Ministry for the Environment
Manatū Mō Te Taiao

Ministry for Primary Industries
Manatū Ahu Matua

National Policy Statement for Freshwater Management Implementation Review

Horizons – Manawatū–Whanganui

New Zealand Government

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Regional overview

The Horizons (Manawatū–Whanganui) region covers a large part of the central to lower North Island and contains a wide variety of landscapes, from mountains to coastal floodplains. The region is home to about 237,000 people with around half living in the two largest centres, Palmerston North and Whanganui.[1] About half of the region is used for sheep and beef farming, and a third is covered with native vegetation. The remainder is divided among dairy farming, exotic forestry, horticulture, urban areas and other land uses.

The Horizons region has 226 lakes, including volcanic, riverine, landslide, wetland-formed, beach lagoons, dune lakes and man-made reservoirs. Major rivers include the Whanganui, Whangaehu, Turakina, Rangitīkei and Manawatū (figure 1). Groundwater is often unconfined, meaning that it is closely connected with surface water. In these areas, pressures on surface water quantity or quality will have impact on groundwater and vice versa.

In terms of water quantity, most catchments in the region have water available for allocation. However, about a third of catchments are considered 95 per cent allocated, fully allocated or over allocated,[2] and demand has increased rapidly in the past two decades. Hydro-electricity generation is the dominant water use by volume, accounting for nearly 80 per cent of the total.[3] While hydro-electricity generation is generally considered a non-consumptive use because the water is returned to the system and available for other users downstream, more than half of the water used for hydro-electricity in the Horizons region is effectively consumptive from a regional perspective. This water is diverted from the Whanganui River to three separate power stations of the Tongariro Power Scheme before flowing into Lake Taupō in the Waikato region. The remainder is used for smaller power schemes within the Horizons region and is returned to catchments within the region, so is generally considered non-consumptive. Excluding hydro-electricity generation, irrigation accounts for over half (56%) of the remaining consented volume of water in the region (figure 2) and is also the area of fastest growth.[4]

Water quality and ecosystem health vary considerably across the region. Many areas, such as the Upper Rangitīkei River and Manganui o te Ao River, which are protected under Water Conservation Orders, have excellent quality across most measured attributes. However, water quality and ecosystem health decline as water flows towards the coast, largely because of diffuse discharges from agricultural and urban land uses. As agriculture has intensified, there has been increased deforestation and hill country erosion as well as a greater amount of irrigation, all of which affect water quality. There are also some rivers affected by direct

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1 Statistics New Zealand. No date. *Subnational Population Estimates*. Retrieved from http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE7501 (11 July 2017).

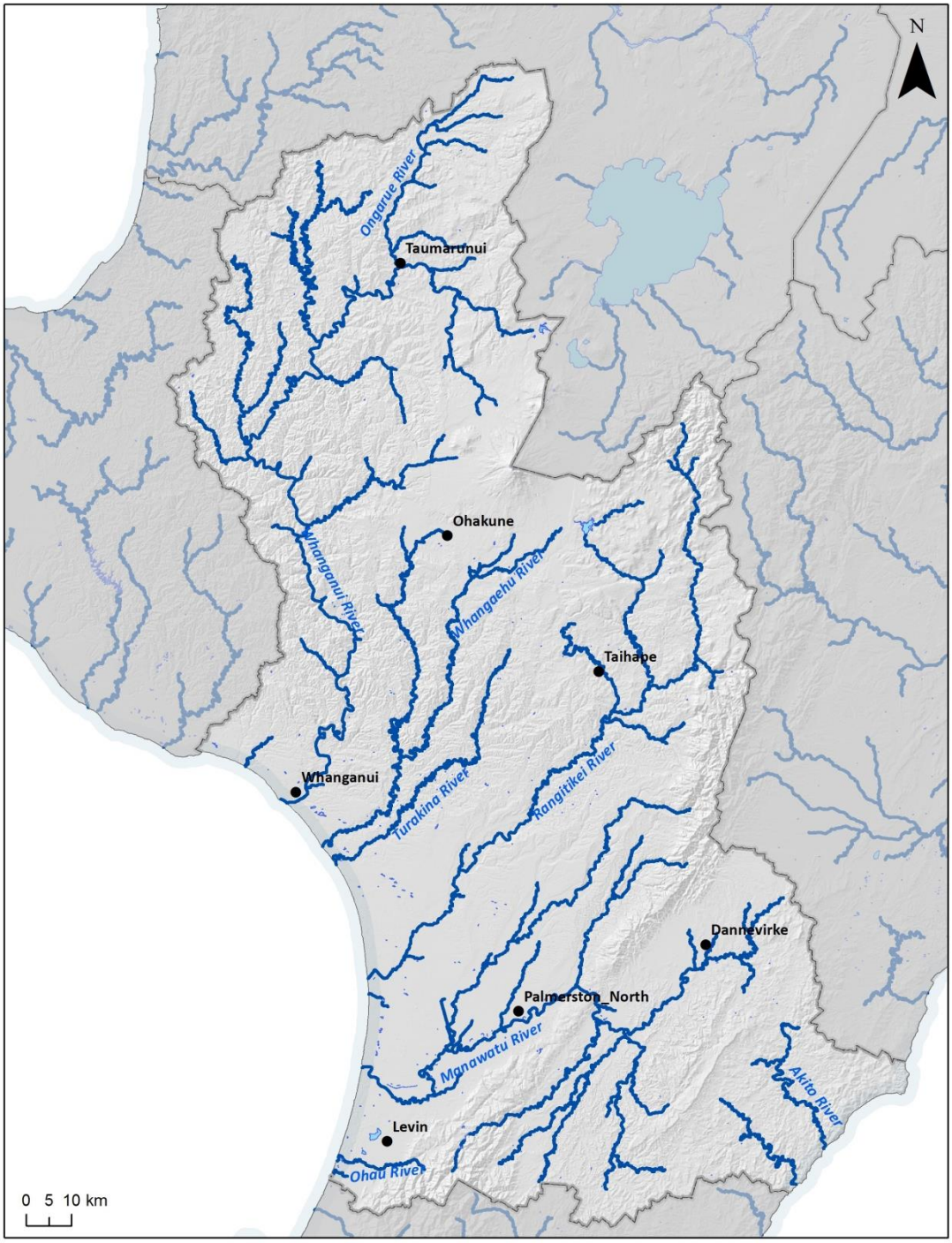
2 Horizons Regional Council. No date. Water allocation status for all catchments within the region 2017. Retrieved from www.horizons.govt.nz/HRC/media/Media/Water/Water-Allocation-Status_All-catchments_Jan2017.pdf?ext=.pdf (11 July 2017).

