Primary Sector Liaison Group (PSLG)

Report to NRC - October 2022

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Background

NRC is engaging with two advisory groups (Tangata Whenua Water Advisory Group (TWWAG) and the Primary Sector Liaison Group (PSLG)) to inform the development of the regional policy statement and plan that gives effect to the National Policy Statement for Freshwater Management 2020. Broader public consultation will occur once the draft policy and plan changes have been developed.

This report is the result of NRCs engagement with the PSLG to understand current and future primary sector challenges and opportunities, based on the NRC draft Framework (setting out values, attributes, target attribute states, objectives, and actions). It does not reflect the views of individuals or industry bodies, rather it reflects group discussions and perspectives as a collective, advocating for Northlands Primary Sector. Current membership includes farmers, growers, Horticulture NZ, Beef + Lamb, DairyNZ, Fonterra, Pāmu, Northland Wood Council, Ministry for Primary Industries, and Federated Farmers.

This report does not compromise the ability for any member of the PSLG to engage in the draft plan change submission process. It may however be used in documentation to support the plan change process, including s32 reports and communications material – therefore it is recognized the information (or part thereof) will be publicly available.

Overview [1]

Te Tai Tokerau is Aotearoa's only subtropical climate, offering the primary sector a competitive advantage. In total, the primary sector equated to $914.2 million or 10.4% of the regions total GDP in 2021, with self-employment making up 41%. The landscape is dominated by pastoral farming (mainly dairy, sheep, and beef) alongside forestry and horticulture, collectively contributing $768 million to GDP in 2021. 11 wood processing mills are located around the region, processing approximately 40% of all wood harvested with the remaining wood exported via Northport. Food manufacturing plants support the sectors, with meat works operating in the Far North and Kaipara Districts and dairy processing in the Kaipara and Whangārei Districts. Pastoral sectors and associated manufacturing accounts for almost 40% of the total value of Northland's exports.

Initiatives by sector

The primary industries have various initiatives in place to support farmers and growers to understand and respond to new regulations and reduce their environmental footprint.

Forestry

The Forest sector operates under the *National Environmental Standard for Plantation Forestry* (NES-PF) which provides rules and standards for operations including afforestation, pruning and thinning, earthworks, river crossings, quarrying, harvesting, mechanical land preparation and replanting. This enables a consistent approach across New Zealand and established robust afforestation and replanting rules.

The Northland Wood Council (formed in 2011) facilitate regular meetings with the wider industry and NRC under the 'Northland Forestry Environmental Working Group'. This group has established *Forestry Earthworks & Harvesting Guidelines for Northland* providing best practice examples focused on minimising erosion/sedimentation tailored to Northland conditions.

Fonterra - Tiaki Sustainable Dairying Programme

Northland has six Sustainable Dairy Advisors (SDA's) delivering the *Tiaki Sustainable Dairying Programme*. This programme provides specialised regional knowledge, expertise, and services to support best practice, helping

[1] https://ecoprofile.infometrics.co.nz/northland%2bregion

farmers proactively respond to changing regulatory requirements. SDA's assist with a broad range of sustainability-related farm matters, from effluent management advice to farm environment plans (FEPs).

DairyNZ – regional extension team

The regional DairyNZ team of five, works with Northland farmers to improve profitability resource use efficiency and sustainability, through extension and advocacy. This is done on either a one-to-one basis or through facilitating local or seasonal groups held on farm to ensure regionally relevant information is available and farmers have access to forums to discuss issues unique to Northland.

Beef & Lamb - Environmental Strategy

B+LNZ's vision is 'Sustainable and profitable farmers, thriving rural communities, valued by New Zealanders'. An important part of B+LNZ is investing in farmers capability and capacity to support a vibrant, resilient, and profitable sector. Protecting and enhancing New Zealand's natural capital and economic opportunities through a holistic approach to environmental management is fundamental to the sustainability of the sector and to New Zealand's wellbeing for current and future generations. B+LNZ is actively engaged and working to ensure that the industry supports an ethos of environmental stewardship. B+LNZ is actively building their work programme to support farmers integrated and sustainable management of land and water resources:

- Working with farmers to develop Land Environment Plans (LEP) through levy funded workshops;
- Developing and implementing science and extension programmes to help identify, prioritise, and implement on farm actions that will improve water quality, aquatic habitats, and biodiversity;
- Working with farmer leaders throughout the region to support uptake of farm environment plans and to encourage and support the development of sub catchment approaches to managing water quality; and
- Working with farmers to know their greenhouse gas number through levy funded workshops.

Horticulture – GAP

The horticultural sector operates under assurance systems known as Good Agricultural Practice (GAP). These schemes provide assurance for the safe and sustainable production, packing and distribution of fruit and vegetables in New Zealand. HortNZ has also partnered with MPI to develop programmes under the Sustainable Food and Fibre Futures umbrella which supports problem solving and innovation in the horticultural sector. Other initiatives include the Kerikeri Gateway Horticulture Schools Programme.

The Te Tai Tokerau Water Trust (established mid-2020) received $68 million in funding from government to initiate water storage and distribution schemes, effectively opening 7000ha for potential horticultural development. The opportunities this presents will need to be considered and allowed for.

Industry wide collaboration

Collaboration Te Tai Tokerau (CTTT) is an example of collaboration between Te Tai Tokerau farmers, growers, and producers to deliver stronger and more resilient capability. The vision for CTTT: Te Tai Tokerau has the most resilient, inclusive, and collaborative primary sector in Aotearoa. CTTT has worked with stakeholders to identify four focus projects relevant to Northlands primary producers, one of these being: diversification and optimisation of land use.

Kaipara Moana Remediation (KMR) is an example of a decade-long project underway to remediate environmental degradation bordering Northland and Auckland regions, aiming to halve sediment loss from land to sea (an estimated 700,000 tonnes is currently deposited into the harbour each year). KMR focuses on Northlands largest river, the Northern Wairoa, which has a catchment area of 3650 square kilometres, covering 29 percent of Northland's land area. KMR is a $300 million project to improve freshwater quality, greater biodiversity, resilience from climate change, and carbon sequestration - through tree-planting and wetland management.

