BEFORE THE DECISION-MAKING COMMITTEE

IN THE MATTER OF:

Proposed Waikato Regional Plan Change 1 - Waikato and Waipā River Catchments

healthyrivers@waikatoregion.govt.nz

Submission of Vera van der Voorden and Nora van der Voorden

1. Introduction

2. This submission focuses on the need to give better effect to Section 6 RMA matters, the maintenance of indigenous biodiversity, the National Policy Statement on Freshwater Management, the Waikato Regional Policy Statement (RPS) including the Vision and Strategy for the Waikato River / Te Ture Whaimana o Te Awa o Waikato (Vision and Strategy).

3. I couldn't gain an advantage in trade competition through this submission.

4. I wish to be heard in support of this submission.

5. If others make a similar submission, I will consider presenting jointly with them at a hearing.

I welcome the development of this plan. Having lived on the edge of the Waitetuna River at Te Uku for more than 10 years I have been aware of key problems with issues such as:
Increased sedimentation of river due to inappropriate farming methods on high erosion hillsides.
Over allocation of river water to one single user.
Water belonging to the people freely allocated to private business interests.
Lack of respect of water use by farmers who water pasture in the heat of the day, not even trying to conserve our precious commodity.
Nutrient pollution.
Faecal coliform levels making the river not safe to swim in after rain.
Little interest in riparian planting of streams and tributaries to minimise faecal and nutrient runoff into said waterways.
Increased sediment due to forestry harvesting.

A few years ago WDC/ Regional Council produced a document which was hugely alarming. 75% of our waterways were not even safe for cattle to drink. Since then the rivers in our area have further degraded at an alarming rate and this proposed plan is definitely not going to tackle the problem fast enough for human health.
The attitude to water use urgently needs to change. All in all I believe a sturdy education programme needs to be rolled out to all commercial users of a resource actually owned by all, to make them understand that use of an owned in common resource is not a right it's a

privilege. Maybe it needs to be - if you abuse it you can't use it. At the end of my submission I have added further comments and concerns

Key issues of this submission

6. I've identified a number of concerns with PC1 as proposed and have summarised my key issues under the following headings. Under each key issue I identify the matters my submission relates to and relief sought.

Freshwater in the Waikato and Waipa Catchments

7. Freshwater bodies in the Waikato and Waipa Catchments (the catchments) include ephemeral streams in the headwaters through to the estuarine mixing zones of freshwater and coastal waters.

8. Freshwater ecosystems include lakes, wetlands, streams, groundwater and geothermal ecosystems which support a wide diversity of indigenous freshwater fauna and flora.

9. Many of these ecosystems and species are under threat of extinction, e.g. all riverine lakes in the Waikato region are either eutrophic or hypertrophic and 74% of native fish species in New Zealand are under threat of extinction.

10. The freshwater bodies within the catchments have multiple values including environmental, social, cultural and ecological service (or economic) values.

11. There are multiple stressors on these freshwater habitats and aquatic species. These include inappropriate land use not based on the natural productivity of the land and soil, diffuse pollutants from livestock, land / habitat clearance, sedimentation from inappropriate plantation forestry management and harvesting, point and non-point sources of pollution (this includes sedimentation, nutrient enrichment and faecal pathogens), land intensification, over allocation of water, wetland drainage; and invasive pests and weeds.

Vision and strategy

12. I recognise the requirement for Waikato Regional Council (WRC) to give effect to the Vision and Strategy under the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, Ngati Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010, and Nga Wai o Maniapoto (Waipa River) Act 2012. As set out on Page 16 of proposed PC1 is *"the first stage of achieving the Vision and Strategy, with on-farm actions carried out and point source discharges reviewed as resource consents come up for renewal"*. It is also noted that the *"staged approach gives communities time to adapt"*.

13. Review at renewal only relates to point source discharges. Point source discharges can have significant adverse effects, however they are also controllable and can often be

pre-treated before entering water. It is not clear why WRC has opted to wait out consents which could be up to 35 years rather than set a review date through PC1.

14. The staged approach is recognised in Policy 5. However this policy does not set out any clear requirements other than suggesting that the real changes will come through future regional plan reviews; i.e. after 10 years. This appears to be a deferral to the future, clearly accepting that the current provisions do not achieve the objectives of the plan.

15. It is unclear why Objective 1 is not considered relevant to the staged approach as assessed in the s32 report. As objective 1 sets out the 80 year target of 2096.

16. Page 130 of the s32 report states that *"Plan Change 1 is considered a departure from the current approach to resource management in the Waikato and Waipa River catchments."* Although the plan sets out an approach to change, it doesn't implement change, nor "departure" from the current approach. In fact any actual departure is indicated to be implemented through future plan changes (Policy 5 and 7, Methods 3.11.4.7and 3.11.4.8). If anything this plan change is more like a non-regulatory strategy.

17. It is disappointing that it has taken considerable time to result in an approach which defers action until a future plan change, or plan review as suggested by Policy 5 – 10 years out at least (as would be 10 years from operative PC1 date).

18. There has been sufficient time to adapt, as the National Policy Statement for Freshwater Management (NPS FM) provided clear direction of need to change. The failure of PC1 to set out a clear process and requirements for nutrient discharges means that there is no adaptation required at least for the next 10 years.

19. Waiting 10 years before any concerted action is required is inconsistent with giving effect to the Vision and Strategy. This approach fails to place any responsibility on those who can make the biggest impact on restoring and protecting the health and wellbeing of the Waikato River.