3 Horizons Regional Council. 2013. *2013 State of the Environment*. Palmerston North: Horizons Regional Council. Retrieved from www.horizons.govt.nz/CMSPages/GetFile.aspx?guid=725c8a67-ff40-4962-b728-62430f38e82c&disposition=attachment (11 July 2017).

4 Horizons Regional Council. 2013. *2013 State of the Environment*. Palmerston North: Horizons Regional Council. Retrieved from www.horizons.govt.nz/CMSPages/GetFile.aspx?guid=725c8a67-ff40-4962-b728-62430f38e82c&disposition=attachment (11 July 2017).

discharges from industrial sites or wastewater treatment plants.[5] As a result, around half of the monitored river sites are graded by Horizons Regional Council (HRC) as poor or very poor for nitrogen and phosphorus. The Arawhata and Patiki streams leading into Lake Horowhenua have some of the highest levels of nitrogen in the country. High bacterial levels and occasional blooms of toxic algae are found in some lakes and in the middle and lower reaches of many rivers, making them unsafe for swimming or other primary recreation.

Figure 1: Major water bodies in the Horizons region

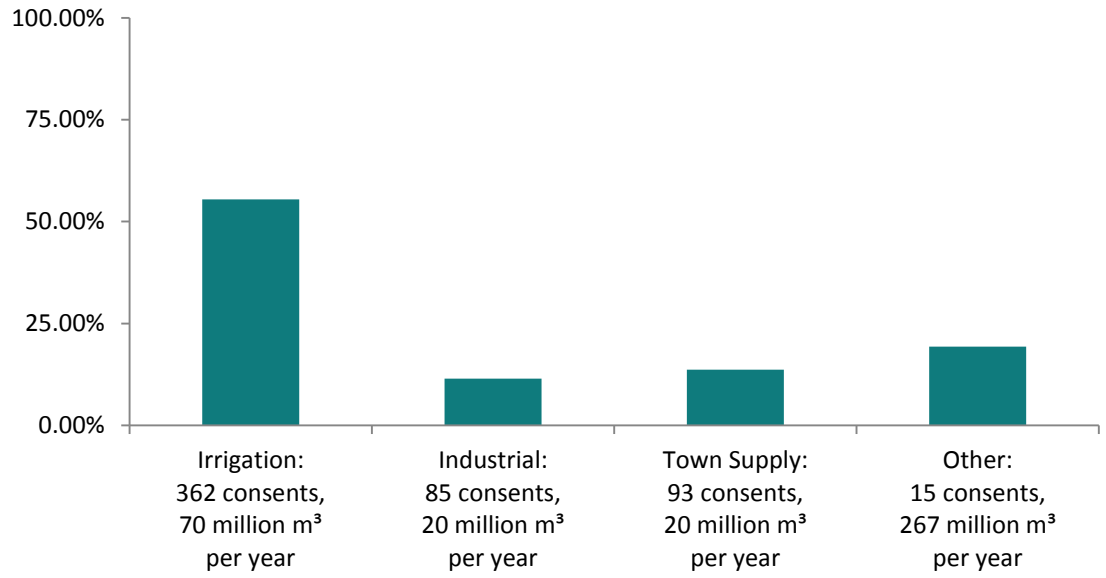


Source: Ministry for the Environment

[5] Horizons Regional Council. 2013. *2013 State of the Environment*. Palmerston North: Horizons Regional Council. Retrieved from www.horizons.govt.nz/CMSPages/GetFile.aspx?guid=725c8a67-ff40-4962-b728-62430f38e82c&disposition=attachment (11 July 2017).