Challenges and Opportunities

Several challenges and opportunities have been identified for NRC to consider and respond to, helping to inform the effectiveness of plan provisions and provide background information to support the draft plan change; see Appendix One for further detail.

One challenge currently facing the primary sector is the scale and pace of regulatory change. This is also an opportunity for NRC to utilise what is already in place through Freshwater Farm Plans (FWFPs). FWFPs allow farmers and growers to tailor different solutions or mitigations to achieve the desired outcomes.

It is also important to note that a raft of new regulations and rules have only recently come into force through the Essential Freshwater package and regional plan changes. The effect of these changes will take time to translate into freshwater improvements over the coming years.

Changes in land use will continue to occur in response to economic, political, and regulatory pressures. Changes right now for example are driven by economic and regulatory responses, with a number of pastoral farms being converted into forestry. Policy and plan changes shouldn't preclude, but rather provide for new opportunities in land use change and future diversification as new innovations and technologies develop.

Summary of freshwater challenges and opportunities identified by the PSLG:

- The sector needs; reliable, and robust, scientific data to underpin catchment specific solutions – similarly, a 'one-size-fits-all approach' is not suitable for primary production.
- One challenge is reliable access to water (mainly impacting dairy and horticulture).
- Water storage is an opportunity and possible solution to water security challenges, particularly with the increase in drought risk. This is also an opportunity to simultaneously provide for ecosystem health and urban outcomes, in addition to broader economic and environment outcomes.
- Consultation and drawing on the communities existing knowledge and experience is vital for the development of the plan and its solutions. This provides an opportunity for NRC to work with communities.
- It is important that the immense resourcing and effort going into the KMR project is recognised and translated into real terms for those outside of the Kaipara catchment who do not have access to this level of support.
- Mitigations, costs and information must be made available (for landowners to know what to do).
- Unintended consequences of regulatory changes – how can this be mitigated. The interconnection between different land uses needs to be recognised and provided for.
- Freshwater planning needs to be responsive to the challenges of climate change and provide for resilient rural communities in the face of change, in setting limits and determining the policy framework for example: water storage, providing for flexibility in land use, and changing crop needs/demands.

Principles

The 6 principles of Te Mana o te Wai inform the implementation of the NPS-FM 2020. The PSLG supports the guiding principles and recommends the following are also considered for the development of the new plan:

Science-based: Planned change is more likely to succeed when using science-informed practices.

Outcome-based: Various mitigation options can be tailored through Freshwater Farm Plans and existing assurance programmes to achieve a set outcome, allowing kaitiaki to take responsibility.

Affordability (cost effectiveness): Cost must be considered when assessing the various mitigation options and resources available to achieve the desired change.

Partnership: Utilising scientific, organisational, stakeholder and practitioner experience improves the quality of change-related decisions.

Flexibility: To meet best-practice standards, acknowledging that one size does not fit all. The goal is the ability for the landowner/farmer/grower to manage their own land use and for the plan to support and allow for example crop rotation – not prevent and restrict it.

*Effective: U*nintended consequences are considered and thought through (for example unrealistic limits – it's important to allow for sensible land use change overtime).

Long-Term Visions for Freshwater

The PSLG understands visions will be set at both a regional and FMU level. With 13 FMU's in Northland but over 230 soil types, the diversity of Northlands landscape is vast. Similarly, the challenges between sectors within the primary industry vary greatly. The visions need to reflect this diversity on an FMU level and should be used to inform the policy approach for region wide provisions.

Visions should express a compelling future that motivates change. The PSLGs vision for the future is one where the importance of the primary sector to Northlands's economy is recognised, the industry can thrive, and appropriate land use is provided for.

Timeframe

The group notes the example used in the NPS-FM was 30 years (as an example of a timeframe that is both ambitious and reasonable), however there is no requirement to use this timeframe. We strongly recommend adoption of a realistic and achievable timeframe based on the water quality and quantity limits set as part of this process in consultation with tangata whenua and the community.

When setting a timeframe, it's important to recognise:

- the lag time between changes made now and water quality improvements can be upwards of 50 years, depending on the natural makeup of the landscape
- the journey it will take to improve the health of our waterways, including its associated cost (refer to KMR example earlier and the resources available).
- mitigations to enact freshwater improvements are heavily reliant on individual buy-in, often requiring a level of behaviour change that will not occur immediately

To evoke a relationship between the present and future, recognising the importance of sustainable land and water use, the PSLG suggests using the word 'generation' (rather than years); for example, 'two generations'. Generational thinking connects one to a distinctive timeline, evoking a personal connection to time through both family and the land.

Timeframes should be influenced by community aspirations, taking into account the social, economic and cultural implications, while allowing for a reasonable transition time depending on the desire for future water quality states.

Wording to consider for Long-Term visions

A long-term vision suggested by NRC as a starting point could be amended to:

> "Within two generations, Northland's freshwater ecosystems are healthy, the mauri of the water is protected, and our water supports resilient and thriving communities, and a strong economy."

Other suggestions on wording include:

- social, cultural and economic well-being of present and future generations
- communities resilient to climate change
- Food and fibre production is supported by innovative and sustainable land and water management practices that continue to: maintain food security, support a transition to lowering emissions, improve resilience to the effects of climate change, recognise and provide for primary production.

For example, North Otago has included:

> "innovative and sustainable land and water management practices support food production in the area and improve resilience to the effects of climate change."

Wording and its interpretation are important to consider through this process, for example, what is 'appropriate' and who defines it – the same could be said for words like 'clean', 'resilient', and 'healthy'.

Our recommendation

Propose several options (including wording suggestions from both TWWAG and PSLG) to engage with communities and tangata whenua on the long-term vision to capture the views of catchment users. Any suggested wording needs to include clear definitions to avoid different interpretations and meanings.

