of irrigation and note that a number of the properties are located in catchments where the instream nitrogen target is already significantly exceeded. Land use consent is already required for these properties and would not likely be granted to allow for any increase in nitrogen loss. We note that for dairy farms wishing to expand irrigation, land use and discharge consents are required under the NES FW and that a consent cannot be granted unless they are able to demonstrate that expansion will not lead to any increase in load or concentrations of contaminants in the catchment. [1]

[1] https://www.hbrc.govt.nz/assets/Document-Library/Consents/Notified-Consents/Groundwater-Takes-Ruataniwha-Basin-Tranche-2/HBRC-Technical-Reviews/T2-update-and-questions.pdf

4.10 We are also worried about the potential effect of the water takes on other values of groundwater, such as:

a. Physical habitat, including for microbes, archaea, biofilms, and stygofauna—whose functions include degrading contaminants and enhancing groundwater quality.
b. Water purification and disease control
c. Genetic resources (e.g., enzymes and compounds which might be useful for medical applications)
d. Buffering of floods and droughts
e. Social values (e.g., reliance on groundwater as an essential component of everyday life for many communities)
f. Indigenous cultural values
g. Spiritual values
h. Nutrient cycling
i. Biodiversity conservation (e.g., of genotypes and species)
j. Bequest values (the ability to pass on a system of all values to future generations, whakapapa, kaitiakitanga, whanau ora, wairuatanga, etc.

4.11 We are also worried about what the impact of the proposed activity will be with the impacts of climate change, which is predicted to have a significant drying effect in Hawke's Bay, and could result in reduced levels of aquifer recharge (and 'mining' of the water in the aquifer).

4.12 We are confident that there are better ways to develop health and resilience for the region, and its industries, in the face of climate change. This requires industries to work within environmental health limits (ecosystem health limits) and, given our current trajectory, actively restore the natural environment as part of a shared catchment plan. Climate change is, in essence, driven by over exploitation of the natural environment and its ongoing degradation. We find that it is not logical to increase exploitation and drive degradation with our activities in order to respond to a problem of over exploitation and environmental degradation.

4.13 Thank you for the opportunity to submit on this consent.

## 5. SIGNATORIES

Marnie Prickett, Choose Clean Water representative.

### Hawke's Bay signatories

| First Name | Last Name | Postcode |
|---|---|---|
| Heather | Scherger | 4102 |
| Mick | Evans | 4180 |
| M | Scotting | 4180 |
| Ripeka | Kireka | 4102 |
| Te akonga | Keefe | 4210 |
| Tanja | Baker | 4102 |
| Lars | Baker | 4102 |
| Mark | Corkran | 4282 |
| sharleen | baird | 4282 |
| John | Wilson | 4102 |
| Adrienne | Tully | 4120 |
| Paul | Bailey | 4110 |
| Patrick | Greene | 4102 |
| Valerie | Norton | 4110 |
| Nazarene | Rihari | 6011 |
| Catherine | Blomkamp | 4110 |
| Roger | Whenuaroa | 4110 |
| Jan | Henare | 4110 |
| Marni | Macdonald | 626 |
| Susan | Halliday | 4112 |
| Marama | Tareha TeHata | 4181 |
| Shirley | Hawkes | 618 |
| Christine | Hayvice | 4112 |
| Charlotte | Wheeler | 6011 |
| Hone | Te Rire | 3800 |
| LINDA | HAWKINS | 4018 |
| Raymond | McHalick | 4110 |
| Carole | Brown | 4112 |
| John | Lane | 4112 |

| | | |
|---|---|---|
| Joseph | Wuts | 4112 |
| Miriama | Gemmell | 5032 |
| Jeanine | Albert | 4110 |
| James | Matenga | 4110 |
| Romilly | Brickell | 4120 |
| Leonie | Caskey-Hatton | 4112 |
| T | Paku | 4108 |
| Marilyn | Scott | 4120 |
| miriama | hutana | 4110 |
| V | Jeffery | 4122 |
| Jenny | Smith | 4112 |
| Warrick | Tutt | 4112 |
| Rob | Kemp | 4110 |
| Angie | Denby | 4110 |
| Collin | Littlewood | 4102 |
| Pauline | Elliott | 4130 |
| David | Birkett | 3110 |
| Freedom | Karaitiana | 4112 |
| Jill | Webster | 4120 |
| Kiara | Pritchard | 0 |
| Nicky | Gilkison | 9430 |
| Kate | O'Malley | 2585 |
| Peter | Hayden | 9014 |
| Natasha | McLean | 5032 |
| Paul | Green | 4294 |
| Jimmy | Holland | 4195 |
| Travers Rihimona | Taylor | 4110 |
| Christine | Kinder | 4110 |
| Mark | Goodman | 4112 |
| Christine | Hauenstein | 4178 |
| Graeme | Neal | 3591 |
| Susan | John | 4110 |
| Kate | Hooper | 4110 |
| Jeremy | Dunningham | 4110 |
| Murray | Olsen | 4108 |
| Damien | Gouder | 4110 |
| Margaret | Morice | 4244 |

| | | |
|---|---|---|
| Karen | Blundell | 4110 |
| Clint | Deckard | 4286 |
| Rachel | Lockwood | 6021 |
| maureen | powell | 4110 |
| Louise | Beaumont | 4295 |
| Jared | Oliver | 9018 |
| Virginia | Rice | 4112 |
| John | Ruth | 4120 |
| Jenny | Baker | 4110 |
| Jacob | Scott | 4102 |
| Karel | Kemplay | 4110 |
| Alison | Rogers | 4183 |
| Greg | Walker | 9016 |
| Rozelle | Pharazyn | 5032 |
| Juliette | McHardy | 4130 |
| stuart | houghton | 4120 |
| Christine | Leslie | 4210 |
| Carl | McNeil | 4072 |
| Melanie | Spooner | 4110 |
| Robin | Horder | 4277 |
| Sam | Gibbins | 4112 |
| Hoani | McGregor | 5014 |
| David | Gerbault | 4112 |
| Syd | King | 4110 |
| Cheri | Jackson | 4110 |
| Bridget | Sutherland | 4182 |
| Tae | Richardson | 4172 |
| Justine | Wattam | 4112 |
| Maree | Martinussen | 0 |
| Geraldine | Travers | 4120 |
| David and Sheryl | Tapp | 604 |
| Lorraine | Solomon | 4196 |
| Dominique | Pene | 4201 |
| Ash | Muston | 9011 |
| Marcia | Tuohy | 4130 |
| Carol | Elliott | 4102 |
| Bryn | Jones | 4172 |
| Lyn | Budd | 4172 |

| | | |
|---|---|---|
| William | Ison | 4120 |
| Julie | Smith | 4102 |
| Evelyn | Shipp | 4110 |
| Therese | Dangen | 4183 |
| Maria | Roberts | 4110 |
| Catherine | Robertson | 4180 |
| David | Kay | 4182 |
| Kezia-Joy | Whakamoe | 4183 |
| Isaac | Pharazyn | 4273 |
| Margaret | Gwynn | 4110 |
| Suzanne | King | 4110 |
| SIMONE | TANG | 4110 |
| Sheena | Simpson | 4112 |
| Marama | Te Kowhai | 4110 |
| Nicki | Harper | 4210 |
| Clare | P | 4110 |
| Jo | Hooper | 4110 |
| James | McNally | 4110 |
| Brian | Davies | 8081 |
| Lesley | Parris | 4182 |
| Ken | Hutchison | 4122 |
| Penelope | Isherwood | 4112 |
| Emily | Irwin | 4172 |
| Maria | Barratt | 4112 |
| Anthony | Johnson | 4175 |
| Richard | Hooper | 4110 |
| Hira | Huata | 4175 |
| Vicky | White | 4108 |
| Hayley | Lawrence | 4112 |
| Donny | Smith | 4108 |
| Brendan | Nikolaison | 4112 |
| John | Carver | 4112 |
| Clive | Donnison | 7173 |
| Charlotte | Setter | 4272 |
| Patricia | Iversen | 4172 |
| Kathryn | Bayliss | 4281 |
| Emma | Kay | 4112 |
| Sara | Neville | 4112 |

| | | |
|---|---|---|
| Brooke | Pearson | 4110 |
| Sue | Kay | 4112 |
| Lana | Davies | 4122 |
| Jane | Kortink | 4112 |
| Joy | Shaw | 4112 |
| Laura | Jackson | 4110 |
| jody | stent | 4102 |
| Simon | Kay | 1024 |

## Wider Aotearoa Community

Please note that some postcodes indicate that they are New Zealanders living overseas who are concerned at what is happening at home.