Deep groundwater is generally of high quality, but some aquifers have been contaminated with nitrates. This is particularly an issue among unconfined aquifers, such as those near Lake Horowhenua. In addition, because these unconfined aquifers are connected hydrologically to surface water, they can raise nutrient levels in rivers, lakes and wetlands.

Figure 2: Water take consent volumes by primary use in the Horizons region (excluding hydro-electricity generation)



Source: Land, Air, Water Aotearoa

Review methodology

The information and analysis contained in this report are based on evidence collected from a questionnaire completed by HRC, a series of interviews and panel discussions with relevant parties, planning documents and associated reports, and the Ministry for the Environment's ongoing relationships and projects across the region. The overall review team consisted of officials from the joint Ministry for the Environment and Ministry for Primary Industries Water Directorate with the assistance of two independent consultants who are both certified hearings commissioners with more than 30 years of experience in freshwater management.

The review team conducted a series of panel discussions with HRC executives and elected councillors, senior HRC staff, tāngata whenua and stakeholder representatives. Ministry officials were able to meet with only a small group of stakeholders in the Horizons region. They came from two territorial authorities and the primary sector. Ministry officials also met with a small group of iwi and hapū representatives at a hui in Palmerston North. It is acknowledged as a limitation of the review that these meetings and hui were not necessarily representative of the region. Additional interviews and panel discussions were held with representatives from national sector organisations. Following each meeting, attendees were given the opportunity to revise or supplement the meeting notes to ensure their views were recorded accurately.

While the review team has made efforts to confirm information where possible, much of the information included in the review is based on the accounts and perspectives of those involved and often cannot be verified independently.

Stakeholder and tāngata whenua representatives did not necessarily speak with mandate as official representatives of their organisation nor are they presumed to represent all in their wider communities. They were, however, primary sources with direct experience of HRC's work.

Because of varying regional contexts, some issues are considered more or less relevant in different regions. Therefore, some topics that appear in other regional chapters but that were not raised by HRC, iwi and hapū or stakeholders in this region have been omitted from this chapter.

Regional context for freshwater management

In 2007, HRC notified the One Plan, an omnibus resource management plan that covers all resource management in the region previously regulated by seven regional plans and the regional policy statement. It was made operative in 2014 following appeals to the Environment Court and High Court.

The One Plan identified four major resource management issues in the region: surface water quality degradation, increasing water demand, unsustainable hill country land use and threatened indigenous biodiversity.

HRC considers economic development to be a major issue for the region and launched its Economic Action Plan in August 2016 to address this. Land use optimisation is one of the 'Nine Opportunities' it has identified to increase economic prosperity.

The Manawatū River Leaders' Accord, signed in 2010, galvanised leaders from local government, iwi and stakeholders after significant publicity about the poor quality of the river. HRC reports that six years after establishment "it is still going strong" and a second action plan was released in March 2016. It has been effective in motivating actions to improve water quality in the catchment – more than $46 million has been spent on sewage treatment improvements and farm management in this catchment, and around 120 farms consented for land use and discharges.

Other regional initiatives include the following.

- **The Sustainable Land Use Initiative** – this was established after the 2004 floods and uses non-regulatory methods to incentivise paddock-scale best land management to minimise hill country erosion. These measures include voluntary land retirement and revegetation. This project has planted over 13.6 million trees over 11 years and is projected by Landcare Research to be on track to deliver a 27 per cent improvement in sediment loads in the region by 2043.
- **Lake Horowhenua Accord** – in 2013, the Muaūpoko owners and four other governing partners developed and signed the Lake Horowhenua Accord. The parties agreed to work together to provide leadership, halt the degradation and put in place remedial measures.
- **Te Mana o Te Wai projects** – four projects received funding from central government's Te Mana o Te Wai Fund – these projects, led by iwi, are completing work with a combined value of over $3 million in the Manawatū, Lake Horowhenua, Rangitīkei and Kai Iwi catchments.
- **Te Awa Tupua** – Ruruku Whakatupua, the Whanganui River Deed of Settlement, provides for Te Awa Tupua to be recognised as a legal person. Te Pou Tupua, comprising two appointees nominated by iwi with interests in the Whanganui River and the Crown, will be charged with protecting the health and well-being of the river.

The Horizons regional boundary encompasses seven territorial authorities: Ruapehu, Whanganui, Rangitīkei, Manawatū, Horowhenua and Tararua districts as well as the Palmerston North City Council.