Values

The four compulsory values listed in the NPS-FM are: ecosystem health, human contact, threatened species, and mahinga kai. Additional values should be informed by robust conversations with the community and tangata whenua, recognising the PSLG only represents a portion of stakeholders in the region.

The PSLG supports consideration of values 6, 7, 8 & 9 (appendix 1B, NPS-FM 2020), as being important to Northlands primary industries:

- Hydro-electric power generation
- Animal drinking water,
- Irrigation, cultivation, and production of food and beverage *(including fibre)*,
- Commercial and industrial use.

The group considers that each of these values should be kept separate as they relate to different matters and, while there may be a degree of overlap, there will be material differences in the objectives for each value. An additional value has also been suggested to recognise the importance of our domestic food supply in growing fruit and vegetables for human consumption. Growers rely on water of suitable quality and sufficient quantity to produce fruit and vegetables which are fundamental to the health of New Zealanders.

The group has also highlighted sector challenges and opportunities (see appendix one) which can help to inform the interpretation of the values discussion and how they are used in the process. The following aims to explain why the values are important to primary industry production:

Value: Animal drinking water

Stock drinking water is required year-round, with quantities varying across seasons. An important factor to consider is that unlike other regions, a significant proportion of Northland farms rely on surface water for stock drinking (and dairy shed water) and are vulnerable to drought and low water flows.

Value: Irrigation, cultivation, and production of food and beverage

This value also includes fibre and timber. Reliability of water supply in terms of volume, quality and timing is critical for all production and growers of food, fibre, and timber. The following provides examples from horticulture and dairy as to why the above values are important.

Rootstock survival water for example, is important for growers reliant on surface water takes. The Northland Regional Plan provides for a quantitative amount of rootstock survival water; however, this is not based on catchment-specific modelling. The sole purpose of rootstock survival water is to avoid plant death or damage to the degree that they require removal and to maintain orchard viability. Providing for rootstock survival water within appropriate boundaries will achieve efficient allocation while enabling ecological objectives to be

met. It also provides for the value of reliability – which is particularly critical to growers, particularly when water storage is not viable or available. Requirements differ based on crop and lifecycle – e.g young plants compared to established orchards. The timing, and whether this coincides with a critical time in the season also relevant.

Water use for dairy farming has a seasonal pattern, linked to milk production and availability of pasture. All dairy farms need a reliable water supply during the milking season to maintain food safety standards and for milk cooling purposes. Without water, milking would have to cease affecting animal welfare, farmer wellbeing, and production. With approximately two thirds of Northland dairy farms currently using surface water takes for dairy shed water, if minimum flow restrictions were implemented this would impact a considerable proportion, with region-wide implications, if all water takes are ceased when river flows drop.

Our recommendation

The PSLG recommends that the values relating to primary production are included in the plan and addressed with appropriate objectives, polices and rules. We are aware however, that NRC are not intending to address water quantity in the new plan but suggests that this is re-visited for the suggested values. The PSLG sees a real need for the provision and retention of surface water takes within appropriate boundaries for rural production activities. Provisions enabling other solutions to be implemented such as water storage should also be considered.

Te Mana o te Wai Hierarchy

In terms of the regional application of Te Mana o te Wai, the value of water in enabling primary production is encompassed by the third obligation to prioritise the ability of people and communities to provide for their social, economic, and cultural well-being.

The first column of the values and objectives table in the NRC strawman contains the Te Mana o te Wai hierarchy. The strawman has then grouped freshwater values depending on whether they relate to priorities a, b or c (first, second or third priority in the NPS-FM 2020). Grouping and ordering according to the hierarchy is likely to lead to unnecessary discussion about whether a value should be a, b or c. For example, it has already resulted in discussion about whether the use of water for certain types of food should be in b or c. Time and effort would be better spent discussing wording of freshwater values and objectives, then attribute states, rules, limits, and action plans. Our view is that the NPS-FM does not require, nor is it helpful, to consider each of the Te Mana o te Wai priorities in isolation and assign values to priority a, b and c.

Te Mana o Te Wai can be given effect to through plan architecture, interpretation, and implementation. By providing plan users with direction (that the provisions of the plan are to be interpreted and applied in a manner that considers and recognizes Te Mana o te Wai) implements it in accordance with ki uta ki tai, which includes recognition and provision for the integration between land and water.

Objectives

Objectives can be used to incorporate several values. It is also preferable to integrate the 'additional Te mana o Te Wai values and objectives' since many are interlinked. In relation to the four compulsory values, wording of the objectives and its interpretation must be considered. The following table provides suggested changes or amendments to the objectives in the draft NRC Framework:

NRC Framework objectives - ecosystem health:	PSLG comments:
The mauri, life-supporting capacity, ecosystem processes and indigenous biodiversity	The reference to 'improved where needed' opens the question of how that will be assessed (and who will determine where). This ought to be