| first_name | last_name | postcode |
|---|---|---|
| Michael | Birch | 5889 |
| Anna | Henderson | 7805 |
| Margaret | Pearl | 7007 |
| Lindsay | Zelf | 7007 |
| Whareraahi | Hamiora | 3214 |
| Kevin | Moran | 7871 |
| Meredith | Davis | 4472 |
| Kate | Loman-Smith | 3129 |
| Keith | Symonds | 4102 |
| Valerie | Morse | 6022 |
| James | Muir | 3592 |
| Kat | Thorstrand Mitchell | 5032 |
| Catarina | Branzell | 0 |
| Natasha | Protheroe | 4130 |
| cushla | barfoot | 627 |
| Inez | Kolff | 7196 |
| Mike | Cronshaw | 5711 |
| Margaret | Jeune | 6021 |
| Ralph | Loughrey | 7196 |
| Michael | Robinson | 8061 |
| Chenel | Bateman | 3494 |
| Erin | O'Loan | 7804 |
| Ivan | Johnstone | 9018 |

| | | |
|---|---|---|
| Fleur | Hardman | 5810 |
| Robyn | Jones | 110 |
| Ruth | Irwin | 1003 |
| Annie | Murrell | 7010 |
| John | Elliott | 3200 |
| David | Haywood | 7682 |
| Reinhold | Reinhold Jung | Kawaha Point |
| Kahurangi | Hippolite | 7011 |
| Virginia | MacEwan | 4110 |
| Margaret | Basil-Jones | 8024 |
| Jamie | Larnach | 1026 |
| Rebecca | Pearce | 6011 |
| Stephanie | Williams | 8025 |
| Theresa | Williams | 875 |
| Mari | Schuster | 8081 |
| robert | mora | 627 |
| Lesley | Hurley | 76 |
| Lindsay | Christopherson | 5034 |
| shelley | bignell | 5011 |
| Ally | Burt | 1022 |
| Sarah | Couper | 9022 |
| Shailesh | Patel | 7612 |
| Stephen | Conway | 5026 |
| June | Hoddle | 5022 |
| Desiree | Russell | 882 |
| David | Stone | 986 |
| Sue | Edmonds | 3286 |
| Marie | Heffernan | 6022 |
| Brent | Falaniko | 5036 |
| Eliot | Pryor | 891 |
| Heather | Denny | 1051 |
| Peter | Woolley | 7471 |
| Conny | Seiler | 5013 |
| Sue | Kumeroa | 4501 |
| Margaret-Ann | McKeown | 7010 |
| Lynette | Attewell | 8053 |
| Argenia | Parkinson | 8083 |

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|---|---|---|
| Hans | Koch | 4184 |
| Penny | Mackay | 7010 |
| warren | thomson | 8022 |
| Miriam | Clark | 3373 |
| Pauline | Taylor | 8042 |
| Sally | Phillips | 4310 |
| Geoff | Wane | 5012 |
| Michele | Wheeler | 632 |
| Brenda | Ives | 9510 |
| Jill | Stone | 986 |
| Nicola | Easthope | 5032 |
| Carol | Sumner | 182 |
| Dom | G | 6012 |
| Richard | Geismar | 5032 |
| Corwin | Khoe | 0 |
| Gene | Ward | 7614 |
| Colleen | Dawber | 1024 |
| Andrew | Hewson | 8052 |
| Leith | Duncan | 1840 |
| Annie | Hill | 202 |
| Jan | Lorier | 600 |
| Barbara | Sandeman | 602 |
| Tom | O'Regan | 5515 |
| Catherine | Haumaha | 3481 |
| Neil | Ward | 4412 |
| Toni | St.Clair | 9305 |
| Chris | Morey | 3510 |
| Wayne | Lutton | 6023 |
| Michelle | Sternberg | 6022 |
| Belinda | Yeates | 6021 |
| Laura | Wright | 3180 |
| Helen | McLagan | 9012 |
| Katherine | Wharton | 6037 |
| Mike | McGlynn | 295 |
| Krista | Chemis | 3096 |
| Hilda | Daw | 5032 |
| Ken | Howell | 6037 |
| Patricia | Wood | 7984 |

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|---|---|---|
| Kyle | Matthews | 9010 |
| Natalie | Blasco | 96007 |
| Demelza | Campbell | 9013 |
| James | Hilford | 112 |
| Pam | Parsons | 930 |
| Violet | Oakley | 5032 |
| HELEN | MADDOX | 5012 |
| Murray | Wilson | 3948 |
| Margaret | Kuen | 3015 |
| sam | brines | 618 |
| Annie | Davis | 602 |
| david | Minifie | 8053 |
| Aaron | Bell | Featherston |
| ANNE | SMITH | 7011 |
| Bob | Purvis | 9371 |
| Oliver | Krollmann | 118 |
| Joan | Smith | 5710 |
| Joanne | Baynes | 8042 |
| Stasha | Gillis | 9010 |
| Bronwen | Christianos | 9300 |
| Suzanne | Marienau | 0 |
| Sandra Helen Turanga-Awatea | Marino | 3720 |
| Greg | Dodds | 8001 |
| Maire | Leadbeater | 1025 |
| Jacqui | Tyrrell | 610 |
| Neil | Mander | 1041 |
| Joe | Ruther | 5140 |
| Linda | Hodson | 1971 |
| Roby | Besly | 4310 |
| Valda | Kirkwood | 5713 |
| Lisa | Sturm | 8013 |
| Chris | Graham | 600 |
| Anna | Schimmel | 1022 |
| Joan | Skurr | 7010 |
| Matthew | Sole | 9393 |
| Daniel | OConnell | 6023 |
| John | Ridgway | 1072 |

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|---|---|---|
| Neil | Stevenson | 604 |
| Lee | Elliott | 1350 |
| Andrew | DuFresne | 2695 |
| Peter | Watson | 4500 |
| Francesca | Zhang | 8041 |
| Missy | Paul | 4010 |
| Tanya | Knighton | 600 |
| Julianne | Leggott | 6012 |
| Alison | Hedges | 4575 |
| Dee | Barron | 1071 |
| Shane | Loader | 9598 |
| Judith | Dalley | 1081 |
| Megan | Nicol Reed | 1022 |
| Su | Leslie | 632 |
| AngÃ©lique | Richards | 602 |
| Natalie | Farell | 6011 |
| Robyn | McCrory | 2120 |
| Jane-Maree | Howard | 9023 |
| ANN | MCGLINN | 1541 |
| Conor | Twyford | 5026 |
| Crispin | Balfour | 1022 |
| Craig | Hines | 614 |
| Peter | Deacon | 5018 |
| Louise | Harris | 8081 |
| Gail | Bunckenburg | 6021 |
| Linda | Nicolson | 8062 |
| Claire | Mason | 6037 |
| Kim | Veenings | 8022 |
| Phoebe | Davis | 210 |
| Dave | Scott | 5022 |
| Richard | Barclay | 627 |
| Jaguar | Kukulcan | 420 |
| Linda | Hill | 5032 |
| Melanie | Khan | 614 |
| Margot | Nicolau | 9016 |
| Eliana | Herrera | 3434 |
| Tineke | Witteman | 8061 |
| Aroha | Ngatai | 9010 |

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|---|---|---|
| Stephen | Black | 9014 |
| Kevin | Toomey | 0 |
| Jennifer | Lawrence | 4610 |
| Dorothy | Austin | 1050 |
| Bassam | Imam | H3H 2N4 |
| Lorraine | Clarke | 3200 |
| Phil | Buckley | 2010 |
| Barbara | Lemm | 9012 |
| Nikki | Peterson | 6022 |
| Margaret | McKee | 8041 |
| Rebecca | Parke | 5012 |
| sapphire | Cook | 614 |
| Dorothy | Dalziell | 612 |
| Stephen | Newnham | 1041 |
| Anne | Priestley | 1050 |
| Rachel | Snoep | 4414 |
| Linda | Smalley | 8024 |
| Willem | Aalderink | 2110 |
| Gareth | Rego | 0 |
| Robert | Gilkison | 9430 |
| Jody | Lilburn | 118 |
| Maria | Noering | 7383 |
| Ani | Mikaere | 3581 |
| Judith | Holt | 2014 |
| Mel | Maynard | 5711 |
| Tony | Chad | 5371 |
| Peter | Kawana | 632 |
| Mark | Hollinrake | 0 |
| Beth | Elliot | 1052 |
| Marion | Grant | 6037 |
| greg | burke | 9 |
| Pamela | Rush | 7020 |
| Wendy | Cave | 7175 |
| Barbara | Vercoe | 7025 |
| Merete | Hipp | 4414 |
| Dominique | Davaux-Guthrie | 7924 |
| Fiona | McKergow | 4472 |
| Keith | Armstrong | 1022 |

