BEFORE THE HEARING PANEL

AT HAMILTON

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of the Proposed Waikato Regional Plan Change 1 Waikato and Waipā River Catchments
AND	
IN THE MATTER	of Variation 1 to the Proposed Waikato Regional Plan Change 1 Waikato and Waipā River Catchments

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STATEMENT OF EVIDENCE IN CHIEF OF DEBORAH HELEN KISSICK FOR THE DIRECTOR-GENERAL OF CONSERVATION

BLOCK 2 TOPIC C

3 May 2019

Department of Conservation

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HAMILTON

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ABBREVIATIONS USED

The primary abbreviations I have used in my evidence are:

CIS	Certified Industry Scheme
CSG	Collaborative Stakeholder Group
DOC	The Department of Conservation
FEP	Farm Environment Plan
FMU	Freshwater management unit
NPSFM	The National Policy Statement for Freshwater Management 2017
NRP	Nitrogen Reference Point
NZCPS	The New Zealand Coastal Policy Statement 2010
River Iwi	Trust boards for River Iwi being Maniapoto Māori Trust Board, Tūwharetoa Māori Trust Board, Raukawa Settlement Trust, Te Arawa River Iwi Trust, Waikato Raupatu River Trust
RPS	The Regional Policy Statement for the Waikato Region
The RMA	The Resource Management Act 1991
The CA	The Conservation Act 1987
The Council	The Waikato Regional Council
The Director-General	The Director-General of Conservation
The Plan Change/PC1	The Proposed Plan Change 1 to the Waikato Regional Plan (including Variation 1)
WRP	The operative Waikato Regional Plan
The Waikato River Acts	Collective term for The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, Ngāti Tūwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010 & Ngā Wai o Maniapoto (Waipā River) Act 2012.
TLG	Technical Leaders Group

INTRODUCTION

1. My name is Deborah Helen Kissick.

2. I have been engaged by the Director-General of Conservation (DOC) to provide planning evidence for the hearing on proposed Plan Change 1 (PC1 or the Plan Change) for the Waikato and Waipā River catchments.

3. I am currently employed as a Planner with Perception Planning, a resource management consultancy based in Taupō, that I joined in 2015.

QUALIFICATIONS AND EXPERIENCE

4. I provided details of my qualifications and experience in my evidence in chief I prepared for Block one, Topics A & B of this proceeding and will not repeat that here.

CODE OF CONDUCT FOR EXPERT WITNESSES

5. I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. While this is not an Environment Court hearing, I have prepared this evidence in accordance with, and I agree to comply with, that code for this hearing. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have specified where my opinion is based on limited or partial information and identified any assumptions I have made in forming my opinions. I have also identified where I have relied on the expertise of others.

SCOPE OF EVIDENCE

6. I have been asked by the Director-General to prepare evidence in relation to his submission on PC1. Any references to the Plan Change in my brief of evidence relate to Plan Change 1 as originally notified (22 October 2016) and include the changes recommended by the Waikato

Regional Council (the Council) as a result of Variation 1 to Plan Change 1 (notified 10 April 2018). The focus of my evidence for this hearing was confirmed by the Commissioner's response[1] to a question from counsel for the Director-General, to be the topics addressed in the s42A report. As a result, the subject of the hearing for Block 2 (and the focus of my evidence) are as follows:

Part C – Introduction and context including topics relating to:

- Diffuse discharge management
- Nitrogen Reference Point
- Reductions (75th Percentile)
- Land use change
- Māori Treaty Settlement Land
- Urban/Point source discharges
- Stock exclusion
- Cultivation, slope and setbacks
- Certified Schemes
- Farm Environment Plans

7. In preparing my evidence I have read:

a. The s32 reports that relate to matters addressed in Hearing Block 2;

b. The submissions and further submissions on PC1 including Variation 1 made by the Director-General of Conservation;

c. The s42A officer report for Hearing Block 2 entitled 'Section 42A Report Proposed Waikato Regional Plan Change 1 – Waikato and Waipā River Catchments. Block 2 Parts C1-C6: Policies,

[1] Email dated 8 April 20019 from the Healthy Rivers Co Ordinator, Steve Rice.

Rules and Schedules (most)'. I refer to this as the s42A officer's report or the officer's report in my evidence;

d. The evidence of Kate McArthur in relation to diffuse discharge management, point source discharges, protection of īnanga spawning habitat, stock exclusions and cultivation setbacks, particularly focussed on rivers, streams and tributaries;

e. The evidence of Dr Simon Stewart in relation to contaminant delivery to lakes;

f. The evidence of Dr Hugh Robertson in relation to management of diffuse nutrients to protect and restore wetland ecosystem health, prioritised implementation, farm environment plans and stock exclusion, particularly relating to wetlands.