20. **Legislative framework**

The National Policy Statement on Freshwater Management (NPS FM) - Water quality objectives

21. The National Policy Statement on Freshwater Management (NPS FM) includes the following objectives and policies:

> "*To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the use and development of land, and of discharges of contaminants."*

Objective A2:

The overall quality of fresh water within a region is maintained or improved while:

- *protecting the quality of outstanding freshwater bodies*
- *protecting the significant values of wetlands and*
- *improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.*

Policy A4 and direction (under section 55) to regional councils

By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy A1 and Policy A2 (freshwater quality limits and targets) have become operative:

"*1. When considering any application for a discharge the consent authority must have regard to the following matters:*

- *the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water and*
- *the extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the discharge would be avoided.*

2. This policy applies to the following discharges (including a diffuse discharge by any person or animal):

- *a new discharge or*
- *a change or increase in any discharge – of any contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.*

3. This policy does not apply to any application for consent first lodged before the NPS FM takes effect on 1 July 2011."

22. The NPS FM also includes provisions relating to integrated management, tangata whenua roles and responsibilities; and a progressive implementation program. Freshwater management by councils should also be founded on a spatial framework of management units and identified values.

Relief sought

23. he proposed Plan Change 1 should give effect to the aforementioned provisions in the NPS FM.

WRC legislative responsibilities

24. WRC has responsibilities pursuant to provisions within the Resource Management Act 1991 (RMA).

25. This includes to *"maintain and enhance"* pursuant to s.30, i.e. water quality must be at least maintained, everywhere, whether this be easy or difficult (recent Ngati Kahungunu court decision).

26. With regard to regional plans WRC must give effect to National Policy Statements and RPS. In the context of the NPS FM Regional plans must:

> "*Establish freshwater objectives (in accordance with a new process) and set freshwater limits for all freshwater management units* ***to give effect to the water quality objectives in the NPS FM."***

NATIONAL OBJECTIVES FRAMEWORK

27. The NPS FM includes a National Objectives Framework (NOF) which sets out national bottom lines and attribute states for some attributes that impact on water quality (for example, *e coli*).

28. Bottom lines must be set in the proposed PC1 for the national compulsory values of ecosystem health, i.e. life supporting capacity, ecosystem processes and indigenous species including their freshwater ecosystems; and human health for recreation.

29. Toxic contaminants such as heavy metals, micro-organisms and organic compounds can also impact on water quality and human health (as well as stock). Policies, methods, limits and targets should be identified to reduce any contaminants to safe levels.

30. Other values and associated objectives, attributes, limits and targets can also be identified by regions / regional councils.

Freshwater Objectives

31. Freshwater objectives should be structured in a series of increasingly precise objective statements that culminate in numeric objectives. These should move from the catchment (or Freshwater Management Unit) to sub catchment level.

32. Each of these objectives would be more specific to the circumstances at hand forming a cascade of objectives down to the numeric level from which limits can be set.

33. Objectives must not be set lower than current water quality (they must at least maintain water quality) and in some water bodies must seek an improvement.

Relief sought

The following parameters need to be included as freshwater objectives in PC1 -

- Natural character (including the condition of the riparian margin).
- Dissolved oxygen (DO), i.e. diurnal variation in water temperature. DO was not included as the TLG deemed there was not enough point source discharges to warrant the inclusion of this as an attribute.
- Deposited and suspended sediment (the TLG recommended that water clarity was an appropriate defacto level). Water clarity is appropriate for suspended sediment but not deposited sediment, i.e. clogging of native fish habitat.
- Te Hauora o te Taiao / the health and mauri of the environment.
- Freshwater Macroinvertebrate Health (Macroinvertebrate Community Index).
- Periphyton.
- Cyanobacteria
- Benthic cyanobacteria
- Dissolved Inorganic Nitrogen (DIN) & Total Nitrogen in the tributaries / sub catchments
- Total Phosphorous in the tributaries / sub catchments
- Temperature
- pH
- Toxic heavy metals
- Barriers to fish migrations
- Water flows and levels
- Estuaries

Instream limits and associated targets (timeframes)

Relief sought

34. In relation to the numeric freshwater state objectives identified above, limits should include: nutrient loads (N and P), sediment loads, e-coli, toxic contaminant loads (e.g. metals, organic compounds), micro-organisms and temperature (mainly be applicable to point source discharges). Limits must be demonstrably set at levels that will allow freshwater objectives to be set.

35. In over-allocated catchments (where the existing load exceeds the desired limit) WRC should set both interim limits and targets (a limit to be met by a defined time in the future). Targets must be demonstrably set at levels that will allow freshwater objectives to be set. Timeframes should be well defined and achievable.

36. Once limits are set, pollutant loads to land should be identified on both a sub catchment and farm level taking into account the assimilative capacity of the land and attenuation of the soil type. The Land Use Capability (LUC) classification system should be part of this calculation until further research associated with a Land Suitability approach is complete or practicable to use.

Timeframes

37. WRC should retain discretion to set timeframes for adjustments required in land use and discharge of contaminants appropriate to each case. Where significant adjustment

times are required, targets should be set in regional plans at no more than 5 year intervals to ensure progress towards freshwater state objectives, and to provide for timely adjustment of interventions as necessary.

Policies and methods

38. In addition to setting the time frame for adjustment, PC1 should set out the policy and methods (to be used to manage to a target) at the time the target is set. This should describe responsibilities for meeting the target and how the policy will affect land users and others discharging contaminants, including how rules and resource consents will be adjusted.