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|---|---|---|
| Bruce | Trask | 3112 |
| Geoff | Wise | 3210 |
| Warren | Snow | 626 |
| Shane | Mills | 7011 |
| Kevin | Brunton | 1026 |
| Asta | Wistrand | 481 |
| Chip | Felton | 7173 |
| Timothy | Musson | 8023 |
| Tom | Watkins | 7005 |
| Jill | Spicer | 4410 |
| Mere | Lepa | 171 |
| Jim | Takahashi | 8051 |
| Louise | Mclean | 8024 |
| Carl | Lashbrook | 1025 |
| Yvonne | Furniss | 4164 |
| Julie | Jane | 7010 |
| Jeremy | Anderson | 8011 |
| Briar | Cammock | 8024 |
| Fenella | Probert | 482 |
| Fred | Albert | 6011 |
| Alison | Loughrey | 9013 |
| Anne | Midwinter | 4410 |
| Rachel | Moss | 179 |
| John | Bach | 6037 |
| Cath | White | 5510 |
| Lyn | Gallagher | 8022 |
| Karen | Matata | 2024 |
| Gordon | McCrone | 1010 |
| Zenia | Dunkley | 624 |
| Brendan | Moore | 3010 |
| Andy | Bowman | 600 |
| Rosemary | White | 0 |
| Guy | Dubuis | 6011 |
| Louise | Wija | 4108 |
| Laura | Sarsfield | 1021 |
| Alistair | Robinson | 975 |
| Monica | Conlon | 3214 |
| Terry | Stanbridge | 7197 |

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|---|---|---|
| Bridget | Robinson | 616 |
| Elspeth | Abdine | 1345 |
| Christopher | Brockwell | 0000DA53AG |
| Hilde | Krollmann | 118 |
| Jazmine | Bell | 4410 |
| Marion | Borrell | 9371 |
| Alaric | Ohlson | 3283 |
| Jen | Olsen | 9014 |
| Pamela | McLachlan | 7220 |
| Fiona | Rickards | 881 |
| Annette | Hamblett | 8014 |
| David | Shannon | 9035 |
| Tim | Barber | 6035 |
| Susie | Hall | 6021 |
| Jan | Morganti | 7183 |
| susan | washington | 1081 |
| Sherryn | Arthur | 5026 |
| Philip | Creed | 8023 |
| Adrienne | Dunlop | 1051 |
| Isasbel | Jenkins | 632 |
| John | Ward | 7010 |
| Bronwen | Beechey | 1062 |
| leeanne | tawhara | 3127 |
| Paul | Kane | 6022 |
| Hamish | Weir | 3920 |
| Jo | Spence | 9024 |
| Jill | Smith | 9023 |
| Tom | Gledhill | 7883 |
| Win | Oliver | 5026 |
| Susan | Gill | 7602 |
| christine | musgrave | 7081 |
| Kirsty | Chalmers | 7201 |
| Leleisha | Buchanan | 4198 |
| jason | brooke | 1021 |
| Melissa | Potter | 7010 |
| Peter | Mechen | 6011 |
| Larissa | Cleave | 1024 |

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|---|---|---|
| Robyn | Bailey | 5032 |
| Glenn | Rees | 627 |
| ROB | CROMARTY | 7201 |
| Carolyn | Tristram | 5032 |
| Peter | Stuart | 5013 |
| Garland | Simpson | 1021 |
| Warwick | Slinn | 4410 |
| Joanne | Woon | 1071 |
| Deb | Lee | 1022 |
| Karen | Nistor | 4471 |
| Susan | Pearce | 6035 |
| Mary | Foley | 483 |
| Richard | Rockell | 3610 |
| sian | Bach | 8024 |
| Virginia | Ward | 7010 |
| Laura | Furneaux | 8022 |
| Karen | Cleary | 1072 |
| L | Fleming | 7772 |
| Tracy | Phua | 3204 |
| Michelle | Deacon | 2110 |
| kit | withers | 6012 |
| Sue | McClure | 5032 |
| Lynn | Suckling | 8022 |
| Mike | Johnson | 4685 |
| Jane | Stark | 9013 |
| Jennifer | Ward | 1011 |
| Greg | Bell | 3074 |
| Cor | Vink | 8024 |
| Shaun | Lee | 1072 |
| Trudi | Barker | 604 |
| Bob | Calkin | 5302 |
| Mariana | Watson | 8062 |
| Alan | York | 7011 |
| Laura | Foy | 4412 |
| Brent | Barrett | 4410 |
| Kevin | Beardsmore | 7917 |
| Suzanne | Menzies-Culling | 9012 |
| jennifer | hand | 1024 |

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|---|---|---|
| kaos | Smith | 3120 |
| Kathy | Barnes | 3620 |
| Helena | Jordan | 200 |
| Meg | Evans | 9091 |
| Elizabeth | Sajewicz | 0 |
| Rita | Hunt | 5026 |
| Tim | Jones | 6011 |
| Stephen | Carswell | 7520 |
| Hetty | Vink | 5010 |
| Jane | Chapman | 6012 |
| Katrina | Menara | 801 |
| pdr | lindsay-salmon | 9400 |
| Ann | Charlotte | 9510 |
| Lauraine | Parkinson | 4330 |
| John | Phillpotts | 8024 |
| Alie | Henderson | 3114 |
| Barbara | Hay | 5019 |
| Arconnehi | Paipper | 4161 |
| Bernard | Hall | 1021 |
| Mary | Mckeown | 7010 |
| Bruce | Crawford | 179 |
| Julie | Girvan | 112 |
| Huw | Parslow | 6021 |
| Shaun | A | 7010 |
| Ani | Mitcalfe | 6012 |
| Brian | Habberfield | 3682 |
| Steph | Hirst | 5573 |
| Wayne | Green | 6011 |
| Elisabeth | Nairn | 1041 |
| Martin | Coetzee | 1072 |
| tom | Fulton | 6022 |
| Lou | Ocallaghan | 9710 |
| Amanda | Brien | 1042 |
| Sharyn | Barclay | 8041 |
| Donna | Peacock | 9018 |
| Frances | Tennent-Brown | 8022 |
| Helen | Cholmondeley | 7930 |
| Paula | Robb | 3015 |

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|---|---|---|
| Joanne | Brydon | 7011 |
| Karen | Smillie | 3110 |
| Frances | Edmond | 1081 |
| L | Finn | 614 |
| Pikihuia@gmail.com | Pikihuia@gmail.com | 6012 |
| Jane | Penton | 3330 |
| Jane | O'Shea | 6012 |
| Peter | McQuarrie | 614 |
| Nigel | Prickett | 627 |
| Roma | Wynyard | 7201 |
| Bronwen | Le Grice | 8081 |
| Brenda | Hinton | 604 |
| Tania | Martin | 6022 |
| Elise | Jenkin | 7120 |
| Ollie | Yeoman | 9320 |
| Suzanne | Laird | 3112 |
| Ã□ine | Kelly-Costello | 0 |
| Rod | Sandle | 6011 |
| Scott | Walters | 7671 |
| Marina | Julian | 2120 |
| Eliana | Darroch | 2024 |
| Helen | Jermyn | 1021 |
| Bronwyn | Wood | 6011 |
| charles | drace | 8013 |
| Kent | Napier | 3204 |
| Elvira | Dommisse | 8024 |
| Alan | Budden | 1010 |
| tim | Oaks | 6037 |
| Heather | Machin | 9400 |
| Anya | Wood | 6012 |
| Matthew | Baird | 8042 |
| Sereena | Burton | 3540 |
| Stephanie | Stoessel | 604 |
| Vicki | Shaw | 444610 |
| Pam | Hellier | 112 |
| Kamini | Edie | 8025 |
| Catherine | OSullivan | 1011 |
| Frances | Bell | 622 |

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|---|---|---|
| Patrick | OFlaherty | 1081 |
| Steve | Cook | 626 |
| john and | turner | 8081 |
| Ellieda | Komene | 4414 |
| Pamela | Stainton | 6035 |
| Jonathan | Rivers | 612 |
| Lauren | Ferriss | 1041 |
| Mercy | Williams | 1022 |
| Celia | Grigg | 8023 |
| Kay | Neich | 5010 |
| Janys | Harrison | 7674 |
| Christopher | Burman | 1026 |
| Chris-Tian | RA | 6037 |
| Joan | Ward | 0 |
| Fay | Brorens | 8061 |
| Graeme | Bagnall | 3158 |
| Sandra | Clarke | 4320 |
| Marian | Hussenbux | 0 |
| Catherine | Wishart | 610 |
| TERRI | WALSH | 112 |
| Tejomani | Earl | 4500 |
| Linda | Redwood | 932 |
| Sue | Temple | 8052 |
| Claire. | Ohle | 2585 |
| Ellen | Schindler | 1025 |
| Christine | Olsen | 920 |
| Shirley | Swan | B14 7SR |
| Melanie | Grant | 0 |
| Glenn | McKenzie | 9810 |
| Frances | Mackiewicz | 8722 |
| Peter | Care y | 8052 |
| Stefan | Hadfield | 3216 |
| jessamine | Fraser | 602 |
| nadjet | zaidi | 0 |
| Chas | Burgess | 642 |
| June | Wilson | M9B 6C3 |
| carol | archie | 3179 |
| Margaret | Rahui | 1025 |