Approach to implementing the NPS-FM

Progressive implementation plan

HRC does not have a staged implementation plan for the National Policy Statement for Freshwater Management (NPS-FM), because it considers that it has largely given effect to the NPS-FM through the One Plan, which was first notified before the NPS-FM 2011 came into effect, and became operative in November 2014, four months after the NPS-FM 2014 came into effect.

HRC considers that the One Plan meets nearly all requirements of the NPS-FM, but that there are areas where it needs to be adjusted to fully give effect to the NPS-FM 2014. These will be addressed through the next plan review cycle. The four main areas that require adjustment are as follows.

- Freshwater management units – water management zones and subzones in the One Plan cover the entire region but are not the same as the freshwater management units required by the NPS-FM. Freshwater management units have been approved by HRC and each of these has boundaries that match the boundaries of a collection of the water management zones.
- Values – there are many values in the One Plan, which HRC considers cover much the same ground as the compulsory and additional values in the NPS-FM, but that use different terminology. These will need to be reconsidered and reconciled to ensure they align with NPS-FM requirements.
- Limit setting – the development of the One Plan worked through nitrogen accounting, identified where 'limits' were being exceeded and established a partial allocation regime for some water management zones. More work is required to update catchment load models, include limits for other attributes and incorporate explicit limits into the One Plan.
- Indicators – indicators and monitoring programmes may need to be developed to monitor progress towards any objectives not already covered under current monitoring.

HRC says it is aware that some aspects of the One Plan are not working the way it intended. However, it sees the One Plan as a living document that will evolve over time. These issues also will be addressed through the plan review process.

Priorities

The Manawatū and Rangitīkei catchments have been prioritised as a result of the 2004 floods and perceived problems with the rivers. HRC says that the Whanganui catchment will be a focus following Treaty of Waitangi settlement processes.

Stakeholder views

Stakeholders we met with said that community expectations for water quality are high – people want water that is safe to swim in. The public perception that the Manawatū River is the dirtiest in the world has stuck.

One agricultural industry representative said that "community expectations around our social licence to operate are moving faster than our ability to improve our practices". They said they are working closely with HRC to put in place something practical that meets the expectations in the One Plan, but they need to be adaptive and innovative to shift everyone to good practice. There is still work to be done.

Others expressed concern that repeated policy changes at the national level would make it necessary to repeat the long and challenging regional planning process. They commented that the One Plan was drafted before the NPS-FM and went beyond the national requirements in terms of national bottom lines. The stakeholder representatives question whether the One Plan requirements would have been as stringent had HRC known what the national requirements would be. They also questioned whether HRC had given adequate consideration to socio-economic factors when making decisions, particularly in the regions and communities most affected.

Although there had traditionally been tensions among sectors, community and HRC, they felt they were dealing with a proactive council that is very good at engaging with them. They felt that there was a greater focus on working together to address problems after the Manawatū River's water quality problems were highlighted in the national media. "The Manawatū River Leaders' Accord is a good initiative and a lot of value – if we are all in the same room then we can work alongside each other and have a common understanding."

Iwi and hapū views

The Manawatū River Leaders' Accord came about in 2009–10 after pressure on the then HRC Chair. Hui participants we spoke to said that this has helped to improve relationships with HRC and other sectors of the community.

They also said that the poor health of waterways is a source of embarrassment. The decrease in tuna affects their ability to host visitors. Fishing at the river mouth is not advised, and this impacts on traditional mahinga kai.

Hui participants we spoke to said there were projects under way to address these issues including the following.

- Te Kāuru (Eastern Manawatū River Hapū Collective) is leading a collective effort by iwi and hapū across the Manawatū catchment and working with HRC (supported by central government funding from the Te Mana o te Wai Fund and funding from local councils and iwi). The project aims to get people back to the river by using storyboards and whare along the Manawatū and Ōroua rivers. These storyboards and whare are a "cultural information transfer". They will tell the cultural and historical stories associated with the rivers. A monitoring programme will provide information to support local hapū and iwi groups to make decisions on the ongoing management of the river.
- Te Maru o Ruahine Trust is leading a further multiple iwi–hapū collective project. This large project is under way to improve the health of the Rangitīkei River, again using central government funding from the Te Mana o te Wai Fund and funding from local councils and iwi. Activities include stock exclusion through fencing, revegetation of riparian zones, reconnecting iwi and others to the Rangitīkei Awa and the development and implementation of an environmental monitoring framework.

- Ngā Rauru has a project to restore the Kai Iwi catchment and some catchments within the Taranaki region, again using central government funding from the Te Mana o te Wai Fund and funding from local councils and iwi.
- Rangitāne o Manawatū has been involved, along with HRC, in a tuna project (short finned eel more than long finned eel) that is looking at both habitat issues and over fishing. The project is looking to expand throughout the North Island.