Rules within PC1

39. To be successful, rules must be well designed and implemented, easily and consistently enforced, and be backed up by enforcement. Rules should be supported with robust industry standards.

40. Rules should ensure at a minimum that output standards / limits associated with phosphorus, nitrogen, sediment and faecal contaminants are met.

41. Where the NPS FM requires that something be *avoided* (i.e. over-allocation) or that the plan *ensures* that an outcome is achieved, this requires that activities not achieving that outcome are non-complying. Using limits / targets as permitted activity thresholds does not give effect to those clear directions in the NPS FM.

Thresholds

42. PC1 should specify thresholds (a proportion of a contaminant level) to indicate when a waterbody is coming under resource use pressure, and indicate when a change in the management regime should occur.

43. Once the threshold has been reached, all new discharges, and activities that increase the total discharge, should be explicitly managed to maintain the limit and protect existing rights to discharge from derogation.

44. The threshold-setting process should recognise spatial variation and the interactions between contaminants and should take into account the:

    a. size of the resource
    b. proportion of the limit that is being used
    c. current and expected rate of uptake of the remaining portion of the limit
    d. likely scale and extent of unmet demand
    e. historic inputs
    f. persistence of contaminants in the environment
    g. lag times.

<u>Relief sought</u>

Identify thresholds in sub catchments and catchments coming under resource use pressure.

Implementation and program of change plan

45. Currently PC1 has a draft implementation and associated program of change plan.

46. A successful freshwater management system should:

    a. adopt a transparent approach to developing monitoring, compliance, and implementation systems.
    b. take steps to ensure that effective and cost-efficient monitoring, compliance, and implementation capacity is in place at the time the regime is introduced
    c. monitor, report on and review the implementation of the policy.

47. The management system should also include:

    a. transparent public information for freshwater discharges and takes
    b. a WRC report every 2 years on progress towards meeting objectives, limits and targets.
    c. steps WRC will take if the combined interventions are not sufficient

Relief sought

That WRC develops a freshwater implementation and programme of change plan which includes the aforementioned elements.

Water Quality Targets and Limits

48. I'm concerned that, not only would the water quality limit of 'C' fail to achieve the objective for a swimmable river, but it is not based on analysis of ecosystem health and does not provide for the protection or maintenance of indigenous biodiversity.

49. However, I have significant concerns that the policies and rules proposed in PC1 do not achieve the Vision and Strategy or the wider objectives of the RPS for Natural Character, Biodiversity, etc and need amendment to ensure they give effect to the NPSFM, as required by RMA s.67 (3) (a), and to ensure that water quality is as a minimum maintained as required by RMA s30 (1) (c) (ii) and (iiia). In particular provisions that will **not** lead to a maintenance and enhancement of water quality are:-

    a. The short term targets of 10% change towards the 80 year target. This relies on knowing both current water quality and understanding the likely further degradation over the next 10 years. It is also not clear how WRC intends to take into account the likely impacts of lag time for discharges happening now and over the next 10years which may accumulate in soils for a period before being released into water. The approach being proposed is akin to reverse adaptive management. With adaptive management you start by identifying the available nutrient capacity of the water body, identify environmental

baseline/limits and monitor the activities effects on the environment with provisions to modify the activity (such as reducing or increasing scale of the activity) ensuing the environmental limit achieved. However the approach being proposed provides for activities to continue at the scale they are now in a system where water quality environmental limits/targets are not achieved; to allow further increases and additional activities when there is no available capacity; and, only after 10 more years of this, start cutting back the activities to possibly achieve an acceptable environmental limit in 80 years. This is not an adaptive management approach. It is a staged planning approach. However the stages are not certain, as they rely on WRC being prepared to set restrictive regulation through the next plan review. It is inconsistent with WRC's functions to maintain and enhance water quality.

   i. This encourages continued and new investment which is likely to be unsustainable (ref WRC policy that cutbacks will be required)
   ii. WRC cannot review and subsequently withdraw a resource consent on the basis of an anticipated effect. This planning regime anticipates further contamination of water bodies.
   iii. WRC must take into account existing investment when considering an application to renew a consent. Some activities, such are dairy farming with pivot irrigation, require significant investment.
   iv. This sets up a situation where achieving the water quality targets will be even harder and will impact land owners more than it would if changes were made today.
   v. WRC is not carrying out its functions under RMA nor taking responsibility as set out in the vision and strategy, but rather putting this off for the future.

b. The plan does not set clear limitations in terms of irrigation. Farms that are permitted activities can increase nutrient leaching. This could occur by them increasing irrigated areas up to 10ha and winter grazing areas up to 20ha, or by any other intensification that does not require either irrigation or winter grazing (eg. changing stocking class) as a permitted activity. If this option is taken up by farmers it will lead to degradation in water quality.
c. The targets and policy direction set out to manage not only nitrogen but also phosphorus discharges. However Phosphorus management is only required of farms needing resource consent, and the trigger for that is based on nitrogen loss increases, not on phosphorus loss risk. This will not lead to an improvement water quality in those zones.

50. I'm concerned that the proposed permitted land use rules will mean that the associated permitted discharge will not comply with s.70 RMA. Given the effect of the permitted land use rules is to permit the associated discharge; the new permitted rules need to be assessed with respect to this section.

Significant indigenous biodiversity

51. Loss of significant indigenous biodiversity in the sub-region with greatest loss, has been associated with intensification of land use and irrigation. This loss is on-going.