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|---|---|---|
| margo | wyse | 0 |
| Malcolm | Thompson | 0 |
| Sara | Smith | 4520 |
| Jun | Bouterey-Ishido | 8025 |
| Fiona | James | 9016 |
| luke | stopford | 602 |
| Jane | Pierard | 4112 |
| Stefan | Sharpe | 272 |
| Barry | Ellis | 3674 |
| Jacqui | Fraser | 7011 |
| Aimee | Packer | 975 |
| Erin | Dalziel | 4920 |
| Margaret | Sullivan | 3793 |
| Dale | Wright | 5019 |
| Georgina | Rout | 7475 |
| Maggie | Muir | 7010 |
| Robyn | du Chateau | 5032 |
| Catherine | Bircher | 2471 |
| Shirley | Vollweiler | 6012 |
| Helen | Flight | 374 |
| John | Howell | 6035 |
| Liz | Martin | 6035 |
| NICKY | OWERS | 5010 |
| Ursula | Ryam | 8022 |
| Roger & Bev | Alchin | 110 |
| Ottilie | Stolte | 3214 |
| Jackie | Davy | 620 |
| Juliet | Adams | 8082 |
| Bryan | Gould | 3198 |
| Gerald | Oliver | 8013 |
| Rob | Morton | 1971 |
| Warrick | Mason | 8022 |
| Myriam | Monfort | 69300 |
| Robert | Dew | 3010 |
| Andrea | Broatch | 3110 |
| Tammy | Eaton | 9305 |
| Marion | Hamilton | 4702 |
| Ken | Haydock | 602 |

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|---|---|---|
| Douglas | Doug | 3176 |
| Andrew | Buchanan | 5018 |
| Karen | Harcombe | 985 |
| Della | Rees | 8023 |
| Michael | Delceg | 7182 |
| Steve | Bradford | 6023 |
| DOREEN | D'CRUZ | 4410 |
| Priscilla | Luke | 4678 |
| Nick | Benfell | 7612 |
| Jess | Balding | 295 |
| Shona | Stronach | 8022 |
| John | Potter | 622 |
| Sue | Walker | 7120 |
| Dan | Benson-Guiu | 9011 |
| Warren | Lindberg | 616 |
| Karen | Wealleans | 3120 |
| Prue | Cruickshank | 600 |
| Kym | Eagleson | 3010 |
| Kate | Hodgetts | 6023 |
| Ella | Newman | 3204 |
| sally | Naumann | 632 |
| Karen | McLean | 9012 |
| Margaret | Browne | 975 |
| Jackie | du Toit | 624 |
| Dorothy | Gaunt | 3432 |
| Geoff | Prickett | 5391 |
| Nick | Stanley | 772 |
| Mandy | Hager | 5032 |
| Lynda | Lowery | 7011 |
| Nora | Shayeb | 173 |
| Margaret | Button | 808 |
| Graham | Edge | 600 |
| Charlie | Poihipi | 3216 |
| Tyler | Hall | 5022 |
| alan | quartermain | 4702 |
| Paddy | Gilgenberg | 8022 |
| Kate | McGee | 3500 |
| Jon | field | 6023 |

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|---|---|---|
| Lindsey | Britton | 2585 |
| Bernard | Hornfeck | 3010 |
| John | Logan | 3129 |
| Brenda | Preece | 7011 |
| tony | ricketts | 6023 |
| abigael | alexander | 1021 |
| Owen | McCarthy | 1022 |
| Celine | Kearney | 3432 |
| Jan | Walker | 8025 |
| Peter | Beaver | 1026 |
| John | Wilcox | 2571 |
| Anna | Rogers | 6023 |
| Raine | Shirley | 1061 |
| william | jobson | 5024 |
| Vincent | Rowe | 602 |
| Barbara | Meier | 8013 |
| Dr. Debbie | Hager | 604 |
| Gail | Marmont | 4410 |
| Natasha | Naus | 6023 |
| Hannah | Rainforth | 3330 |
| Clare | Moleta | 6021 |
| Jane | Landman | 3216 |
| Dawn | Lodge-Osborn | 600 |
| Marj | Marks | 4625 |
| Gordon | Spence | 8042 |
| Christine | Jorgensen | 3873 |
| Linden | Wilde | 950 |
| Jane | Severn | 7672 |
| Franca | Morani | 7183 |
| Diane | Logan | 3129 |
| Mike | Currie | 8083 |
| maddy | schafer | 6037 |
| Sharon | McGaffin | 626 |
| Philip | Twigge | 4920 |
| Katherine | Lawrence | 3116 |
| Errol | Wright | 6020 |
| Jurgen | Mostert | 8061 |
| Whayne | Padden | 0 |

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|---|---|---|
| Sharon | Jones | 9010 |
| Sue | Cowie | 2582 |
| Charlotte | Jamieson | 8025 |
| Debbie | Woolrich | 3173 |
| Colleen | Ireland | 5713 |
| Ron | Colman | 4312 |
| Kerry | Sutton | 3121 |
| Lloyd | Chapman | 5512 |
| Joelle | Corbett | 0 |
| Frances | Bell | 0 |
| Jake | Dale | 7612 |
| Rebecca | Skinner | 9300 |
| Peter | Robin | 4172 |
| Rhys | Cornor | 310 |
| Joanna | Hurst | 1021 |
| Peter | Elsbury | 473 |
| Sheila | Broderick | 9220 |
| Alan | Brennock | 8025 |
| Jennifer | Howarth | 1026 |
| Isobel | McKinnon | 7910 |
| Malcolm | Yeates | 2166 |
| Laura | Vasquez | 6023 |
| Renee | Dumas | 420 |
| Phyllis | Jackson | 3214 |
| Wendy | Travis | 2012 |
| S. | Cooksley | 6011 |
| peter | Hunt | 5028 |
| Bryan | Pulham | 614 |
| Keith | Lees | 5024 |
| Michael | Salmon | 8024 |
| Adrian | Kereszteny | 630 |
| Natalie | Van Leekwijck | 0 |
| Martin | Oliver | 2480 |
| Andrew | Carman | 6021 |
| Sally | Faisandier | 6011 |
| Helen | Moore | 1023 |
| Steve | Simighean | 1023 |
| Lynda | Delaney | 8082 |

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|---|---|---|
| John | Moore | 7010 |
| Cherie | Broome | 630 |
| Phil | Bilbrough | 6012 |
| James | Stephens | 600 |
| Kathy | Bartlett | 5792 |
| Gerald | Boot | 5011 |
| Alistair | Setter | 4276 |
| Donna | Gabites | 5010 |
| Mandy | McMullin | 1024 |
| klaus | pierstorff | 3500 |
| Nicki | Mechen | 7010 |
| Mary | Nixon | 6023 |
| Arantxa | FernÃ¡ndez | 604 |
| Paul | Bruce | 6021 |
| Margaret | McEwing | 8023 |
| Patricia | Robinson | 8025 |
| Beatrice | Pritchard | 604 |
| Lisa | Lawford | 630 |
| Rebekah | Kim | 6011 |
| Richard | Sheridan | 8011 |
| Jane | Ellingham | 1011 |
| ALison | LEWIS | 5019 |
| Jane | Duval-Smith | 9082 |
| Dale | Arrowsmith | 4112 |
| Jill | Daly | 7972 |
| Adam | Weller | 602 |
| Sarah | Latchem | 6021 |
| Jonas | Lamarche | 6012 |
| Lynley | De Roles | 4010 |
| Annette | Sachtleben | 626 |
| Annette | Baxendell | 8024 |
| Freda | Woisin | 4312 |
| Marie | Elliott | 604 |
| Katia | De Lu | 8042 |
| Christelle | Thomas | 6012 |
| Margy | Hoskins | 9023 |
| Tom | White | 6023 |
| Aly | Maggard | 8022 |