Achieving the objectives of the NPS-FM

Limit setting and allocation

HRC says that, given the One Plan is only recently operative, its preference is to learn from other councils' experiences in setting limits before undergoing a change. This will help it decide whether to take an approach to limits based on in-stream concentrations or on the amount of contaminants that can leach from a catchment or individual property. HRC is concerned that setting catchment load limits has proven to be difficult for contaminants other than nitrogen. It says that it is working through the following issues:

- what to set limits for and where to set them
- whether to set site-specific waterway or catchment limits
- how limits vary for different flow rates
- if limits should be in-stream or calculated on land use and additions of nutrients and/or chemicals to the land in the catchment.

HRC staff say that they have been developing an extensive monitoring programme, which should allow them to identify where limits need to be set and at what level.

Outcomes

HRC would prefer to focus on outcomes rather than system inputs. It wants to ensure that any new limits and rules are directed where they will have the most influence and are appropriate to the river system.

For example, HRC feels that public discussions about water quality and the process in the NPS-FM place strong emphasis on controlling nitrogen. However, it notes that periphyton is not exceeding the national guidelines in many areas where dissolved inorganic nitrogen levels are high. This is because periphyton growth is the result of multiple interacting factors. In rivers where growth is primarily limited by other factors, such as flow levels, phosphorus or temperature, managing nitrogen is not the most cost-effective means to address periphyton. Many rivers in the Horizons region are co-limited, that is, either or both phosphorus and nitrogen may control periphyton growth at different times.

HRC also says that many outcomes will be reached primarily through non-regulatory improvements. Supported by central government funding, HRC has embarked on a project to resolve the long-standing issues with water quality in Lake Horowhenua that will involve riparian fencing and planting, improvements to stormwater, mechanically removing the weeds and installing a sediment trap and fish pass.

Integrated management

HRC developed the One Plan as a one-stop 'second-generation' regional plan with a view to improving integrated management of all resources. In terms of recognising interactions between fresh water and the coastal environment, all of the nearly 50 estuaries (most which are small) have been assessed for their vulnerability to sedimentation and nutrients carried by rivers.

Stakeholder views

Stakeholders we spoke to said that regional councils need a long-term plan about how they are allocating discharges. HRC has set these allocations but stakeholders were unsure how they will be achieved over time.

Some farming industry representatives we spoke to believe that the limits for nitrogen are set at unachievable levels that are high above the 'national standard'. The discussion around swimability is seen as problematic and the terms used are not well understood by the general public. The farmers also note that nitrogen levels do not affect swimability and argue that the focus on nitrogen is misdirected. One suggested that the Ministry of Health should be more involved in the conversation.

They also did not consider OVERSEER® to be an appropriate tool for regulation. The fact that different versions produced significantly different results with regard to compliance was seen as evidence that it was not reliable enough for regulatory purposes.

Iwi and hapū views

Hui participants we spoke to said that the amounts of water allocated to dairying are disproportionate to others. For example, three dairy farmers in Dannevirke take more water than the town water supply. Dairying has had major effects on water quality in the Manawatū River catchment.

Some iwi members felt that their relationships with district councils were generally good but that there has been a fair bit of tension with some councils over discharges of sewage effluent to rivers.

Territorial authority views

One territorial authority perspective was that although water quality may be better than national bottom lines it may not meet the expectations of the community for swimmable rivers. They felt that HRC's focus on in-stream outcomes (eg, indicators of ecosystem health such as the macroinvertebrate community index or periphyton growth), without good science demonstrating cause and effect could mean they invest huge amounts in treatment systems and still not be sure the outcomes will be achieved.

Meeting expectations on a discharge permit for in-stream water quality means that, whenever the water quality changes, their treatment process also needs to change. They wonder if it would be better to set national bottom lines for sewage treatment quality rather than river quality.

Community engagement

HRC believes that the NPS-FM pushes the councils to a more collaborative approach and that this could become an issue for both communities and ratepayers. Some communities may not have the capacity to engage in collaborative processes because the timeframes are long and the time demands are high. There are concerns that the community may not have 'bureaucratic stamina' for long collaborative planning processes, particularly after the lengthy and litigious process of the One Plan.

HRC says that the needs of the community vary from catchment to catchment, so the community engagement approach has to vary as well. This is to ensure that these communities are able to have input in a way that suits them. For example, some catchments are largely undeveloped and have limited economic resources. Others are well developed, include major urban areas and have a strong economy. Different challenges exist in each case, and the process should reflect that.

Stakeholder views

Stakeholders we spoke to said that, previously, relations between HRC and the farmers had been very poor. The culture during the initial One Plan process was described as 'farcical' and 'hostile' to farmers. HRC had not consulted the farming community or identified community values. For example, consultation in one case consisted of a stand at a shopping mall, this was seen as skewing the views collected towards urban concerns and ignoring rural perspectives. Limits were set based on information from a small sample of farms with little regard for how those limits would impact on the farmers. A report to councillors argued that the NPS-FM process would have resulted in the same outcomes as the One Plan, but the farmers strongly disagreed.