The significance and vulnerability of the high natural values (including landscape) has not been properly recognised throughout the Plan Change. Rare and threatened species endemic to the region include banded and giant kokopu and New Zealand Dabchick. I support the policies and rules which apply to significant indigenous biodiversity, including Policy 15B.4.23 and Rule 15B.5.20. However these rules need to apply throughout the sub-region. I seek that the importance of protecting the outstanding natural character be properly recognised in policies and rules. As recognised in the issues of PC1, water quality is a key characteristic of the Waikato River and its natural character s6 (a) RMA includes biodiversity. As the Plan is currently worded it's inconsistent with the RPS Biodiversity and Landscape provisions.

Monitoring and review of permitted activities

52. PC1 contains a number of permitted activities. There is inadequate information about how these will be monitored and reviewed. This will create a cost to the community to support these activities. It is not stated how WRC will resource this. The regime proposed does not provide certainty that objectives and targets will be met, whether on individual properties or cumulatively, and has not adequately addressed the requirements of s.70 RMA.

53. Section 32A page 4-8 Limit the use of OVERSEER® to resource consent processes and define permitted activities using “narrative” thresholds.

Good management practice

54. I accept this current evolution in providing consistent framing practices to assist in achieving water quality outcomes. However, there needs to be ongoing work to develop “best environmental practices”

55. Best management practices are not set out in PC1 and the definition gives little guidance. Maybe WRC intends to use a similar approach to that taken in Canterbury, where a working group assists council in developing “good management practice” guidance?

Farm Environment Plans (FEP)

56. FEP as a permitted activity is ultra vires and should be a controlled activity as a minimum.

57. One purpose of a FEP should be to provide a consent authority with information about the way in which the consent holder intends to comply with the more specific controls or parameters laid down by the other conditions of consent.

58. As a controlled activity requiring consent, WRC can charge the consent holder for all costs associated with ensuring FEPs are complied with. This cost would then not be borne by the wider community.

59. Audits should be required to assess farm practice against FEPs, to both assess effectiveness of FEPs and to establish progress towards the catchment water quality targets/limits.

60. Identification of non-compliance with FEPs and consent conditions is necessary to establish that the mitigation and remediation actions are appropriate and ensure effectiveness of the plan/compliance with the plan.

61. It appears that the FEP will be the primary tool/means to identify and deliver both best and good environmental practice. The rules should include clear thresholds, at least for now. I support the use of FEPs to assist management of other contaminants, such as soil loss, phosphorus, sediment and E.coli. However I don't consider this effective at the permitted level because of the lack of audits.

62. Need to include rules relating to the 5O's that farmers can do immediately, i.e. reduce stocking rates and fertiliser rates to avoid -

- Over fertilising
- Over stocking – no of cows x days on paddock x time of year = stocking rate
- Over grazing – feedlots, intensive winter grazing
- Over water – stock exclusion, intermittent streams, irrigation, river straightening.
- Over draining, i.e. Wetland creation and slow the water down

63. These 5O's should be implemented in an adaptive management framework

Allocation

64. Allocation approaches should be equitable, ensure efficient resource use, be future proofed, promote sustainable management, not reward current or historic poor practice, i.e. not reward polluters and penalise low leaching land uses or early mitigation adopters.

65. There should also be no existing use rights in regards to land use activities where these are likely to impact on freshwater resources.

Grandparenting

66. The PC1 current allocation process, i.e. identifying a nitrogen reference point based on 2014 / 15 or 2015 / 16 year, is grandparenting in drag.

67. I don't support grandparenting and seeking reductions to pollutants from grandparenting. I also note that the 5 River Iwi and all CSG members were clear that they did not support grandparenting.

Nutrient allocation for farming land uses

68. The Tukituki catchment proposal was deemed a project of national significance & referred to the Board of Inquiry (BOI) by the Minister for the Environment and the Minister of Conservation on 5 June 2013.

69. The BOI rejected grandparenting as a means of allocating nitrogen leaching allowances and instead adopted management frameworks based on Land Use Capability (LUC) nitrogen leaching standards:

"*The LUC classification system provides a nationwide systematic arrangement of different kinds of land according to their capacity for long term sustained production*" [BOI para 406, 18 June 2014]

"*Importantly LUC leaching rates eliminate the need for the currently proposed 'grand parenting' regime…. As noted… such an approach could reward existing high leaching land users. It also lacks any incentive to improve land use practices so that leaching is reduced… They are also incompatible with the NPSFWM*". [BOI para 427].

70. LUC is defined as "*a systematic arrangement of different land according to those properties that determine its capacity for long term sustained production*".

71. Allocation of assimilative capacity based on LUC leaching rates is more equitable and sustainable than other forms of allocation e.g. grandparenting of existing leaching rates, because it encourages higher leaching activities to occur on soils that are more appropriate to such activities.

72. LUC leaching limits were developed by Dr Alec MacKay and are based on the ability of a soil to sustain a legume based pasture that fixes N biologically under optimum management and before the introduction of additional technologies. The standards are derived by calculating the potential animal stocking rate "*attainable potential livestock carrying capacity*" that can be sustained by a legume based pasture, fixing N biologically (as given by each LUC class), under optimal management and before the introduction of additional technologies. Stocking rates are then transformed to pasture production and used in the OVERSEER nutrient budget model to calculate N leaching losses under a pastoral system for each LUC class.