(including threatened species) of freshwater bodies, and their habitats are safeguarded and improved where needed.	reflected by words like "and improved where that is determined by the community and tangata whenua."
Freshwater ecosystems are healthy and resilient to climate change	The word "healthy" is broad and open to interpretation. It is potentially being equated to a prehuman state. Whether different or additional wording is required will depend on how this is applied at an FMU scale and how it is interpreted through attribute states.
Prevent the introduction of new freshwater pests into Northland, and reduce the spread of existing pests and eliminate where feasible	The word 'feasible' could be replaced with 'practicable' to reflect consideration of cost, practicality, and rationality.
There is no further loss of natural inland wetland and river extent	the following better reflects the NPS-FM: *There is no further loss to the extent of natural inland wetlands and loss of river extent is avoided where practicable*.
Water quality is at least maintained, and improved where it does not meet river, lake, groundwater, or wetland national or regional water quality standards and guidelines	Propose amending to: *Water quality is at least maintained and improved where it is below national bottom lines or where it does not meet specific community outcomes.*
Water quality and use does not adversely impact on receiving environments	We consider this too broad and vague as the intent/what it relates to is unclear (discharges and takes, or significant adverse effects, or everything - whether existing or new, significant or not). We consider that greater clarity could be provided, such as: *Water takes and discharges to water do not have a significant adverse impact on receiving environments.*
NRC Framework objectives - drinking water supply:	PSLG comments:
Registered drinking water resources are reliable, and the quality of drinking water sources is protected	*Resilience to climate change* should be reflected in the objective: *Registered drinking water resources are reliable and resilient to climate change, and the quality of drinking water sources are protected*.
Future development has access to sufficient potable water supply	There is concern that the suggested wording could have implications for existing water users (particularly for consent renewal) and implications for new water takes (and consideration of assimilative capacity, discharges, and cumulative effects). Placing new restrictions on existing and proposed takes and uses of water and land uses, for vague and broad future development that may or may not happen is not appropriate in this case. We understand local authorities have obligations under the NPS-UD. However, these are in the specific context of the named tier 1 and 2 local authorities, in urban environments, and in respect of development capacity to meet expected housing demand. The group considers that this is much narrower and more focused than "future development" – which could be any development. This could be reworded to be more specific and suggest an amendment to the environmental outcome, which provides some additional nuance by linking to the need for future development to be 'appropriately located': '*Sufficient potable water for appropriately located future development*'

Framework objectives - Human Contact:	PSLG comments:
- *water quality is suitable for people and communities, to safely undertake human contact activities* - *flows and water levels support human contact activities*	Needs further consideration, the objectives should explain the types of human contact activities that are intended to be provided for (e.g. swimming, waka, boating, fishing, mahinga kai, water skiing), the location of these activities (e.g. is it in all waterbodies or is it only in those water bodies where people currently undertake those activities) and the times of year (e.g. is it year round or is it only during summer; does it include during flood flows etc). Our view is that it should be the locations and times of year that people carry out water contact activities, to the standard needed to carry out the activity and it should exclude times of flood or uncontrollable weather events such as cyclones or droughts.
Objectives for Natural Form and Character	PSLG Comments
The significant values of outstanding freshwater bodies and the natural character of wetlands, lakes and rivers and their margins are protected and improved where degraded	The objective focuses on significant values of outstanding freshwater values. We consider that the same focus ought to be adopted for the natural character of wetlands, lakes and rivers to ensure that the significant or most valued waterbodies are protected and improved. The group considers that the natural qualities intended to be captured by these values are matters like exceptional, natural or iconic aesthetic features and not simply any and all features of waterbodies. The group also has concerns about how "degraded" is defined. It could be argued that all wetlands, lakes and rivers (and their margins) have (or had) natural character have been degraded by human activity.The group considers that waterbodies ought to be improved where the community and tangata whenua determine improvement is required, and only in respect of those significant or outstanding waterbodies.

Objectives to consider for values 6, 7, 8 & 9 (animal drinking water, irrigation, cultivation and production of food and beverages (including fibre), commercial and industrial use, hydro-electric power generation) include:

- Freshwater is vital for all farming and growing activities.
- Farming and growing rely on both water takes (for everything from animal drinking needs, to irrigation, to milk cooling) and the assimilative capacity of water (with farming and growing resulting in diffuse discharges and these being assimilated for water).
- Certainty about sufficient, reliable and sustainable freshwater resources is a fundamental part of all farming and growing operations.

As explained above, we consider that the four values (6, 7, 8 & 9) ought to be separated out with objectives for each. Those objectives may overlap but it is likely that there will be material differences because the values contain important differences.

Objectives for animal drinking water:
Water is vital to animal health and welfare. Even short periods without water, they will become dehydrated which can result in stress/implications for production (e.g., quality of meat or reproduction) and ultimately more serious health complications leading to death. The importance of water takes for animal drinking is recognised in section 14(3)(b) of the RMA. We consider that these matters need to be recognised and propose the following: - *Water quality and quantity meets the drinking needs of farmed animals, including whether it is palatable and safe.*

- *Continued availability of water and recognition that existing water takes contribute to social and economic wellbeing.*
- *Only cease access to water in circumstances where no other option is available to safeguard the life supporting capacity of freshwater.*
- *Meet future needs of water for agricultural purposes if land use changes are required to improve or maintain water quality.*

Objectives for irrigation, cultivation and production of food and beverages (including fibre)

This value applies to a wide range of primary production (farming and growing) activities, including the use of water for: dairy sheds, irrigation (already controlled through rules/resource consents), and processing activities including freezing works, fruit and vegetable processing plants, dairy factories etc.

If reliable water was not available locally, or changes to the management regime (for example) resulted in reduced certainty about the quantity and reliability of supply (for takes or assimilative capacity), increased compliance cost, or required significant infrastructure expenditure to reduce diffuse discharges of contaminants, some businesses could not continue. Farmers, growers and agricultural processors would be forced to cease or reduce production (temporarily or permanently), or transport water from where it is available. Both options would have serious financial implications for any farmer or grower, processor, consumer, the wider community and the region.

Sustainable farming and growing communities result in provision for access to services like schooling and healthcare, infrastructure and community driven organisations and services like fire brigades and sports clubs. While often understated, these factors are of importance to rural communities, underpinning the social fabric and support systems in these areas

To the extent that there is conflict between the primary production value and other values, the objectives (and other plan provisions) ought to enable and promote innovation such as supplementary water takes, water storage etc. The group considers that all of these matters need to be reflected in objectives for the irrigation, cultivation and production of food and beverages value.