Relationships with HRC have improved dramatically since the original One Plan process, and HRC now does a good job of working collaboratively. There was a change in culture in HRC over the previous five or six years due to staff changes and the arrival of more practically focused councillors, which allowed better communication and engagement. HRC is now seen as having an open door and being free and frank in discussions.

The Manawatū River Leaders' Accord is seen as a good initiative and it provides a lot of value. Stakeholders said that if they are all in the same room then they can work alongside each other and have a common understanding. The Action Plan has had good outcomes, for example, iwi in the same room as DairyNZ talking about riparian planting. Good facilitation at the meetings makes this work well. Conversely, there was also a view that the Manawatū River Leaders' Accord is being diluted now, with more people wanting to be involved.

Territorial authority views

One territorial authority representative said that HRC is involving more and more working groups in decision-making, but some members are not in the district and so are not affected by the costs of the improvements they want to see in the river. They felt that the people outside the district should not have such a strong voice in what is required of sewage upgrades, and if the benefit is downstream of the district, then those downstream people should pay for the improvements.

The Land and Water Forum recommendations did not carry a lot of weight because they felt that the Forum did not look at the effects of its recommendations on territorial authorities, whereas the Manawatū River Leaders' Accord has all players involved. Similarly, they see that the Ministry for the Environment is working with regional councils rather than the territorial authorities that are directly affected by decisions on water management in terms of infrastructure costs.

Engaging with iwi and hapū

HRC has established relationships with all 16 hapū and iwi in the region and is developing Memorandums of Partnership with each iwi. This replaces its approach in the 1990s and 2000s of consulting with iwi in the region via Te Roopu Awhina, a consultative committee of council. HRC has a dedicated iwi policy person on staff. It says that its approach has resulted in high levels of engagement with several iwi and hapū.

Some iwi and hapū involved in Treaty of Waitangi settlement negotiations have limited capacity to engage in resource management planning. There is often a pre-settlement Memorandum of Understanding or Partnership with scheduled works for the catchment and water body. This arrangement becomes formal as a part of the settlement process.

HRC has worked with Landcare Research to develop cultural health indices that recognise to Te Mana o te Wai. HRC says it would like to incorporate both a 'Western science' and a 'Māori science and world view'.

In regard to identifying tāngata whenua values as per Part D of the NPS-FM, some identification of values has been undertaken using hapū members as local experts to identify areas of value. This work pre-dated the NPS-FM.

Iwi and hapū views

Iwi representatives we spoke to said that, over the past six years, HRC has shown openness to Māori views and there have been many opportunities for engagement.

They consider that HRC is doing its best in this area. HRC staff, from the chief executive to a freshwater monitoring field officer, make themselves available to iwi and operate transparently. HRC staff are all accessible – in fact, they often ask hapū and iwi for advice. They are very good at conveying scientific information in layperson terms. Personalities can make a difference in building relationships – HRC staff have been sincere in their interactions.

Hui participants we spoke to said that they do not see HRC consulting with them as some 'box-ticking exercise' to satisfy any central government direction – it has been HRC's own initiative. An example of the level of openness is that HRC is taking on interns from hapū and iwi. HRC has let iwi and hapū take the lead on some projects.

Memorandums of Partnership between HRC and iwi were developed with staff, and are living documents with regular milestones. The representatives we spoke to said that a Memorandum of 'Partnership' is better than a Memorandum of 'Understanding'.

By and large, hapū and iwi felt that they have traditionally been reactors to HRC initiatives but are now participants and actively seeking ways to invest in the opportunities in the Manawatū–Whanganui regional growth strategy. One of these opportunities is tourism and the need to recognise that improving the catchment provides an economic benefit.

They also believed that hapū should be given greater access to decisions. There is a desire for a greater share of decision-making, including representation on HRC.

Territorial authority views

Territorial authorities expressed uncertainty about their obligations to consult with iwi outside their districts that may still be affected by discharges to the rivers.

Engaging with territorial authorities

HRC reports that it has actively and positively engaged with territorial authorities. This includes having territorial authorities publicly update on various projects at HRC committee meetings, and collaborative work on water quality through the Manawatū River Leaders' Accord and the Lake Horowhenua Accord and their respective Fresh Start for Fresh Water Clean-Up Fund projects.

HRC notes that territorial authorities face significant infrastructure challenges. HRC considers that there is an opportunity for territorial authorities to provide higher quality consent applications for major infrastructure, to avoid and minimise adverse effects. It says that time spent processing consents is often consumed with the need to seek more information lacking in the original applications.

Territorial authority views

Territorial authorities were most concerned about the management of their sewage discharges. On the one hand, they felt HRC had done well by putting a line in the sand for water quality, giving them something to work towards. But they also felt that there is a focus on only part of the sewage load and that bigger gains could be made elsewhere. They said it is getting increasingly difficult to meet community expectations, for example, to move to land-based sewage treatment systems, and that it is challenging to meet regional rules because sewage discharges include trade waste from companies that are needed in the region.