<u>Method for determining year 1 LUC leaching limits:</u>

Use the ability of the soil to sustain a legume based pasture as a proxy for natural capital – the legume pasture dry matter base provides one indicator of the underlying productive capacity of the soil – and the capacity of the soil to provide an environment to sustain legume and grass growth under the pressure of grazing animals.

Use attainable potential carrying capacity = productivity indices (established through research on linking LUC with typical beef and sheep farming systems) = number of animals / stock units per ha capable of being carried on a particular LUC unit.

LUC leaching rates need to be adjusted on a percentage basis to ensure that leaching at LUC leaching rates will achieve desired in-stream outcomes. LUC is a method of allocation rather than limit setting.

Then calculate hypothetical N losses (run stocking rates and pasture production through OVERSEER) = LUC N loss limit per LUC unit

This approach will ensure inherent capabilities of soil to sustain:

- Agriculture
- Is future proofed
- Does not tie in currently land uses or practices
- Equitable across land uses and users

- Does not reward polluters
- Does not penalise low leaching land uses or early adopters of mitigation technologies modelled by OVERSEER

Relief sought

- Grandparenting and seeking reductions to pollutants from grand parenting is not supported.
- Allocation, e.g. nitrogen, should be based on the LUC and land suitability.
- Allocation of costs to clean up should be polluter pays, not subsidised by the public.
- Any rate on clean up tax should be based on % contribution by sector – background contaminants.
- Should be a pollution tax. Similar to the carbon tax in that revenue from this tax should be used to both clean up the water bodies, e.g. restoration costs, and incentivise good land management practices.
- Revenue obtained through abstraction and metering should be used for conservation purposes as well as cost recovery for monitoring costs.

Single nutrient or dual nutrient approach

73. I support the proposed plans dual nutrient management approach to include both nitrogen and phosphorous instead of just phosphorous. I note that both the CSG and TLG supported this approach, based on the following reasons:

- report on relevant bioassays is not conclusive that phosphorous is the limiting nutrient in terms of algal blooms.
- mitigations used in the economic scenario model include nitrogen mitigation.

74. I also note that nutrient management that focuses on controlling a single limiting nutrient i.e., N or P, is based on a paradigm that assumes primary production is N-limited in marine waters and P-limited in freshwaters.

75. In practice, however, there are scientific reasons that make this an overly simplistic model for management of nutrient pollution

- Limitation state changes spatially and temporally even in the same catchment.
- Co limitation is commonly observed across freshwater and marine environments.
- P can be stored in sediments and released for plant growth (legacy effects). This is particularly relevant to the Waikato River which has a number of dam impoundments along its length.
- Composition of algal communities change in response to changes in N and P.
- Low P higher N has been linked to increasing cyanobacteria blooms.
- Algal cells can recycle P.

Ruataniwha Board of Inquiry (BOI) decision.

76. The Ruataniwha Board of Inquiry (BOI) rejected a single nutrient management approach in favour of dual nitrogen and phosphorus management and the establishment of nitrogen limits for ecosystem health and not toxicity.

77. Dissolved inorganic limits as a maximum is set at 0.15mg/L for headwater catchment and 0.8mg/L for middle and lower catchments:

"*Nitrogen/ Nitrate should be managed for ecological health levels and not toxicity. Significant adverse effects on life supporting capacity will occur long before the toxic effects of nitrates will be observed*" [BOI decision para 351, dated 18 June 2014]

"*The Board believes that an approach based on ecological health rather than toxicity is required to give effect to the NPSFWM. Such an approach would also appear consistent with the approach of the Environment Court in Day v The Manawatu Wanganui Regional Council"* [BOI decision para 359, dated 18 June 2014]"

"*Under those circumstances the Board has concluded that the 'single nutrient' management approach in PC6, which is based on managing nitrogen for toxicity effects only, is unsustainable"* [BOI decision para 373, dated 18 June 2014]

<u>Relief sought</u>

- Dissolved Inorganic Nitrogen (DIN), alongside Dissolved Reactive Phosphorous, should be an attribute, with associated limits and targets, within each sub catchment at levels which provide for ecosystem health.
- Dissolved Inorganic Nitrogen (DIN) should be set at levels which provide for ecosystem health, not toxicity. DIN is directly relevant to ecosystem health both in terms of periphyton production and macroinvertebrate health.
- Once a limit is set, the corresponding 'load' or quantity can be allocated.
- Please refer to the relief sought in the proposed freshwater objectives section above.

Downwards movement of attribute data within NOF bands

78. Initially the Land and Water Forum (LAWF) recommended that *"maintain"* means staying within the same band and *"improve"* means moving to a higher band. This would allow a degree of flexibility, but preclude significant degradation of water quality. However in recent times there has been a shift in this view at the LAWF.

79. This view is supported by recent court decisions that support the view, that movement down within a band, is not maintenance of water quality. This argument is supported by the unders / overs court decisions (see “Unders & overs approach” section in this paper) which are based on similar principles.

80. I support the CSG decision that movement down within a NOF band constitutes declining water quality

81. I support the unanimous CSG recommendation that downwards movement of attribute data within NOF bands (trends as opposed to seasonal variation) should not be defined as “maintenance” of water quality.

Relief sought

Include a statement in PC1 to the effect that downwards movement of attribute data within NOF bands (trends as opposed to seasonal variation) should not be defined as “maintenance” of water quality.