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| Charis | Whitaker | 8022 |
| Lisa | Leader | 630 |
| Marian | Steele | 7173 |
| Sarah | Oliver | 3210 |
| Malcolm | MacAvoy | 1071 |
| Eileen | Watson | 5010 |
| Elaine | Engman | 5036 |
| Erwin | van Asbeck | 1022 |
| Alejandra | Garcia | 1072 |
| Anne | Garrett | 602 |
| Emma | Gustafson | 3510 |
| Elizabeth | Baylis | 4500 |
| Kathryn | Prickett | 627 |
| Maggie | Kalabakas | 0 |
| Jenny | Campbell | 9747 |
| Stefan | Hadfield | 3216 |
| Oddvar | Vermedal | 0 |
| Jeltsje | Keizer | 6023 |
| Hollie | Purdy | 626 |
| Jean | Loomis | 4010 |
| Bernadette | Cornille | 626 |
| Kathy | Collins | 8022 |
| Rachael | Moore | 9383 |
| Zimena | Dormer-Didovich | 610 |
| Reon | Tiweka | 8083 |
| Carlo | Wiegand | 7010 |
| Mary | Wilson | 118 |
| Steve | Smith | 8022 |
| Tamsin | Keegan | 0 |
| Beth | Te Kiri | 4120 |
| Rosemary | Stokell | 6011 |
| Jean | McKinnon | 5013 |
| Heather | Scherger | 4102 |
| Mick | Evans | 4180 |
| M | Scotting | 4180 |
| Ripeka | Kireka | 4102 |
| Te akonga | Keefe | 4210 |
| Tanja | Baker | 4102 |

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|---|---|---|
| Lars | Baker | 4102 |
| Mark | Corkran | 4282 |
| sharleen | baird | 4282 |
| John | Wilson | 4102 |
| Adrienne | Tully | 4120 |
| Paul | Bailey | 4110 |
| Patrick | Greene | 4102 |
| Valerie | Norton | 4110 |
| Nazarene | Rihari | 6011 |
| Catherine | Blomkamp | 4110 |
| Roger | Whenuaroa | 4110 |
| Jan | Henare | 4110 |
| Marni | Macdonald | 626 |
| Susan | Halliday | 4112 |
| Marama | Tareha TeHata | 4181 |
| Shirley | Hawkes | 618 |
| Christine | Hayvice | 4112 |
| Charlotte | Wheeler | 6011 |
| Hone | Te Rire | 3800 |
| LINDA | HAWKINS | 4018 |
| Raymond | McHalick | 4110 |
| Carole | Brown | 4112 |
| John | Lane | 4112 |
| Joseph | Wuts | 4112 |
| Miriama | Gemmell | 5032 |
| Jeanine | Albert | 4110 |
| James | Matenga | 4110 |
| Romilly | Brickell | 4120 |
| Leonie | Caskey-Hatton | 4112 |
| T | Paku | 4108 |
| Marilyn | Scott | 4120 |
| miriama | hutana | 4110 |
| V | Jeffery | 4122 |
| Jenny | Smith | 4112 |
| Warrick | Tutt | 4112 |
| Rob | Kemp | 4110 |
| Angie | Denby | 4110 |
| Collin | Littlewood | 4102 |

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|---|---|---|
| Pauline | Elliott | 4130 |
| David | Birkett | 3110 |
| Freedom | Karaitiana | 4112 |
| Jill | Webster | 4120 |
| Kiara | Pritchard | 0 |
| Nicky | Gilkison | 9430 |
| Kate | O'Malley | 2585 |
| Peter | Hayden | 9014 |
| Natasha | McLean | 5032 |
| Paul | Green | 4294 |
| Jimmy | Holland | 4195 |
| Travers Rihimona | Taylor | 4110 |
| Christine | Kinder | 4110 |
| Mark | Goodman | 4112 |
| Christine | Hauenstein | 4178 |
| Graeme | Neal | 3591 |
| Susan | John | 4110 |
| Kate | Hooper | 4110 |
| Jeremy | Dunningham | 4110 |
| Murray | Olsen | 4108 |
| Damien | Gouder | 4110 |
| Margaret | Morice | 4244 |
| Karen | Blundell | 4110 |
| Clint | Deckard | 4286 |
| Rachel | Lockwood | 6021 |
| maureen | powell | 4110 |
| Louise | Beaumont | 4295 |
| Jared | Oliver | 9018 |
| Virginia | Rice | 4112 |
| John | Ruth | 4120 |
| Jenny | Baker | 4110 |
| Jacob | Scott | 4102 |
| Karel | Kemplay | 4110 |
| Alison | Rogers | 4183 |
| Greg | Walker | 9016 |
| Rozelle | Pharazyn | 5032 |
| Juliette | McHardy | 4130 |
| stuart | houghton | 4120 |

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| Christine | Leslie | 4210 |
| Carl | McNeil | 4072 |
| Melanie | Spooner | 4110 |
| Robin | Horder | 4277 |
| Sam | Gibbins | 4112 |
| Hoani | McGregor | 5014 |
| David | Gerbault | 4112 |
| Syd | King | 4110 |
| Cheri | Jackson | 4110 |
| Bridget | Sutherland | 4182 |
| Tae | Richardson | 4172 |
| Justine | Wattam | 4112 |
| Maree | Martinussen | 0 |
| Geraldine | Travers | 4120 |
| David and Sheryl | Tapp | 604 |
| Lorraine | Solomon | 4196 |
| Dominique | Pene | 4201 |
| Ash | Muston | 9011 |
| Marcia | Tuohy | 4130 |
| Carol | Elliott | 4102 |
| Bryn | Jones | 4172 |
| Lyn | Budd | 4172 |
| William | Ison | 4120 |
| Julie | Smith | 4102 |
| Evelyn | Shipp | 4110 |
| Therese | Dangen | 4183 |
| Maria | Roberts | 4110 |
| Catherine | Robertson | 4180 |
| David | Kay | 4182 |
| Kezia-Joy | Whakamoe | 4183 |
| Isaac | Pharazyn | 4273 |
| Margaret | Gwynn | 4110 |
| Suzanne | King | 4110 |
| SIMONE | TANG | 4110 |
| Sheena | Simpson | 4112 |
| Marama | Te Kowhai | 4110 |
| Nicki | Harper | 4210 |
| Clare | P | 4110 |

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| Jo | Hooper | 4110 |
| James | McNally | 4110 |
| Brian | Davies | 8081 |
| Lesley | Parris | 4182 |
| Ken | Hutchison | 4122 |
| Penelope | Isherwood | 4112 |
| Emily | Irwin | 4172 |
| Maria | Barratt | 4112 |
| Anthony | Johnson | 4175 |
| Richard | Hooper | 4110 |
| Hira | Huata | 4175 |
| Vicky | White | 4108 |
| Hayley | Lawrence | 4112 |
| Donny | Smith | 4108 |
| Brendan | Nikolaison | 4112 |
| John | Carver | 4112 |
| Clive | Donnison | 7173 |
| Charlotte | Setter | 4272 |
| Patricia | Iversen | 4172 |
| Kathryn | Bayliss | 4281 |
| Emma | Kay | 4112 |
| Sara | Neville | 4112 |
| Brooke | Pearson | 4110 |
| Sue | Kay | 4112 |
| Lana | Davies | 4122 |
| Jane | Kortink | 4112 |
| Joy | Shaw | 4112 |
| Laura | Jackson | 4110 |
| jody | stent | 4102 |
| Simon | Kay | 1024 |
| Ruby | Powell | 3584 |

# Submission on the Applications for Resource Consents – Groundwater Takes (Ruataniwha Basin - Tranche 2) APP-123563, APP-123991, APP-123541, APP-123547, APP-123565, APP-124498, APP-123566, APP-124500, APP-123546, APP-125281

To

Team Leader Consents, Policy & Regulation Group
06 835 9200
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Submission lodged online

From:

Royal Forest and Bird Protection Society of New Zealand Inc. (Forest & Bird)
[redacted]

Contact:

[redacted]

17 December 2021

Forest & Bird could not gain an advantage in trade competition through this submission.

Forest & Bird wishes to be heard in support of this submission, and we would consider presenting this submission jointly with others making a similar submission at a hearing.

This submission relates to the whole application(s).

**INTRODUCTION**

1. The Royal Forest & Bird Protection Society of New Zealand has been New Zealand's independent voice for nature since 1923. Over generations, Forest & Bird has helped make New Zealand a better place to live by standing with communities to protect forests, lakes, and rivers from destruction, campaigning to create marine reserves and eco-sanctuaries, and working to save threatened species.

2. Forest & Bird's constitutional purpose is:

> *To take all reasonable steps within the power of the Society for the preservation and protection of the indigenous flora and fauna and the natural features of New Zealand.*

3. The protection of groundwater dependent ecosystems (GDEs) falls squarely within the scope of this constitutional purpose and is an important issue for Forest & Bird.

4. The Society has advocated for freshwater ecosystems and the necessary water levels to support them in Hawke's Bay and the rest of New Zealand throughout the years: the Ruataniwha Water Storage Scheme (RWSS), Plan Change hearings, consent applications and the Water Conservation Order for Ngaruroro River, as well as aiding the Government on meeting its commitment to the Ramsar Convention.