They said that the concept of discharging sewage to water is becoming unacceptable to the community, so while the region may meet the NPS-FM objectives, it may not meet the expectations of the community. People expecting that land-based systems are the answer do not fully understand the implications of that and what the impacts are on the ratepayers. HRC has also been pushing for land-based treatment of wastewater.

One district council said that it has seven sets of effluent ponds, and it is a large expense for its small ratepayer base every time there is a change of requirements. Another said it had cost millions for improvements needed to get a discharge permit but that improved understanding of the river over the 10-year duration of the consent meant still more improvements are now required for the next consent. The councils wanted more certainty about what was required of sewage treatment because it affects the long-term costs associated with their asset management.

They said that the NPS-FM has not put constraints on what water quality improvements would be reasonable to achieve. If there is a high value water body, then central government should put funds into improving it.

They said that there is a challenge in meeting aspirational goals with what science can achieve. To date, technologies to improve levels of treatment have been affordable and practical, but it is getting increasingly more expensive to meet community expectations. The funding from central government for sewage treatment upgrades has been 'invaluable'.

Capacity and capability

HRC has a significant number of staff working on resource management implementation and science (around 40 full-time equivalent working in regulatory compliance and around 30 full-time equivalent working in non-regulatory implementation) with fewer numbers dedicated to policy development. It would need to increase staff from the existing five full-time policy staff if it had to perform a major rework of the One Plan.

HRC also said that nutrient management consenting is labour intensive. It notes that not all land uses are covered by OVERSEER®, for example, it does not cover market gardens and horticultural enterprises all that well. HRC is being very deliberate in deciding where nutrient consents are required or not required for planning.

Stakeholder views

Stakeholders we spoke to said that HRC put considerable resources into the One Plan. HRC was caught out by the resource demand and the need to change. The One Plan process took 10 years of time and effort and was a major burden on farmers. There is little desire or energy to restart the process and concern that future amendments to national policy would make that necessary.

They also said that, as collaborative processes begin, cost (both time and money) is possibly going to become an issue for both communities and ratepayers.

Both territorial authorities and the dairy sector were sceptical of the ability of consent planners to deal with the technical and business implications of the decisions they are making on resource consents. For example, consent planners were seen as not having enough understanding of farm systems to evaluate a farming consent, yet they are basically making business decisions on behalf of the farmer that can have significant long-term consequences.

HRC's roadshows were noted as a sign of its efforts to help farmers. HRC worked with the Rural Support Trust to give advice to farmers, calm nerves and help farmers come to terms with the changes that they would have to implement. Many farmers were worried, but HRC and the Rural Support Trust were able to help address those concerns.

Territorial authority views

Territorial authority representatives felt that HRC had done really well on water quantity management but not so well on water quality issues, in particular, in terms of what is expected of territorial authorities. They were not convinced that HRC is investing in the science and is relying on consent applicants to fund the research into the effects of the discharges. They expressed concern over a perceived lack of technical understanding at HRC regarding infrastructure (eg, wastewater) and the speed of consent processing.

Information

HRC said that the science that fed into the One Plan is now a decade old and needs to be reviewed for plan changes. HRC will need more science around nutrients for working out the best way forward for the region's rivers. For example, more knowledge is required on the relationship between nitrogen presence at higher concentrations and chlorophyll A (periphyton) levels. In a number of cases, high nitrogen levels are not reflected in increased chlorophyll A or periphyton levels as is commonly expected.

HRC is working to increase the knowledge of the region's water quality. While some catchments are well understood, with a number of monitoring stations in place, other areas have few monitoring sites or only recent data. HRC has made considerable investment in freshwater science and monitoring, and the region has some of the most monitored rivers in New Zealand. Monitoring programme upgrades from 2007 have doubled the number of water quality monitoring sites and will soon be able to report on 10-year trends. HRC's periphyton programme is the most comprehensive in the country and is researching the relationship between flows, nutrients and periphyton at over 50 sites throughout the region. HRC has required metering for consented water take volumes since 2003, well before national regulations.[6]

Much of the water quality data is available on the Land, Air, Water Aotearoa website, and the telemetric data from water quantity monitoring systems has been accessible to the public on HRC's website since 2007. HRC notes, however, that care needs to be taken with reporting on results from water monitoring – often the most intensely monitored sites are those that are known to have issues. Depending on how this is reported, it can misrepresent the overall state of water quality and cause unnecessary concern in the community.

HRC also notes that, while it does not have long term (30-year plus) monitoring data for many sites, it does have anecdotal reports of historical poor water quality at numerous sites (eg, downstream of freezing works and industrial sites). It believes care must be taken when relying on people's recollections of 'we could swim anywhere'.