Unders & Overs

82. The Parliamentary Commissioner for the Environment (PCE) is critical of an “unders and overs” interpretation of the NPS FM, i.e. as currently written, the NPS could be interpreted to allow degradation of some waterways if there is improvements in others.

83. This is likely to occur in PC1 as tributaries and / or sub catchments could degrade if the main stem improves, i.e. no DIN or TP attributes in the tributaries.

84. In the recent Ngati Kahungunu decision, Judge Thompson was critical and ultimately rejected the proposition that the term 'overall quality' allows for an 'unders and overs' approach to managing water quality where one site might be allowed to degrade if another is improved.

Relief sought

That a policy be included in PC1 that specifies WRC does not support an “unders and overs” approach to water quality between sub catchments within a catchment or catchments within an FMU and / or region.

Averaging

85. The use of “averaging” is a National Objective Framework (NOF) guideline, i.e. set numeric objectives in a way that accounts for natural variability, e.g. using a 95% percentile, annual median or rolling average.

86. This is as opposed to recognition of events seen during peaks and troughs, which can compromise values, e.g. excessive e-coli levels at popular swimming spots during summer months and low flow.

Relief sought

Values of water bodies should be identified and then limits should be set to protect the most stringent value on a spatial and temporal basis.

Forestry

87. The effects of forestry on stream environments are well-documented in New Zealand (see reviews of Harding et al. 2000 and Fahey et al. 2004). Fahey et al. (2004) identify vegetation clearance and roading and tracking as the greatest generators of sediment during forest establishment. Roading, log landings and mass movement from bare slopes are key contributors once harvest has commenced. Between establishment and harvest, roading and tracking continue to contribute surface eroded sediment. Effects on water clarity generally last from harvest until re-establishment of groundcover.

88. Sedimentation associated with forestry can also significantly impact freshwater quality and ecosystem health. Suspended sediment directly smothers the feeding and gill structures of invertebrates and gills of fish and is known to reduce fish diversity (Richardson and Jowett 2002) and cause avoidance behaviour in a number of native fish species, including juvenile banded kokopu (Rowe et al. 2000; Richardson et al. 2001). Suspended sediment also reduces the ability of fish to feed (Rowe and Dean 1998) and disrupts the natural primary productivity base of the food chain in both freshwater and estuarine ecosystems (Rafaelli et al. 1998).

89. Deposited sediment directly affects aquatic life by increasing invertebrate drift out of affected habitat (Suren and Jowett 2001); reduces interstitial spaces, spawning habitat and refuges for aquatic invertebrates and fish (Clapcott et al. 2011); enables the establishment of aquatic weeds, alters bed habitat and can create anoxic conditions. In severe cases estuarine sedimentation contributes to anoxia and mortality of estuarine fauna (Robertson and Stevens 2007, 2011).

90. I note that intermittent streams have high ecological importance. As headwater streams they are often critical source areas for sediment generation which then impacts on the rest of the catchment.

91. Scion's Environmental Impact Assessment of the Proposed National Environmental Standard for Plantation Forestry (NES PF) notes that *"overseas publications have highlighted the need for buffers much wider than 10 m to maintain … in-stream habitat, water quality and biodiversity"*, and concludes that *"A 10m buffer is therefore only likely to reduce the impacts of forestry activities to varying degrees and constitutes a compromise between environmental and economic considerations.".*

92. Following a review of literature it is recommended that to improve water quality and riparian habitat, all streams (including intermittent streams) less than 3 metres wide should have a minimum setback of 10 metres. Streams between 3 and 20 metres should require a 20 metre setback; and large rivers or rivers protected by Water Conservation Orders should have a minimum setback of 30 metres. (Parkyn, et al,

2000; Collins, et al, 201323; Gerbeaux, 201424) This should apply both to afforestation and replanting, as well as all mechanical activities.

93. There is currently no suspended sediment, deposited sediment or visual clarity attributes in the NOF. This means that sedimentation-related attributes will only be included in the value and limit-setting process if they are attributes that WRC considers appropriate.

Relief sought

Freshwater objectives, attributes, limits and targets should be included in such a way as to:

a. "avoid, mitigate or remedy actions during harvesting operations that accelerate erosion and minimise the discharge of sediment to water bodies"

b. limit riparian disturbance by felling away from the riparian zone except where unsafe or impractical to do so.

c. avoid "more than minor adverse effects" (e.g. on aquatic habitat).

d. ensure that mechanical land preparation is parallel to the contour where practical.

94. In addition:

- The plan should have clear, enforceable permitted activity standards that will effectively control potential environmental effects (including cumulative effects that may not be easily attributable to a single activity or operator).
- Where sufficiently clear, enforceable permitted activity conditions cannot be devised, move to a consenting regime.
- Permitted activity standards are unlikely to be sufficient in over-allocated catchments. A consenting regime is required to ensure that the cumulative effects of forestry on water quality are managed to achieve targets within a defined timeframe.

With regard to forestry this should include:

- Apply setbacks to harvesting, pruning-to-waste, all earthworks and any mechanical operations.
- Apply setbacks to intermittent, as well as perennial streams.
- Ensure that to protect the likely presence of threatened freshwater fish species and to provide appropriate protection to water quality, and riparian health, ensure a minimum setback of 10 metres on small streams; 20 metres on rivers between 3 and 20 metres; and rivers over 20 metres wide, and any protected by Water Conservation Orders should have a minimum setback of 30 metres.
- Ensure no intrusion into setback areas from all forestry operations.
- The setback from all wetlands should be 30 metres. Wetlands, almost more than any other water-based natural feature, are particularly susceptible to forestry

operations, including any changes in patterns of water input and drainage, sedimentation, shading, and mechanical damage.