5. The work of our staff, branches, and volunteers has been delivered through thousands of hours spent over the years restoring damaged and destroyed freshwater habitats which are critical for our indigenous fish and birds all around the country, and those that migrate here from around the world.

**OVERARCHING SUBMISSION POINTS**

6. Forest & Bird considers that these applications are inappropriate in areas where fresh water is already over-allocated and the adverse effects are likely to be more than minor. Adverse effects include cumulative effects and effects over time.

7. The applications are inconsistent with the standards and policies outlined in the National Policy Standard for Freshwater Management 2020 (NPSFM), which the Council is required to "have regard to" under the RMA s104.

8. The applications do not consider climate change.

9. The volume of water proposed for abstraction will cause more than minor effects that will not be alleviated by augmentation, and there is not sufficient evidence in the AEE to prove otherwise.

10. Groundwater fauna, and groundwater dependent ecosystems will be negatively effected by the proposed water abstractions if granted.

11. Forest & Bird notes that the augmentation approach in these applications is being used to prop-up existing over-allocation of surface water and to allow for further over-allocation of ground water.

12. Further, we are concerned that the impending land use change consents are not required in tandem with these resource use applications given that it will significantly increase irrigation in the region.

**OVER-ALLOCATION**

13. Overallocation is defined in the NPSFM as "the situation where: (a) resource use exceeds a limit; or (b) if limits have not been set, an FMU or part of an FMU is degraded or degrading."[1]

14. Council information documents that groundwater is over-allocated in the Ruataniwha Basin in that the resource use exceeds the environmental limits.[2] More water is being taken than can naturally be restored by rainfall, and groundwater levels are sinking.

[1] https://environment.govt.nz/assets/Publications/Files/national-policy-statement-for-freshwater-management-2020.pdf

[2] Ruataniwha Water Storage Scheme Review Appendices. Hawke's Bay Regional Council, 2017, Ruataniwha Water Storage Scheme Review Appendices, www.hbrc.govt.nz/assets/Document-Library/RWSS-Reports/Appendicesto-RWSS-report.pdf. HBRC Publication No. 4924

15. This deficit in groundwater poses a threat to the health of aquifers and their organisms, such as stygofauna. More evidently though is the detriment that this threat poses to the groundwater-dependent ecosystems (GDEs) such as the wildlife found in the Tukituki and Waipawa rivers, their tributaries, and the springs and wetlands.

16. Irrigation from groundwater on the Ruataniwha Plains has increased more than 8-fold in the last two decades, and because of this increase in abstraction, groundwater levels are steadily declining.[3]

17. The declining trend of groundwater levels has been approximately 1 - 1.5 m over the ten-year period from. This decline in groundwater levels represents more than the annual recharge, nearly by a factor of 2. This means that twice as much water is being taken out annually than the rain can naturally recharge.[4]

18. The seasonal variation in groundwater levels has increased in 91% of monitored wells over observed history. In other words, the water levels in the bores are lower when climate is dry, and having to recover more water to replenish the deficit by precipitation during wet months of the year. As the gap in groundwater levels between summer and winter steadily widening in most monitored wells, this will put stress on the wider system and make it difficult for habitats and the dependent flora and fauna to survive.[5]

19. The total spring flow rate has decreased by at least 5% since 1998. This demonstrates that the pressure in the groundwater system has declined and is most likely correlated to the groundwater levels dropping.[6],[7]

20. It is known that the Waipawa and Tukituki rivers are unable to meet the demand of current surface water consent holders, as seen by the drought in 2013 and the stop-take issued in 2020.[8]

21. It is additionally apparent that the Tukituki River has issues with over-allocation given that one of the applicants is requesting to utilise additional water when the Tukituki flows are too low: "The Application for Tranche 2 water will not increase the volume of water applied to the property but will utilise the groundwater as a top-up during periods when the Tukituki River is on low-flow restrictions."

22. HBRRMP Policy TT8 recognises that there is a 'significant degree of interconnectedness between groundwater in the Ruataniwha Basin and surface water flows', and that having allocation limits based on security of supply would be ideal, but that this cannot be achieved because the minimum flow targets and the current volume being abstracted prevent that.

23. Tukituki Plan Change 6, table 5.9.3 ushered in minimum flows that were more restrictive on resource use in favour of environmental protections that had been missing in years prior. To

[3] https://www.waternz.org.nz/Attachment?Action=Download&Attachment_id=690
[4] Ibid
[5] ibid
[6] ibid
[7] https://www.usgs.gov/special-topics/water-science-school/science/springs-and-water-cycle
[8] https://www.rnz.co.nz/news/national/408904/hawke-s-bay-growers-sound-alarm-over-water-ban-as-river-levels-plummet

date, the minimum flows have been a challenge to meet, with a new set of minimum flows, requiring more water in the river, expected to be implemented in 2023. [9],[10]

24. Policy TT8 set allocation limits at the then current levels of consented abstraction. This provisional process did not address over-allocation from an ecosystem health perspective ("safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of freshwater") as required under former iterations of the NPSFM.[11],[12]

25. In fact, over-allocation has been a concept similarly defined since the inception of the NPSFM in 2011. And Objective B2 of the 2011, 2014 and 2017 versions required councils: "to avoid any further over-allocation of fresh water and phase out existing over-allocation."[13]

26. There has been ample time to 'phase out existing over-allocation' however the Council has failed to do so.

27. It could be argued that the plan change allowing resource allocation of Tranche 2 water was contrary to the Council's requirement under then NPSFM.

28. Policy TT8 enabled additional groundwater to be abstracted as a discretionary activity provided that augmentation to river flow occurs in order to maintain minimum flows, commensurate to the scale of the effect of the Tranche 2 take.[14] This will not be achievable upstream of the augmentation, any tributaries not augmented or any springs and wetlands.

29. The apportioning of Tranche 2 water volumes was pursued on the presumption that the Ruataniwha Dam would be consented, and the Tranche 2 water takes would operate in tandem with the dam to offset the effects of the dam. It was put through at a time when the Council was financially invested in the success of the dam. Six-years later, the science of environmental requirements and restraints created by the effects of climate change demonstrate that the Tranche 2 resource is not sustainable.

30. Given that the surface water and the Ruataniwha groundwater basin are over-allocated, granting these consents would result in worsening the lack of water in the system and leading to further over-allocation.

**AUGMENTATION**

31. Augmentation is an emergency remediation tool that is meant to alleviate a dire situation due to unforeseen circumstances (i.e. too much pollution, too little water). After equilibrium is reached, the activity that impacted the environment (i.e. chemical spill, over-allocation) is to cease with safety mechanisms or regulation installed (i.e. eliminate the contaminant source, reduce water take limits in the catchment).

32. Augmentation as required by the Plan is not an emergency remediation tool, it is used to mask the effects of water takes in an already over-allocated catchment.

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[9] Ibid.
[10] https://www.hbrc.govt.nz/assets/Document-Library/Tukituki/Tukituki-Plan-Change-6.pdf
[11] need reference here TT8
[12] NPSFM 2011 Objective B1 - https://environment.govt.nz/assets/Publications/Files/nps-freshwater-mgnt-2011_0.pdf
[13] ibid
[14] Ibid.

33. Augmentation as it is proposed will not eliminate the effect, it will simply act delay the environmental response.

34. Utilising groundwater to recharge a river in order to offset the effects of that exact groundwater take is like putting holes in your own parachute. Groundwater is the water that feeds springs, wetlands, and many parts of rivers and lakes.

35. The outcome of granting the Tranche 2 consents will slowly develop into a depleted groundwater aquifer resulting in dry riverbeds, wetlands and springs.

36. Augmentation will:

    a. create an artificially inflated instream water level downstream of locations of surface augmentation, and groundwater augmentation with high connectivity to the river. This will give the illusion that instream water levels are not effected by the groundwater take while the augmentation is occurring.

    b. change the hydro-connectivity near abstraction sites. As groundwater levels and pressures reduce near the abstraction location, the water table will lower (cone of depression combined with over-allocation and predicted effects of climate change) and the unconfined aquifer will shift away from being a source (where water comes from ground to the river/stream/wetland/spring/lake) to a sink (where water comes from the surface water body to the ground to recharge the aquifer). This will contribute to reduced surface water levels and have an effect on the freshwater ecology.

    c. create pulses of water that comes without ecological warning. That is to say that flora and fauna found downstream won't have the natural environmental cues associated with rainfall. This could negatively effect the invertebrate communities. [15]

    d. fail to eliminate the pressure lost in the groundwater systems. This will negatively effect springs, wetlands and streams (tributaries) anywhere that is hydraulically connected to the Ruataniwha groundwater basin. Springs and wetlands are dependent on pressure for water to release from ground to surface. Any stream/tributary that is not the waterway where augmentation occurs will be effected by the reduction of pressure in the system. This will especially be a concern where groundwater recharge contributes to the stream and spring flows in the eastern plains boundary, especially in the area near the exit points for the Tukituki and Waipawa Rivers, downstream of the ephemeral stretches.