We propose the following:

- *Water quality and quantity is available and suitable for animals, food and fibre production, is reliable, resilient to climate change effects.*
- *Water quality and quantity is suitable for irrigation needs, including supporting the cultivation of crops, the production of food from farmed animals and the farming of animals for other purposes e.g. animal breeding, wool or leather.*
- *Water supports a range of regionally and nationally significant primary production (agriculture, horticulture, forestry). These industries contribute to the economic, social and cultural wellbeing of people and communities, and are the major component of wealth creation, employment,* recreation *and food supply within the region. These industries and associated primary production also support other industries and communities within rural and urban settings.*
- *Water and the surrounding land offer unique opportunities for many communities and industries to operate, contributing to the lifestyle and sense of community, pride and culture in the region.*

Objectives for commercial and industrial use:

The group considers that the focus of this objective should be on the ability to provide for commercial and industrial activities as follows: *Water can provide for commercial and industrial activities.*

Objectives for hydro-electric power generation value:

We understand that there is a hydro-electric power station on the Wairua River, near Titoki. However, we are not aware of any other hydro-electric power generation activities currently being undertaken or whether there are sites that would be suitable for this activity in the future. The group considers that the value (and associated objectives) should only be adopted for FMUs (or parts of FMUs) where hydro-electric activities currently occur or where there are locations suitable for future hydro-electric power generation.

We propose the following:
- *Water can provide for current hydro-electric power generation activities in those FMUs (or part of FMUs) that are suitable (in terms of factors such as physical qualities, hydraulic gradient, and flow rate) for hydro-electric power generation.*
Objectives for domestic food supply
- *Water quality and quantity is suitable for irrigation for food production* - *Water quality and water quantity allocation frameworks make sufficient provision for appropriately located food production* - *Domestic food production is resilient to climate change.*

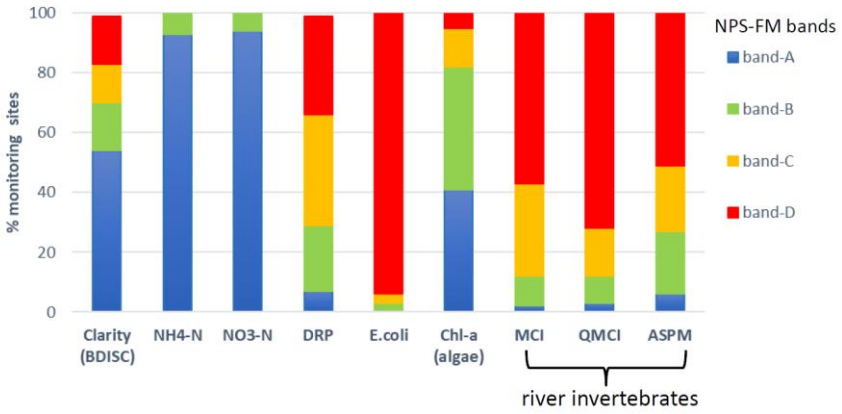
Water supports a range of regionally and nationally significant primary production, offering unique opportunities for many communities and industries to operate, contributing to the lifestyle and sense of community, pride, and culture in the region. Some businesses would not survive if changes to the management regime (for example) resulted in reduced certainty about the quantity and reliability of water supply, increased compliance cost, or required significant infrastructure expenditure. The flow on effects for suppliers, processors, rural communities and consumers would reduce access to services, underpinning the social fabric and support systems in these areas.

Should conflict arise between the primary production values and other values, the objectives (and other plan provisions) ought to enable and promote innovation such as supplementary water takes, water storage etc and not constrain the future. It is also important for the regional plan and/or the Regional Policy Statement to include how NRC will address conflicting interests for example setting out clear limits for when water takes will need to cease and for how long.

Attributes

NRC has provided a draft framework setting out attributes, baseline states and target attribute states. There are 22 compulsory attributes listed in the NPS-FM and targets must be set for each at or above the national bottom line. We support NRCs plans to also include attributes for both wetlands and groundwater. The approach set out by NRC to maintain the current band (if above the national bottom line) or move up a band is also supported. We recognise that sediment and E. coli are two key water quality issues for Northland to focus on (as well as macroinvertebrates). As shown by the NRC monitoring results (Figure 1) nitrogen is not a major issue for Northland, strengthening the need to focus on other contaminants.

Figure 1: Current State Summary



In addition, several river monitoring sites are not meeting the national indices for river invertebrates. Macroinvertebrates (as measured using the MCI score) is an attribute that must be used for the compulsory

value of ecosystem health if relevant. It requires an action plan, rather than a limit on resource use depending on if it is affected by nutrients.

It is our understanding that the national metric used for MCI is not suitable for conditions in Northland and that a region-specific metric exists. We recommend that a (new) comparison using the national and regional metrics are done with the latest monitoring data to assess the differences. We also recommend that NRC discus the results with relevant MfE officials, aiming to change the use of metrics depending on outcome of the assessment. The reasons for low MCI scores in Northlands streams and rivers are varied and need to be further assessed/understood to target effective actions and mitigations.

Natural characteristics and their impact

The implications of natural physical characteristics of Northland (naturalised *E coli* for example) should also be considered, particularly if they impact on the ability to meet the national bottom line. Northland has historically high levels of dissolved reactive phosphorus in soils/rivers, but low nitrogen levels. Having clarity on the sources of contaminants will help tailor rules to certain areas or circumstances where they are most effective.

In addition (as discussed above), the lag time between changes made now and water quality improvements can be upwards of 50 years. Particularly so for widespread diffuse source contaminants – like sediment – that require a catchment scale approach and/or rely on mitigations that have a relatively slow response time. Another example is MCI, where cause & effect relationships are uncertain or multiple factors influence the state. The group is concerned that should the consultation reflect a desire to achieve improvement at all sites within 10 years this will not be achievable using current best management practices (and without additional support). It would also impose significant social and economic cost. Careful consideration needs to be given based on the robustness of data, extent of improvement required, sources of contaminants (spatial and temporal), cost and the technology available to make such improvements. Consultation on target attribute states must include information on realistic and achievable timeframes and the use of examples.

The groups recommendation would be to prioritise sites - based on consultation with tangata whenua and the community. For example, prioritising above rivers and lakes where swimming occurs with a reasonable timeframe for improvement. Following that, the focus should be on improving other sites within a reasonable timeframe. We also recommend focusing on direction of travel and improvement in numeric attribute state, rather than hard deadlines and targets.