EXECUTIVE SUMMARY

8. My evidence builds on the position outlined in the Block 1 evidence I prepared. The fundamental and overarching issues with the plan change identified in my Block 1 evidence have meant that analysing the more specific provisions that are the focus of this evidence, is particularly challenging.

9. The Director-General, along with a number of other submitters supports an alternative, land-based approach to the allocation of nutrients. A land-based approach to allocation allocates nutrients based on the natural capital or physical characteristics of the land. Under this approach, all land in a sub-catchment with the same physical characteristics has the same allocation of nutrients.

10. The Plan Change currently uses a grand-parenting allocation regime which effectively benchmarks discharges to a specific point in the past, based on land use at that time, and uses this as the point from which reduction in contaminant discharge is required.

11. There are significant challenges with this approach, including the loss of opportunity for flexibility in land use for those properties operating lower emissions land uses. The approach the Plan Change takes to address this is by providing exemptions to lower emitting activities and to tangata whenua ancestral lands, with very little guidance to these landowners around what level of development is acceptable.

12. There are also challenges with the existing approach to allocation as it does little to address the full range of contaminants entering the Waikato and Waipā River catchments, including discharges from point sources.

13. I am concerned that the grand-parented approach to allocation will result in further degradation in water quality in the Waikato and Waipā River catchments. Such an outcome does not align with the direction of the Vision and Strategy or of the NPSFM.

14. There appears to have been significant improvement in the proposed use of Certified Sector Schemes in developing Farm Environment Plans, including the requirement for farming activity carried out under these

plans to obtain resource consent and be appropriately monitored and audited. I am concerned however that there appears to be no triggers identified for the need to review or revise a Farm Environment Plan and consider this is a significant gap in the use of these tools in reducing diffuse discharges as required to achieve the Vision and Strategy.

15. The Director-General's experts have recommended stock exclusion and cultivation setbacks from waterbodies to ensure that the ecosystem health and water quality outcomes sought through the Vision and Strategy can be achieved. This includes setback requirements to ensure that īnanga spawning habitats are protected from the adverse effects of land use activities including stock access to riparian areas and waterbodies.

16. I have highlighted challenges with the approach to calculating the 75th percentile nitrogen leaching value for lakes within the Waikato and Waipā sub-catchments and, based on the evidence of Dr Stewart, have recommended amendments to the Plan Change to address this concern.

17. The rule framework has been subject to substantial changes as a result of officer recommendations and it has been challenging to determine the origin of these changes in many cases. I have suggested further amendments to the rule framework to remove what I consider to be unnecessary rule provisions with the view to clarifying the rule cascade. I do not support the proposed separation of land use and discharge rules as recommended by officers. The new permitted activity discharge rule does not accurately reflect the requirements of s70 of the RMA and is not useful in its application to diffuse discharges.

DIFFUSE DISCHARGES MANAGEMENT

Policy 1 – Manage diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens.

18. The Director-General's submission [PC1-10643] seeks to provide greater clarity to plan users and decision makers about a number of aspects associated with Policy 1 as notified.

19. The policy, as notified, is enabling for 'activities with a low level of contaminant discharge to water bodies' where those discharges do not increase and requires reduction in discharges from farming activities with 'moderate to high levels of contaminant discharge to water bodies'. The Director-General has submitted that there is no certainty provided in the plan on what is classed as an 'activity with a low level of contaminant discharge' or a 'moderate to high levels of contaminant discharge' for farming activities.

20. Officers acknowledge, at paragraph 231, that relief was sought to better define 'low level contaminant discharges' but do not appear to specifically address this matter in the s42A report. Officers do however appear to utilise stocking rates for determining low and medium intensity farming activities through Rule 3.11.5.2 as amended and proposed new rule 3.11.5.2A.

21. A low intensity stocking rate, via Rule 3.11.5.2, is considered, for properties greater than 20ha to be, either:

- less than 6 stock units per ha; or
- more than 6 but less than 10 stock units per ha with a calculated NRP and controls on slope and cropping.

22. A medium intensity stocking rate, via new Rule 3.11.5.2A, is considered to be no more than 18 stock units per hectare. It can therefore be assumed, based on this, that a high intensity stocking rate is anything more than 18 stock units per ha. It doesn't appear that stocking rate has been defined in the plan change, nor does a definition of this exist in the operative WRP. I consider it would be useful to at least provide certainty about how a stocking rate is calculated i.e. whether this is a

calculation over total effective farm area (being the area where grazing takes place excluding buildings, lanes, planted areas etc) or whether it is total farm area i.e. including areas not actively used for the grazing of animals. In my view, stocking rate should be calculated over effective farm area to accurately reflect the scale of the grazing activity.