37. For the reasons above, it is clear that the augmentation itself will have adverse effects. And even if the augmentation could negate the effects of the Tranche 2 water takes, it will not reverse the existing over-allocation and the impending effects of climate change (i.e. reduced frequency and duration of precipitation, reduced soil moisture, etc.).

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[15] Meta-study with 3 NZ specific studies referenced: "Plecoptera taxa decreased significantly below various reservoirs in New Zealand and while signs of recovery were observed they did not recover to natural conditions by the final sampling sites (18–80 km) (Harding 1992). […] The general effects of hydroelectric impoundment to downstream biotic and abiotic variables are often reported (Dewson et al. 2007; Haxton and Findlay 2008); whereas longitudinal patterns and recovery are often not reported. Recovery distances can be useful and quantifiable measures of impact that managers can use in impact assessment and monitoring programs." Ellis, Lucy Eunsun, and Nicholas Edward Jones. "Longitudinal Trends in Regulated Rivers: a Review and Synthesis Within the Context of the Serial Discontinuity Concept." Environmental reviews 21.3 (2013): 136–148. Web.

**CLIMATE CHANGE**

38. HBRC published climate change projections in 2017 which look at two scenarios (RPC 4.5 and 8.5 for at the year 2040 and end of the century 2081-2100 compared to a baseline of 1986-2005). The following comprises the range of modelled effects of climate change:

    a. Temperature is expected to rise from 0.5 degrees to 1.25 degrees by 2040 and 1.25 degrees to 2.75 degrees by 2100.

    b. Hot days (above 25 degrees) are expected to increase up to 10 days in the ranges and 15-20 days by 2040. By the end of the century, the ranges are expected to have up to 20 more days per year, and the rest of the region is projected to 30 – 60 additional days at most.

    c. Cold days (below 0 degrees at night) are projected to experience a decrease of fewer than 5 cold nights per year by 2040 and 10 – 20 fewer cold nights by the end of the century.

    d. By 2040, rainfall is expected to decrease across the region by at least 5% annually, except at the coast where a 5% increase is expected, and notably "spring [season] exhibits a drying signal across the region." By 2090, rainfall is predicted to decrease by at least 10% annually. The extreme of this would be a 20% decrease in spring rain over parts of the Ruahine Ranges.

    e. Extreme rainfall is projected across the entire region with at least 5% increase in extreme daily precipitation at 2040. By 2090, the increase is expected to be at least between 5 – 15%.

    f. Potential Evaporation Deficit is described as the amount of rain needed to keep pasture growing at optimum levels and that "an increase in PED of 30 mm or more corresponds to an extra week of reduced grass growth." And by 2090, it is projected that areas such as Wairoa and Hastings districts increases in PED of over 160 mm/year. Another report cited in this document concluded that:

> climatic drought risk is expected to increase during this century in all areas that are currently drought prone, under both the 'low-medium' and 'medium-high' scenarios. [...] During this century, evidence for increases in time spent in climatic drought is apparent for Canterbury, Hawke's Bay, Gisborne, and Northland (Clark et al., 2011).[16]

39. In summary regardless of the timeline or the emissions profile it is expected that temperatures will rise, there will be more hot days, less cold nights, less rainfall, more extreme rainfall and more dry days.
40. As the majority of groundwater recharge in the Ruataniwha basin (90%) comes from rainfall, and the remainder comes from stream/river losses (10%), a number of physical processes will be effected.
41. Currently, groundwater levels are dropping. In order to recover the 1.5 m of depth lost from the aquifer over the last decade, more rainfall is needed annually. The amount of rainfall would need to exceed the current use as this current use is adding to the continued decline (i.e. deficit created by the over-abstraction). And in order for that to successfully occur, there would need to be an increase in the frequency and duration of rain. That is to say that more

[16] https://www.hbrc.govt.nz/assets/Uploads/Hawkes-Bay-Climate-Change-Final-NIWA-24052018.pdf

rainfall is needed over longer and more frequent rainfall events. This is because during extreme events only so much rain can be absorbed into the ground (soil moisture). Extreme events typically result in the majority of rainfall travelling downstream and out to sea, unless wetlands or engineering structures are able to capture more volume.

42. Given the climate change predictions creating further deficit of water in the system, the aquifer is **unlikely** to recover on its own. (emphasis added)

43. Any further water consented for abstraction will deplete the aquifer further, making the path to recovery unobtainable by centuries rather than decades.

44. Given the climate change projections explained above, and the current deficit of the aquifer, the appropriate pathway is for the Council to develop a plan to rigorously phase out over-allocation for both groundwater and surface water, and to initiate a plan change immediately that would remove Tranche 2 water volume from the Plan.

45. Lastly, Forest & Bird finds the MODFLOW modelling to contain an unacceptable margin of error. It is unsatisfactory that post-2012 data was not utilised in the assessment of impacts. In absence of climate change specific modelling, it would be essential to understand what modelling outputs would be produced if utilising the recent decade's instream discharge data and water table levels. Considering the climate change predictions described above, the values observed post-2012 are the **new normal** and expected to become outdated by 2040, which is less than 20 years away. (emphasis added)

**ECOLOGY - INDIGENOUS FAUNA - GROUNDWATER ECOSYSTEMS & GROUNDWATER DEPENDENT ECOSYSTEMS**

46. The indigenous ecology found in the Tukituki and Waipawa catchments are unique and defined as groundwater dependent ecosystems. This is because they depend on groundwater to survive, that is to say that the surface water is highly connected to the groundwater. This means anything that threatens the water table level, the hydraulic pressure, or the groundwater ecosystems (stygofauna) will need to consider the effects on these surface wataer ecosystems described below.

**Waipawa Catchment**

47. The Waipawa River rises in the Ruahine Ranges flowing southeast until it confluences with the Tukituki River. Both rivers are braided rivers which explains why they have 'a high connectivity to the Ruataniwha aquifer' and are known as internationally rare habitat.[17]

48. In 2004, the Waipawa River was recognised for its aquatic biodiversity values when it was nominated by MfE as a Potential Water Body of National Importance. The River supports "a high number of wetland birds."[18]

**Tukituki Catchment**

49. Tukituki River is described in Council documents as having "high wildlife and native fish values."[19]

[17] https://www.hbrc.govt.nz/assets/Document-Library/Projects/Outstanding-Water-Body/Waipawa-River-candidate-OWB-report-201807111.pdf
[18] Ibid.
[19] https://www.hbrc.govt.nz/assets/Document-Library/Projects/Outstanding-Water-Body/Tukituki-River-candidate-OWB-report-201807111.pdf

50. The high connectivity to the Ruataniwha Aquifer "influences both the hydrology and the water quality of the middle and lower reaches of the Tukituki River."[20]

51. The Tukituki Catchment contains a high diversity of native fish, with at least 18 native freshwater fish species, eight of which are classified as At Risk – Declining (longfin eel, īnanga, redfin bully, bluegill bully, lamprey, torrentfish, kōaro and dwarf galaxiid). It is thought that up to 200,000 native fish can be found in the catchment at any one time, making it a "nationally significant for native fish".[21]

52. The river is also recognised for its diversity of native birds with up to 51 species recorded on the river "including the endangered black billed gull and a number of threatened species such as white heron, royal spoonbill, grey duck, Caspian tern, white fronted tern, South Island oystercatcher and the New Zealand pipit." Additionally, the pekapeka long-tailed bat is classified as Threatened – Nationally Critical and inhabits the areas along the river.[22]

53. Bird surveys over the decades have shown that the Tukituki river supports the largest population of wader birds "when compared to all other Hawke's Bay Rivers, with particularly large populations of banded dotterel and pied stilt residing at the river."

54. The climate change vulnerability ranking as described by NIWA for the lamprey and the longfin eel are considered "very highly vulnerable" and the īnanga, kōaro, banded kōkopu, kakahī freshwater mussel and shortfin eel are all ranked as "highly vulnerable". This ranking examined only 10 fish, therefore at this time there is an absence of vulnerability ranking for almost half of the native fish species observed in the Tukituki catchment.