Additional attributes for primary industry values

NRC will need to identify attributes for all values to assess whether the environmental outcome is being achieved. We understand it would be helpful if the PSLG could suggest suitable attributes for the four values relating to primary production.

The group considers that the 22 compulsory attributes in the NPS-FM are sufficient to describe the compulsory values and other values that must be considered if they relate to water quality. However, the NPS-FM 2020 doesn't include attributes for water quantity, therefore we recommend NRC develop and test attributes for the primary industry values together with the group.

In terms of addressing Clause 3.11(1)(b) of the NPS-FM – where councils are required to identify site or sites to which the target attribute state apply – these could initially be drawn from 'State of the Environment' (SOE) monitoring sites, used to assess water quality across Northland. In addition, a holistic review of current and potential sites should be undertaken to address gaps. We encourage these current and potential sites to be provided for through the consultation process with tangata whenua and the community.

Limits on resource use and action plans

Example actions are listed in the document provided by NRC for suspended fine sediment and E. coli. The group supports proposals to investigate sources of contaminants, support/funding, monitoring and other non-regulatory interventions and methods. The role of catchment and community groups should also be considered as should developing online tools and portals to assist with collating and recording the actions and information. Education and support will be critical to the success of any freshwater initiatives and interventions (regulatory and non-regulatory). An action plan approach may be required, for example where catchment scale mitigations are required to meet attribute states, or other actions outside of what the regional plan objective/policy/rule typically deliver.

Potential rules in the plan

The group agrees with the proposal not to revisit the whole set of water quantity policies/rules, given they have only just gone through the Environment Court and become operative. However, target attribute states set for water quality will need to consider these and integrate with them.

The full effect of the regional plan and the national regulations e.g. NES-F, stock exclusion regulations are unclear or can't be seen yet which makes it difficult to assess the gap and need for further changes in addition to the current regulations. In addition, there is potential for more stringent rules under NES-Drinking water. NRC submitted on this and raised some concerns as this could influence potential new provisions in the draft freshwater Plan change.

Where rules are required, they need to be practical and workable to provide for domestic food supply. For example, recognition of the enterprise operating unit (comprising owned and leased land) and enabling crop rotation. Alongside consideration of regulatory interventions, it is important to factor the role of catchment groups and the ability to use non-regulatory methods (including coordinated action, funding, incentives etc).

The group proposes the following questions and comments as guidance for development of future actions for the new plan:

- Is the enforcement of current rules effective - in reducing sediment discharges for example, or are more stringent rules for sediment needed (targeted at highly vulnerable land or water bodies).
- The enforcement of current rules could be assessed using current compliance data and include cost/benefit. This should also be confirmed with a wider audience.
- Need to assess against forestry rules and correlation with the red zone in the NES-PF.
- Mapping of highly erodible/critical source areas for sediment. Maps should be included if used in a rule.
- Are more stringent rules needed for threatened species: e.g., ground/bed disturbance, discharges, temperature, larger setbacks? Given threatened species is a new compulsory value under the NPS-FM
- Tighter controls for dunes lakes and other sensitive areas might be needed but the areas then needs to be clearly defined.

It's important to note that within horticulture there are many different crops which translate to different types of irrigation application, fertiliser use, and water quality mitigations. If a one rule for all approach was taken, in some cases it would have a limited or nil impact on improving water quality.

Freshwater Farm Plans (FW-FPs)

Under the governments *Essential Freshwater Package*, FW-FPs will soon become a requirement for farmers and growers, providing a practical way to meet freshwater outcomes. FW-FPs recognise 'one size does not fit all' when it comes to on-farm solutions. NRC will play an important role in enabling, informing and developing FW-FPs through water quality data, mapping, and land management guidance.

FW-FPs identify practical actions on farm to help improve environmental outcomes while allowing flexibility which is key for complex and diverse farm systems. Actions will be tailored to each farm's circumstance, the physical environment and what's relevant to the catchment that farm is in. FW-FPs include a risk-based tailored approach to mitigating impacts. This will help ensure that the actions taken have a real impact, are effective and practical.

FW-FPs can be relied on/used as a tool to support an outcome-based approach that comes with accountability through certifying and auditing, reducing the need for consents and hard-and-fast rules. However, the PSLG recognises there is still a need for regulatory rules and is supportive of a focus on receiving environments according to sensitivity (a region wide approach nuanced by biophysical conditions), but areas identified as needing more stringent rules need to be identified based on a scientific approach and with clear motivations. Dune lakes, for example, are a rare ecosystem and a sensitive receiving environment where regulation is appropriate to ensure protection. Existing RM plan is another example - requires sediment reduction plan on highly erosive land, setbacks could be sensible in sensitive places.

Mitigations

Successful interventions can be translated into three features that promote change: ability (increasing skills), motivation (increasing willingness), and opportunity (making it easier by adding support/removing barriers).

Setting appropriate outcomes is key to achieving the desired state and long-term vision of the freshwater plan change. By allowing various mitigations, FW-FP for example as a tool for implementation of on-farm actions, bespoke solutions can be tailored to specific circumstances. Targeted intervention in hotspot areas will help to move Northland to the desired state.

Mitigations should (regardless of how they are implemented):

- Focus or prioritise high source areas
- Be used according to land classes (planting class 6 for example may be effective in reducing sediment)
- Incentivise landowners to stay under the threshold of requiring resource consent (PA)
- Look to utilise mapping technology to identify critical source areas
- Encourage catchment action plans/adaptive management
- Consider naturalised attributes
- Consider time, cost and resource requirements – including unintended consequences
- Account for ongoing maintenance

Mitigation options (wetlands, riparian planting, fencing etc) are good in theory, however the consequences of ongoing maintenance can often be overlooked. Poplars planted along waterways are a good example of this, now proving to be a real problem. NRC should encourage landowners to take ownership of ongoing maintenance and reduce the impact of unintended consequences if relying on these types of mitigations.