23. While it is not clear that these stocking rates are intended to reflect low, medium and high level contaminant discharges, I have assumed that this is what officers have intended but recommend that clear and consistent terminology be used throughout the plan change so that this is clear for all plan users and decision makers.

24. The stocking rates appear to have been derived as a substitute for kg/N/ha/yr and based on 'investigation by WRC staff, it can be concluded that a stocking rate of 10 stock units per hectare would be roughly equivalent to a leaching rate of 15kg/N/ha/yr'[2]. While I acknowledge that this stocking rate is based on N discharge, low stocking rate is likely to correlate with lower levels of E. coli from animal faeces.

25. I am not clear whether a N-based stocking rate can be used to correlate with low levels of sediment discharge, phosphorus or other contaminants. I consider that in order for stocking rate to be used as an appropriate proxy for triggering consent requirements based on discharge levels, it needs to be tested by officers against all contaminants and then to be set to ensure low, medium and high level discharges of each of the contaminants is being achieved at that rate.

26. Definitions of the terminology around the scale of contaminant discharge would provide useful clarity for plan users and decisions makers and I recommend that these be developed.

27. I note that the Director-General [PC1-10643] also sought amendment to Policy 1 to replace the wording 'require reductions' with 'reduce' which I feel gives clearer direction to the intent of the policy. Officers have adopted this position and have reflected this amendment in Appendix C and I am supportive of this amendment. I am not clear

[2] Paragraph 161

however, why the policy has been amended to reference catchment-wide as well as sub-catchment diffuse discharges. The introduction of the 'catchment-wide' management does not, in my view, align with the spatial delineation of the plan change which focusses at FMU and sub-catchment scale. I consider that if catchment scale changes are required, identification of these catchments on a map, and identification of catchment-wide limits and targets are required. In the absence of this information, I consider it is appropriate to delete the reference to 'catchment-wide' from Policy 1.

28. Policy 1 has also been altered to now include several aspects that were previously contained within policies 2 and 6. I will deal with these amendments under the topic heading for each of these policies as I feel this is the clearest way to work through the relief sought by the Director-General and amendments recommended by officers.

29. I note that Policy 1, as amended uses the terms 'farming activities' and 'activities' in clauses a1, a and b. I also note that the definition of farming activities has been modified by officers to only be referred to as 'farming', although the reasoning for this is not clear from the s42A report.

30. I am not clear whether the distinction between 'activities' and 'farming activities' is intentional. I consider activities could include any land use activity while 'farming activities' are those defined in the PC1 definition. It is my view that as drafted, the policy requires 'farming activities with moderate to high levels of contaminant discharge…' to reduce their discharges while other 'activities', also with moderate to high levels of discharge are not subject to the same requirement. I consider that it is important to address this by removing the reference to farming in policy 1(b).

31. Policy 1 is recommended to be amended by officers as a result of a shift in the Plan Change towards achieving Good Farming Practice (GFP). Policy 1 includes a requirement that all farming activities operate at Good Farming Practice, or better (Policy 1(a1)). There is also a new provision at Policy 1(b2) which states that where 'Good Farming Practices are not adopted, to specify controls in a resource consent that ensures contaminant losses will be reducing'. In my view these two

provisions within the same policy are directly contradictory of one another, and that Policy 1(b2) does not achieve the outcome of the policy which as amended by officers, is to "Reduce catchment-wide and sub-catchment diffuse discharges of nitrogen phosphorus, sediment and microbial pathogens".

32. I am concerned by the lack of certainty and direct contradiction provided by Policy 1(b2) and consider that this clause in the policy should be deleted. I acknowledge that this will mean that all farming activities will be required to operate at Good Farming Practice level. I also acknowledge that there is little certainty provided by the definition of Good Farming Practice as included in the Plan Change. I consider that greater certainty is required about the "industry agreed and approved practices and actions" that are considered by the Council to fall within the definition of Good Farming Practice.

33. As discussed in my Block 1 evidence[3], I consider that the Plan Change needs to focus on more than the 'four contaminants' (nitrogen, phosphorus, sediment and microbial pathogens) to achieve the water quality improvements required to achieve the Vision and Strategy. As a result, I have removed reference to the four contaminants in the policy and rule framework attached as Appendix 1.

Policy 4 – Enabling activities with lower discharges to continue or to be established, while signalling further change may be required in future.

34. The Director-General sought amendment to Policy 4 to provide greater certainty to plan users and decision makers about its intent [PC1-10655]. I understand, through the reference in the policy to the achievement of Objectives 3 and then Objective 1, that the intent of the policy as notified is to manage the diffuse discharge of the four contaminants to achieve the targets set in Table 3.11-1 for the short term and signal the intent for further reduction to ensure long term targets are met.