Fishing and mahinga kai areas were identified by asking local experts to identify areas of importance. Many of these areas were identified by multiple experts with independent verifications. Some areas also had scientific data that identified them as areas of significance to freshwater fish populations.

Stakeholder views

Some stakeholders we spoke to said that they have issues with the lack of scientific understanding of causes and effects. For example, there is no linkage between periphyton and nutrients, but the nutrient numbers are becoming standards. There is uncertainty about understanding what 'life-supporting capacity' is in the river. There is a feeling that some of the numbers are a bit of a guess.

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[6] The Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 took effect in November 2010 with staged implementation through to November 2016 according to consented take volume.

There is a focus on outcomes in terms of achieving standards for the quantitative macroinvertebrate community index and periphyton. Stakeholders said they could invest huge amounts and not be sure they will meet these outcomes. The science link is not there. There is a view that HRC favours these measures because they are easy to measure for compliance purposes. There is concern about the ongoing cost that monitoring and reporting will have in terms of time and resources for the community.

They said that sediment is the primary issue in the hill country but is less understood and more difficult to measure or address than nutrients. More data is being collected.

Territorial authority views

Territorial authorities want assurance that they are getting good environmental outcomes from the money they are spending because they work to long-term funding arrangements for their assets. There is an expectation that land-based discharges of treated wastewater are best, but they do not fully understand the effects (eg, from heavy metals). They consider that the Ministry of Health should have a role in determining the effects on human health.

Plan implementation

HRC says that it places a high value on implementation of the One Plan – especially where it can achieve targets using non-regulatory drivers. It said that, so far, implementation of the One Plan is leading to more improvements in quality, building on improvements over the past 10 to 12 years when all dairy farmers moved to land-based effluent systems, with none now discharging to water. Some sites are still declining, but interventions are in place.

However, HRC says that it needs to scope the implementation process better. For example, Ruapehu has a small, low income ratepayer base but high itinerant tourist numbers. This places pressure on the wastewater system. Because tourist numbers are predicted to increase, how can the wastewater system be upgraded to cope?

The impact of implementation will be significant for some communities. HRC acknowledges that seeking improvements to sewage treatment will be financially challenging and require research to identify lower cost treatment systems for small towns. For example, the Shannon wastewater plant equates to an additional $100 to $200 a year in rates, which is a high impact on a lower income area.

HRC says it wants to maintain contact with stakeholders so that it is not seen as only appearing when things are going wrong. For this reason, HRC does not want to rely on industry self-audits or third party audits

HRC is about to conduct a review of the One Plan to assess what is working and what could be revised or changed to improve implementation of the plan. HRC is aware of some rules that are not functioning as intended or that are not even applicable. Other initiatives, such as field consenting, are working very well.

Stakeholder views

Stakeholders we spoke to said that the One Plan was a huge jump ahead, but HRC has been practical in its implementation. The dairy industry considers that time is needed to measure the effect before there is another jump forward.

Implementation of the One Plan is a major burden on the farmers. The greatest cost is in hiring accredited consultants to generate farm plans rather than the implementation itself. Consultants' fees could reach $5000 to $6000.

The priority catchments for nitrogen are often in the poorer districts that rely most heavily on farming and have fewer viable employment alternatives. Farmers are not able to reduce intensity or seek other jobs without undermining the local economy.

They said that sometimes black and white rules bring huge cost for only a small benefit. As an example, an otherwise high performer may get in trouble for not fencing a difficult-to-reach area or installing a bridge on a rarely used waterway crossing.

DairyNZ, Horticulture New Zealand and other sector groups have put considerable resources into the process and have supported farmers with implementation.

Fish and Game Wellington and the Environmental Defence Society recently sought a declaratory judgment from the Environment Court about HRC's implementation of the One Plan through its approach to resource consenting under a limits regime.[7]

The region has been able to make use of multiple central government funds for clean up and planting riparian zones. The central government funds have allowed HRC to gain other investments.

[7] Although the findings have recently been released, we are not conducting an analysis as part of this report, because this review is based on discussions with HRC staff, stakeholders and iwi in 2016.

Conclusion and recommendations

The following are the views of government officials about the approach to NPS-FM implementation in the region.

- HRC was an early leader in terms of setting objectives and limits in a regional plan – albeit before the NPS-FM came into effect to require that approach. The approach it took in the One Plan has resulted in it being well placed to ensure complete compliance with the 2014 NPS-FM by 2025.
- HRC has a number of successful initiatives that other regions could learn from, including the Sustainable Land Use Initiative and the Manawatū River Leaders' Accord.
- Iwi report positive engagement with HRC and some worthwhile projects are under way to improve waterways, although they say they are very concerned about the poor health of the region's waterways.
- Stakeholders report a positive change of culture within HRC towards communication and engagement.
- Territorial authorities feel that the changing regulatory environment is a challenge for managing their wastewater infrastructure. We consider that this may be a wider Resource Management Act 1991 issue, and changing policy based on emerging research is necessary for the successful management of freshwater resources.