Sediment

Reducing sediment loss provides multiple benefits, including reduction of the phosphorus bound to it. Sediment reduction plans could be required in areas of high sediment loading, recognising reduction of sediment requires careful management of highly erodible land, appropriate stock exclusion, and a focus on critical source areas (CSA).

It's important to acknowledge that the KMR project (discussed on page 3) is enabled by access to significant funding and resources. For landowners outside of KMR the ability to achieve the same outcomes is reduced with limited access to support measures. To inform a discussion on mitigations it would be useful for NRC to consider the KMR business case to understand the scale and pace of realistic change and resourcing requirements. The PSLG encourages the provision of support measures for sediment control activities outside

of KMR catchments. Recognising the impact different incentives and subsidies have had as drivers for fencing and riparian planting to date.

E.coli

Alongside sediment, E. coli is recognised as a key water quality challenge. Good management of point source areas, including exclusion of stock from waterways are key steps to reduce contamination. The requirement for stock exclusion is now included under both legislation and the newly operative regional plan. Effluent management practices are also improving, as shown through the compliance rates from the annual unannounced compliance checks of all dairy farms in Northland. Critical source areas are best managed through the use of FW-FPs where mitigation methods can be tailored to each farm.

E. coli can also be present naturally in soil and water (also discussed above under *Natural characteristics and their impact)*, with no risk to human health (non-pathogenic) and may cause some waterways to fall below water quality standards. As discussed by NRCs resource scientists in *River water quality and ecology in Northland – state and trends 2012 – 2016,* "very poor swimming results may reflect the findings of McDowell et al. 2013 that in warm, wet humid climates E. coli levels tend to be naturally high". [2]

Questions for NRC to consider:

- How will natural sedimentation and *E. coli* be addressed?
- How to avoid the requirement for engineers or consultants to be bought in – too costly
- How to recognise and allow for synergies with the ETS

Non-regulatory/mitigation toolbox – comments on options presented by NRC that relate to the primary sector:

Mitigation strategy	**PSLG comments**
Bridging stock stream crossings	Expensive to install and maintain in a meandering river system, also very vulnerable to flood damage. Management of river crossings is required under the new stock exclusion regulations.
Constructed wetlands	Need to be built to a high standard, overseen by council. Non-regulatory, landowner and council working together as an action plan, could be included in FW-FP's. Potential for one larger wetland to cover several landowners, hard to assess cost share & effectiveness. In forestry, constructed wetlands beneficial for sediment retention, add forestry to 'farm systems' in mitigation toolbox.
Sediment traps and retention ponds	Would need consent to modify and maintained every 10 years. Site specific, could be part of farm plan/action plan. Council tools could assist e.g., LIDAR, guidance documents on construction and location.
Stream fencing	Largely covered under new stock exclusion regulations. Good co-benefits with riparian planting e.g., shading, water temperature, habitat quality. Site specific, need to consider 'right plant, right place'. Issues: weeds grow along edges, can create flooding problem - plants are ripped out along with sediment.
Vegetated buffer strips	Most common sediment control measure for horticulture (where horticulture runoff volumes would not be mitigated by a buffer, a sediment pond would be most effective at reducing sediment). Riparian planting to shade waterways also important, the biggest barrier to this is funding.
Restricted grazing on winter forage crops	Intensive winter grazing not relevant for Northland, NES-F covers it.

[2] https://www.nrc.govt.nz/media/wwxne5rv/river-water-quality-and-ecology-in-northland-2012-2016.pdf

Greater effluent pond storage and deferred irrigation	Effluent storage: farm specific, NRC's PRP requires that ponds be sized in accordance with the Dairy Effluent Storage Calculator, which also assumes efficient effluent irrigation is used. The challenge remains to encourage good management.
Low-rate effluent application to land	Already in place on a large number of dairy farms across Northland.
Enhanced pond systems	The plan shouldn't preclude future development of new treatment systems (i.e. discharge to remain non-complying, rather than prohibited). PSLG makes no comment on municipal treatment systems.
Restricted grazing & off pasture confinement	Stock holding areas can be expensive, and their effectiveness and relevance to Northland is not certain. However, standoff infrastructure has become more common in Northland.
Preventing fence-line pacing	Applicable to deer farms - very few (deer farming in Northland requires a permit from DOC).
Precision agriculture	Precision agriculture: costs depend on level of automation and are often prohibitive. Applicable to horticulture - suggest changing the wording in the mitigation toolbox to: Precision irrigation/inputs (or similar).
Change animal type	Limited, site specific, some dairy to beef & sheep and beef & sheep to pines.
Soil conservation plan to plant trees	Highly relevant to Northland, some confusion between NRC & KMR roles. Conservation planting needs an economic trade-off against costs.
Benched headlands	If the operation already has a permanent drain system in place this is duplication. While these do exist for some operations they are vegetated.
Bunds	Used to trap sediment, site specific, forestry uses both earth and slash bunds, easy & effective, can combine sediment traps/bunds/silt fences into one method
Silt fence	Need to be installed well and maintained often. Short-term solution only.
Low water-soluble P fertiliser	NRC need to allow for management of two different pathways using either solid broadcast fertilisers or liquid fertigation systems. Solid fertilisers are quickly incorporated into soil with cultivation.
Red mud (bauxite) to land	Whilst this may be possible in an annual or biennial system, adding bauxite red mud in a perennial operation would be extremely difficult. Also, depending on the crop being grown changing the pH of the soil may make it inhospitable for horticulture.
Dams and water recycling	Food safety and market requirements would restrict this in some areas and sectors.
Cover crop	Common practice – only applicable on certain vegetable rotations. If continuous rotation, then cover crop is not applicable.
Wind break crop	Shelterbelts are common practice across the primary sector.

The remaining mitigation tools provided by NRC are mainly of low relevance to Northland, or very site specific. How can NRC allow for (and educate on) these mitigations without perverse outcomes? Innovation also needs to be allowed for and in some situations encouraged to solve or come up with solutions to specific freshwater problems.