- 30 metre setbacks for permitted earthworks within significant ecological areas or the appropriate setback should be determined having regard to the slope, drainage class and soil content

Stocking rates and intensification

95. The plan only mentions stocking rates briefly.

96. Intensification, be it dairy conversions or increased stocking rates, can result in significant increases in diffuse discharges of contaminants to land and water.

97. There is strong of evidence that farmers can maintain milk production and profits while reducing cow numbers. Numerous research studies support a "value vs volume" approach to farming. Examples include:

- Tomorrows Farms today
- Dairy NZ scientist John Roche says between 2003 and 2013 the average dairy farmer added 100 cows to their herd. He adds that but he says they're no better off financially because they have to spend more on supplementary feed and are damaging the environment in the process.

<u>Relief sought</u>

WRC develop rules that identify lower stocking rates where applicable, e.g. to reduce diffuse discharges.

Perennial and intermittent streams

98. All appropriate objectives, policies, methods of implementation and rules that apply to perennial streams should also apply to intermittent streams

Significant freshwater bodies

99. Outstanding freshwater bodies are only intended to be those with truly outstanding values. However this can be at the local, regional or national level (waterbodies do not need to be nationally outstanding). This subset does not capture all of the areas that may be important in terms of their natural character or ecological significance. Outstanding freshwater bodies may also take some time to be identified and incorporated into plans. At present, Councils use a range of different labels to identify riparian areas of high natural character and amenity value (for example, Auckland Council's Proposed Auckland Unitary Plan has "Natural Stream Management Areas"). The ability to be more stringent should apply to all water bodies with high natural character and significant water bodies

<u>Relief sought:</u>

PC1 should determine the outcomes required to safeguard life-supporting capacity and the ecosystem health of freshwater to:

- Maintain or enhance water quality (where a freshwater limit is met).
- Ensure that freshwater limits are not breached, and that targets are met
- Protect freshwater bodies that are significant but not "outstanding".

Wetlands

100. The protection of wetlands is a matter of national importance under s.6(c) RMA. All wetlands qualify as significant indigenous vegetation as a result of their rarity (less than 10% remain nationally), and many meet other significance criteria in addition.

101. The preservation of the natural character of wetlands, and the protection of them from inappropriate subdivision, use, and development, is also a matter of national importance.

102. The protection and restoration of natural wetlands, and the construction of artificial wetlands, can increase the assimilative capacity of a catchment allowing the land / water system to sustain intensive land uses.

103. In addition protection of indigenous vegetation associated with wetlands is Priority 2 of the four National Priorities for protecting native biodiversity. The National Priorities document is intended to "help local and central government agencies coordinate their decisions and on-the-ground actions in relation to biodiversity". Local authorities are expected to take the lead in implementing the National Priorities through their resource management policies and plans.

104. Protection of the significant values of wetlands in terms of water quality and quantity is requirement of the NPS FM 2014 and must be given effect to in regional plans.

105. All wetlands present in PC1 should be included in a Schedule within the Plan. The Schedule should be complimented with appropriate criteria so that wetlands that haven't yet been assessed can be considered 'significant' at least from an ecological viewpoint pursuant to Section 6(c) RMA where they meet those thresholds.

Section 2 RMA defines wetlands as follows:

106. *"Wetland includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions."*

107. The construction or restoration of large wetlands should be considered a potential sub-catchment-scale mitigation, and the protection, restoration and construction of smaller wetlands on farms could potentially be part of Good Management Practise (GMP) requirements.

Values

Relief sought

Freshwater values being managed for in the Freshwater Management Units do not include the following:

- safeguarding the life-supporting capacity of water and associated ecosystems
- the natural form, character, functioning and natural processes of water bodies and margins, including natural flows, velocities, levels, variability and connections
- the natural conditions of fresh water, free from biological or chemical alterations resulting from human activity, so that it is fit for all aspects of its intrinsic values
- healthy ecosystem processes functioning naturally
- healthy ecosystems supporting the diversity of indigenous species in sustainable populations
- Recreational values (other than swimming)

Proposed freshwater objectives

108. The proposed freshwater objectives do not include the following attributes:

- Natural character (including the condition of the riparian margin).
- Dissolved oxygen (DO), i.e. diurnal variation in water temperature. DO was not included as the TLG deemed there was not enough point source discharges to warrant the inclusion of this as an attribute.
- Deposited and suspended sediment (the TLG recommended that water clarity was an appropriate de facto level). Water clarity is an appropriate de facto for suspended sediment but not deposited sediment, i.e. clogging of native fish habitat, as in Mike Joy's research.
- Te Hauora o te Taiao / the health and mauri of the environment.
- Freshwater Macroinvertebrate Health (Macroinvertebrate Community Index).
- Periphyton.
- Cyanobacteria
- Benthic cyanobacteria
- Dissolved Inorganic Nitrogen (DIN) & Total Nitrogen in the tributaries / sub catchments
- Total Phosphorous in the tributaries / sub catchments
- Temperature
- pH
- Toxic heavy metals
- Barriers to fish migrations
- Water flows and levels
- Estuaries

109. Without inclusion of these attributes and associated objectives, limits and targets; I cannot comment with certainty about the limits and targets associated with those attributes that are within the plan.