55. "According to the 2019 IUCN Red List of threatened species, climate change and severe weather is a key stressor for three taonga species, longfin eel (Pike et al. 2019a), shortfin eel (Pike et al. 2019b) and kōaro (Raadik et al. 2019). The IUCN threat assessment indicates that droughts are a significant and ongoing threat to longfin eels, affecting 50% of the population (Pike et al. 2019a). The effects of drought are likely to increase longfin eel mortality rates (Pike et al. 2019a). In Australia, īnanga (or common galaxias as they are known in Australia) were ranked as the 16th most drought vulnerable species (Chessman 2013)."[23]

56. "The IUCN assessment for lamprey indicates that climate change and drought may reduce the quality of juvenile habitat, through increases in temperatures and a reduction in dissolved oxygen (Bice et al. 2019). The effects of drought are thought to be most evident in streams with altered flow regimes (Bice et al. 2019). However, climate change is not specifically listed as a threat to lamprey in these assessments (Bice et al. 2019) and we found no evidence in the published literature about climate change effects on Aotearoa-New Zealand populations."[24]

**Stygofauna**

57. Research over the last few decades has revealed that in the near surface groundwater of most aquifers (water tables), there is a rich diversity of invertebrates known as stygofauna which contribute the hydraulic conductivity and quality of the groundwater.

[20] Ibid.
[21] Ibid
[22] Ibid.
[23] ibid
[24] ibid

58. As stygofauna are known to develop in and near the water table, any fluxuation in the water levels can effect the populations.

59. Stygofauna are important for water quality and flow, as they clear up excess nutrients and allow for ease of movement by processing biofilms that accumulate in this environment.

60. What is known of stygofauna communities is that some species are endemic to the river catchment, meaning that they would not be replaceable if a population was unknowingly threatened by activities such as fluxuating water levels due to augmentation or rapid declines in water table due to abstraction. It is postulated that the communities will be adapted to a particular water quality (chemical and biological). And that changes in oxygen content or chemical compounds found in deep groundwater that is not found in near-surface groundwater may have an effect on the composition of the stygofauna communities which could have an effect on the ability to keep water moving and clean.

61. Recent surveys in Waipawa and the Tukituki rivers have shown that stygofauna are abundant with a range of species observed: copepoda (90%), isopoda(5%), syncarida (3%), ostracoda (1%), amphipoda - paraleptamphopus spp (<1%), cruregens sp. (<1%), and one yet to be identified.[25],[26]

**Kahikatea at Inglis Bush Reserve**

62. Forest & Bird is concerned that the reduction in groundwater levels and spring flow has contributed to the decline in the Department of Conservation Kahikatea Inglis Bush Reserve located on the Tukituki River.[27]

63. Kahikateas are a native tree to New Zealand in the podocarp family generally found in lowland and montane environments. They are known scientifically as Dacrycarpus dacrydioides. They grow up to 50 meters typically. The tallest still standing today is 63m and the oldest still standing today is over 700 years old.[28]

64. These trees used to be the most common native tress but has been threatened over the years by timber milling and land clearance. These trees occupy "flood plains, lowland terraces of river and wet margins of lowland swamps and bogs."[29]

65. Currently, there remain only a few remnants of kahikatea forest in the North Island. The trees at Inglis Bush are significant and need access to groundwater to survive. Granting these consents could further threaten the survival of this remnant forest.[30]

**SENSITIVE RECEIVING ENVIRONMENTS**

66. The Hawke's Bay Regional Coastal Environment Plan lists Tukituki Estuary as a Significant Conservation Area (SCA) "due to its high wildlife values, particularly the large number of black

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[25] M. R. Scarsbrook & G. D. Fenwick (2003): Preliminary assessment of crustacean distribution patterns in New Zealand groundwater aquifers, New Zealand Journal of Marine and Freshwater Research, 37:2, 405-413 https://www.tandfonline.com/doi/abs/10.1080/00288330.2003.9517176

[26] Fenwick, Graham D et al. "High Diversity and Local Endemism in Aotearoa New Zealand's Groundwater Crustacean Fauna." Ecology and evolution 11.22 (2021): 15664–15682. https://onlinelibrary.wiley.com/doi/10.1002/ece3.8220

[27] https://www.nzherald.co.nz/hawkes-bay-today/news/demise-of-kahikatea-in-inglis-bush-scenic-reserve-central-hawkes-bay/FS3J2DXOFOXK5GBJSW4GOBT7Q4/

[28] https://www.conifers.org/po/Dacrycarpus_dacrydioides.php

[29] ibid

[30] ibid

billed gulls, terns and little black shags" but also because the river mouth as an important spawning ground for the native galaxid species, as well as a passageway for other fish migration upstream into the catchment.[31]

67. In total, 43 bird species were recorded around the river mouth. In recent years, "a black-billed gull colony of more than 300 nests was found at the Tukituki River mouth," this bird is significant given that this is the country's only endemic gull and is regarded as the most threatened gull in the world.[32]

68. The NPSFM specifically states that its application includes "estuaries and the wider coastal marine area" as these are known as "receiving environments."[33] The NPSFM requires councils to use the sensitive receiving environments at the limiting factor when setting policies and objectives in the plan, as well as when deciding on land use consents (this includes setting nutrient limits and environmental flows).

69. Given the stressed nature of both the water quality and quantity of the Waipawa and Tukituki catchment upstream, it seems unlikely that these consent applications for Tranche 2 can be granted without a negative effect on this estuary.

70. Additionally, it seems unlikely that consents for land use changes to allow for further intensification or irrigation can be granted while meeting the requirement to protect receiving environments as outlined in the NPSFM.

**REGULATORY INCONSISTENCIES**

71. Conditions to require augmentation may not meet requirements of section 108AA of the RMA to relate to the effects of the activity, particularly where augmentation is required even when the take under the consent is not occurring. Conditions included solely on the basis of agreement by the applicant could be changed or removed at a later date. We are concerned that reliance on these conditions as the basis for determining benefits of the proposal is inappropriate as such requirements may not be legally enforceable.

72. Such a condition also demonstrates that the surface water body is already over-allocated, that the current and proposed takes of groundwater in the vicinity of these streams are and will continue existing in an over-allocated and degraded state. This is inconsistent with Policy 11 of the NPSFM which is to phase out existing over-allocation and the avoid future over-allocation.

73. As stated above, the requirement to phase out over-allocation has been in the NPSFM since its inception in 2011.

74. Granting these consents for Ruataniwha Basin (2 river catchments) will increase the groundwater allocation by more than 50% - this is a staggering exacerbation of over-allocation.

75. Augmentation does not phase out over-allocation and it will not avoid future over-allocation. In fact, it sets a trend on increased demand which creates further over-allocation to meet economic requirements, which is contrary to the hierarchy of Te Mana o Te Wai, the compulsory values, and Policy 11.

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[31] Ibid.

[32] Ibid

[33] https://environment.govt.nz/assets/Publications/Files/national-policy-statement-for-freshwater-management-2020.pdf

76. This approach is not consistent with Te Mana o te Wai. It does not prioritise "first, the health and well-being of water bodies and freshwater ecosystems".34

77. Forest & Bird does not support the consents being granted for 20 years. The Council is required to give effect to the NPSFM through a plan change before the end of 2024. The proposed consent length would inhibit the Council's ability to give effect to the NPSFM.

**78.** In summary, Forest & Bird believes that by granting these consents, the Council will compromise its ability to meet the requirements under the NPSFM 2020.

**MISSING CONSENTS**

79. Further consents will be needed to match the requirement to abstract and deliver the water, both to pasture (i.e. irrigation) and as augmentation (i.e. infrastructure).

80. Appendices to RWSS report identify that without the RWSS, multiple systems such as wells, pumps, telemetry and associated operation and maintenance will be required to execute the augmentation.

81. We are not satisfied that all these items have been considered.

82. We are not satisfied that the consents required for land use intensification are missing fro the Tranche 2 water take consent applications. Given the magnitude of water being applied for abstraction, the scale of land use intensification would be significant.

**CONCLUSION**

83. The intention of augmentation only works if it is a one-off remediation to restore equilibrium. Utilising augmentation as an ongoing measure will only reduce the overall impact of the tandem water abstraction but it won't eliminate the effects. And since it cannot quell the existing over-allocation, the effects on their own as well as cumulative effects are thought to be more than minor.

84. These applications for consent, if granted would amount to a blatant disregard for the fact that groundwater levels are currently in decline, reliability of precipitation is vulnerable to climate change scenarios, and as duration and frequency of rainfall changes, recharge to groundwater will become more insecure, and that surface water systems would be effected.

85. Any perceived benefits to surface water will be outlived by long term negative impacts. The danger is that these impacts will be delayed by the augmentation, therefore masking the intensity of the effects for some time. At the point that the impact is understood, the magnitude of the effect will be such that reversal will be costly and in some cases impossible.

86. Forest & Bird requests that the Hawke's Bay Regional Council decline the consent applications.

Thank you for the opportunity to make this submission.

Darren van Hoof

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[34] https://environment.govt.nz/assets/Publications/Files/national-policy-statement-for-freshwater-management-2020.pdf