Process

A wider consultation and engagement with the community and tangata whenua to draw on existing knowledge and experience is vital for the development of the plan and its solutions.

The group makes the following suggestions for engagement:

- To use existing industry groupings, like the Northland Environmental Forestry working group
- Continue the PSLG to enable feedback throughout the process

- Context is needed to encourage engagement (why, what, when)
- Provide some opportunity for face to face during the draft plan phase
- Use information from other agencies such as Reconnecting Northland, to inform community values.

Conclusions

Fresh water resources are essential for Te Tai Tokerau, no matter the sector, industry or community involved. Adverse events such as droughts and floods are common occurrences, likely to become more frequent in the future. The impacts of these can be exacerbated by land use and water management practices. Therefore, the importance of this plan change and its subsequent drivers cannot be overstated.

From a primary sector perspective, freshwater planning needs to consider the impact of climate change and be responsive to challenges and opportunities farmers and growers face. Resilient rural communities need to be provided for when setting water quality and quantity limits and determining policy framework. The PSLG supports a region wide approach using farm plans, with rules in place to ensure protection of specific biophysical areas or sensitive receiving environments.

The PSLG cautions the use of unrealistic goals, especially when considering timeframes for change. Consideration must be given to the cost and resource required. Expectations need to be carefully managed to ensure the science is clearly understood by stakeholders and the community so that progress is not perceived as 'slow' and new measures brought in before the results of current land management changes are seen.

Water quality is a complex issue influenced by several factors including seasonal variances and naturalised states, slow to respond to land management changes. By using scientific evidence, reviewing organisational data, consulting experienced practitioners, and gathering input from key stakeholders', problems (and their causes) are more likely to be identified with appropriate solutions to match.

The PSLG acknowledges the collective expectation for change in the way freshwater is managed, recognising each person has a part to play. Appropriate support will be required at a community, industry, and government level depending on the level of change being sought.

The PSLG would appreciate the opportunity to continue to meet throughout the plan change through to implementation. Acknowledging that we have only been able to comment on what is written in the NPS-FM and the Framework written by NRC to guide this process. In addition, the opportunity to meet with the TWWAG would be welcomed.

Appendix One

The following table outlines several primary sector challenges and opportunities identified by the group:

Challenge	Opportunity
Science Reliable and robust data supports catchment specific solutions	Continue to focus on sediment and e. coli, including mitigation options that are proven to achieve the outcomes required – within cost and resource limitations.
Water Quality Plan implementation reflects regional limitations (and naturalisation?)	To improve Northland's water quality in a collaborative way.
One size does not fit all Single approach not suitable, there is no 'silver bullet'.	Tailor provisions to receiving environments according to sensitivity – a region wide approach nuanced by biophysical conditions. For example, dune lakes are a rare ecosystem and a sensitive receiving environment where regulations are appropriate to protect them. In addition, the use of FW-FPs allows mitigations to be tailored for particular systems while still achieving the desired outcomes.
Water Shortages/reliable access. Northland relies heavily on surface water takes and aquifers. The sector needs clarity about water availability and reasonable access to water for farming purposes.	Landowners and businesses know they need consents to take additional water above permitted levels, however, rarely understand aquifer and river water availability. To make good decisions you need good data, this is an opportunity to provide and create better data for farmers to make good triple-bottom-line decisions for their livelihood. Water storage solutions being built near Kaikohe and Te Kopuru. This also has the opportunity to simultaneously provide for ecosystem health and urban outcomes, in addition to broader economic and environmental outcomes.
Flexibility Make provision for land use change as needs/demands alter over time, including responses to climate change.	When new technology or understandings develop enables flexible approaches to land use.
Outcome-based Allow for different answers as long as they achieve the same end result	Gives tangible answers while allowing bespoke solutions – leaving the pathway to achieve the outcome up to the experts. Options in which to achieve the outcomes would be helpful (rather than you can't do X, here are some ways to achieve X). This further supports the use of Freshwater Farm Plans.
Community driven Consultation/drawing on existing knowledge and experience for the development of the plan and mitigations. Improvements to water quality are underpinned by both robust science and community consultation.	An opportunity for NRC to work collaboratively with the community by seeking input into the freshwater plan change. Local projects generate knowledge valuable for the development of the plan - needs to be a clear process to include this. This will achieve the best possible outcome considering a triple bottom line approach (and to ensure community ownership and support of the plan change).
Support Implementation and information available – for landowners to know what possible solutions are	All change involves learning. Recognizing gaps in knowledge and skills is important to change planning
Unintended consequences Raft of regulatory changes. How can interconnection between different land use needs be recognised and provided for.	Draw on past lessons and learnings to reduce unintended consequences. For example, the Horizons One Plan and its impact on beef farming and carrot growing demonstrates the importance of allowing for sensible land use change overtime.

Time and cost How to balance public expectations with realistic resource constraints. Cost of implementation of regulatory methods, including council costs of implementing the new regulations and national directions, costs of implementing the new plan and associated mitigations.	Draw on KMR's work to fully understand the resource required to achieve desired outcomes and to inform the conversation with the community and tangata whenua.
Regulations ETS/He Waka Eke Noa/Biodiversity etc also need to be considered, as well as freshwater regulations already in place but not fully implemented.	How can the ETS be used in a sediment hotspot for example? Forestry doesn't want to be locked up forever - in an RMA plan how can we see and use those synergies? Can NRC use non regulatory methods to encourage cover for example in sediment hotspot areas? Carbon farming = 50 years (can go down to 30% cover), however NZ sawmills can't handle a 50-year-old log. Is there provision in the RMA framework that can drive synergies. What could the role of action plans be here?
Land use change Challenge and risk that the level of change occurring in the compliance and regulatory space is driving farmers into inappropriate land use decisions.	Regulatory decisions need to provide for opportunities to undertake the right land use choice for the right scenario.