110. This is because without an ecosystem health based approach where only a subset of appropriate attributes is included it may transpire that an attribute limit is met, i.e. for those attributes currently in the plan, even though water quality is declining

111. It was noted that an "ecosystem approach" would assess water quality on the combined effect of attribute levels, e.g. nitrogen + phosphorus and that there is a recognised science framework associated with an ecosystem health approach.

Relief sought

WRC staff need to consider why appropriate objectives, attributes, limits and targets were not included in the plan and suggest appropriate limits.

Macroinvertebrate Community Index (MCI)

112. The New Zealand Freshwater Sciences Society (NZFSS) states in their 2014 submission to the *"Proposed amendments to the NPS for Freshwater"* that:

"*The MCI was developed as an index of pollution tolerance and has been shown in numerous studies to respond in a predictable way to land use and nutrient enrichment".*

113. The NZFFS recommended that MCI be adopted as a NOF attribute and provided an attribute table that included banding and associated limits.

114. Various other scientific reports support the use of MCI as an attribute to assess ecosystem health including *"Collier et al 2014. A macroinvertebrate attribute to assess ecosystem health for New Zealand waterways for the national objectives framework – Issues and options. Environmental Research Institute report 36, University of Waikato, Hamilton."*

115. This report was prepared for the Ministry for the Environment and includes an assessment of whether a MCI attribute would satisfy the guiding principles for NOF attribute development. These principles are similar to the list of principles used by the TLG in their assessment and subsequent recommendation that MCI should not be an attribute.

116. The recently released report by the Parliamentary Commissioner for the Environment (PCE) entitled *"Managing Water Quality – Examining the 2014 National Policy Statement"* recommends:

117. *"The Minister for the Environment amends the NPS to include MCI as a compulsory attribute for measuring ecosystem health."*

118. The PCE notes in her report:

- *The MCI is commonly used for measuring the effect of increasing nutrient pollution on freshwater aquatic ecosystems.*

- *The Ministry for the Environment sought scientific advice on the inclusion of a macroinvertebrate attribute in the NOF. The authors of the resulting technical report recommended MCI be included, and prepared an attribute table that could be slotted into the NOF with A, B, C, and D bands of MCI measurements for wadeable streams.*
- *The impact of changing nutrient concentrations on the health of aquatic ecosystems is best measured with bio-indicators. The macroinvertebrate community index (MCI) is commonly used in New Zealand for this purpose.*
- *The MCI already has narrative bands that have been used by Ministry for the Environment and Regional Councils to report on the ecological health of rivers for more than 20 years. It is well understood by scientists and river managers alike.*

119. Stark JD 2014 states:

"*... In this report the focus is on the use of the Macroinvertebrate Community Index (MCI) developed by Stark (1985, 1993, 1998) because of its long history of use in New Zealand and in Taranaki, proven strong negative responses to increasing enrichment (such as nitrogen, periphyton chlorophyll 'a' and ash free dry weight), sedimentation, and changes in land-use along the native bush – agricultural – urban gradient ...*"

Te Mana o Wai and Te Hauora o te Wai / the health and mauri of water.

120. Freshwater Objectives in the NPS FM 2014 recognise Te Mana o Wai. Water quality objective A1 states:

To safeguard the <u>life-supporting capacity, ecosystem process and indigenous species including their associated freshwater ecosystems of fresh water</u>, in sustainably managing the taking, using, damming, or diverting of fresh water.

121. Values and uses for the Waikato region include Te Hauora o te Wai / the health and mauri of water.

122. Other associated values include:

- The value of a <u>holistic integrated management approach</u> to the restoration and protection of in stream biodiversity.
- The value of clean fresh water to restore and protect the aquatic native vegetation so as <u>to provide habitat and food for native aquatic species</u>

Suspended or deposited sediment

123. There does not appear to be any numeric limits, timeframes or targets established for either suspended sediment or benthic sediment attributes in the catchment.

124. Sedimentation is a major issue in both the Waipa and Waikato Catchments. Some of the sub-catchments are particularly susceptible to soil erosion. As a result, the bed in the upper and lower reaches of the catchments is building up due to sediment deposition.

Water clarity

125. The minimum water clarity to achieve swimability should be 1.6 metres. This would necessitate that the B band is the minimum state sought by the CSG not the C band.

Further areas of Concern

- The Plan includes no statement about how we got to the present – In order to achieve an understanding of the issue we need greater clarity and I believe an historical analysis for wider overview would be most helpful. The lack of historical analysis assumes comprehension of the data that is at a much higher level than reasonable. This creates barriers to participation in the submission process.
- The plan fails to acknowledge the speed at which climate change is occurring. The rate at which climate change will occur and its' likely effects over the next 80 years is predicted to be much greater than the rate at which change is likely to occur in this plan. The 80 year timeframe is too long and should be majorly reduced.
- Grandparenting rewards those who have failed to adjust nutrient application rates to date by allowing them to maintain applications at the current rate and maintains the status quo. This does not promote change.
- I do not support Grandparenting. 80 years is 4 generations. It is absurd to suggest that it needs 4 generations to avoid social disruption! I also object to the term Grandparenting as the "warm fuzzies" term softens and hides unacceptable practices.
- Certified Industry Schemes are essentially self-monitoring and likely to be ineffectual due to a lack of oversight and accountability to the people of the Region.
- To be meaningful the plan should include supporting statements and a commitment to negotiating nationally consistent standards for nitrogen in water.
- provide greater rigour on nitrate levels