[3] Paragraphs 73-80

35. I refer to my Block 1 evidence where I recommend, at paragraph 243, that Table 3.11-1 represent both short and long term water quality targets, as defined in the NPSFM.

36. I agree with officers[4] that the first section of Policy 4 essentially replicates content in Policy 1 and am supportive of the amendment to remove this duplication. I note that the Director-General raised concern in his submission [PC1-10658] with the use of the terminology 'low discharging activities' and 'cumulatively'. These terms have been removed from the policy as a result of the recommended amendments to the first part of the policy.

37. Officers have stated their reluctance[5] to signal greater specificity around what future change could be. They state that this is due to the timeframe and lack of certainty about what future change will look like given it relies on technologies and information that are yet to be developed. Officers have also stated that 'signalling further change is not appropriate as future plan changes are not within the scope of PC1, but acknowledge that for Objective 1 to be met, further reduction in contaminant losses are highly likely to be needed…'.

38. Policy 4, as amended by officers does signal that future reductions in diffuse discharges are likely to achieve Objective 1, which links to the 80-year water quality targets specified in Table 3.11-1. As amended, it also links to the additional tables recommended by the Director-General's experts in the Block 1 hearings. Given that the timeframe for achieving these long-term targets is well beyond the life of PC1, I consider it is appropriate to signal, through the policy framework, that further work on reducing discharge is likely to be needed to meet long-term water quality targets.

39. Officers have reflected in the policy, the potential for all future farming activities to make further reductions to achieve the 80-year goals for water quality. I support the amendments to the policy that reference all farming activities as a result.

[4] Paragraph 553
[5] Paragraph 554

40. I do not support the second part of the amendments to the policy regarding the granting of new resource consents. I consider that this additional wording is effectively a method for achieving the 80-year targets set through Objective 1 and Table 3.11-1. I have suggested, in Appendix 1 to my evidence, amendment to the policy to achieve the direction intended through the policy amendments without it being worded as a method.

Policy 5 – Staged approach

41. The Director-General's submission [PC1-10661] was generally supportive of Policy 5 which seeks to achieve a staged approach to achieving water quality improvements. I discussed this in my evidence in chief for Block 1 where I considered the importance of ensuring that there are water quality targets in the short-term implemented through this Plan Change as well as the longer 80-year targets specified in Table 3.11-1. The evidence in chief of Drs Robertson and Phillips for Block 1 also discussed the importance of specific water quality targets to provide for the values and achieve ecosystem health in lakes and wetlands as well as for rivers which was the focus of Ms McArthur's evidence.

42. I consider that a staged approach to addressing water quality issues in the Waikato and Waipā catchment recognises the significance of these issues and the time required to ensure the Vision and Strategy for the Waikato River is achieved. This includes the requirement to restore the water quality of the Waikato River to a point that ensures it is safe for people to swim and take food from over its entire length (Objective K). I do note that there is no specific provision for staging of outcomes outlined in the Vision and Strategy, nor is there any timeframe for when it must be achieved.

43. I consider that the amendment to Policy 5 recommended by officers does provide greater certainty about what is likely to be required in future to achieve the 80-year water quality targets. In particular I am supportive of the statement that recognises the need for changes in practices and activities to start immediately and consider that this aligns with the Director-General's position that short and medium term water

quality targets are required in Table 3.11-1, along with the 80-year targets.

44. I have recommended some minor amendments to the format of revised Policy 5 to ensure that the focus of future efforts is on the achievement of water quality targets in Table 3.11-1 as I feel that as currently written, the purpose of the policy is a little lost.

45. I disagree with the changes to the policy which amend the term 'targets' to 'water quality attribute states' that is proposed through Policy 5 for the reasons outlined in paragraphs 235-237 of my evidence on Block 1. I maintain this position for any recommended changes by officers that result in this wording change, I won't repeat that position throughout this evidence.

46. The Director-General sought amendment to Policy 5 [PC1-10661], requesting the introduction of a land-based allocation regime to allocate the discharge of contaminants rather than the existing grand-parented approach to allocation.

47. In the s42A report for Block 1, officers stated that they 'do not consider that there is adequate information to make wholesale changes to the PC1 N loss framework and that this also applied to the introduction of a land use capability framework or other framework[6]'.

48. At paragraph 591 of the s42A report for Block 2, officers consider the relief sought by the Director-General and the other submitters who sought that a land-based allocation regime be specified in the plan change. Officers are of the view that it is not necessary for Policy 5 to address the types of allocation given that Policy 7 deals with providing for allocation in the future.

49. In my view, this position fails to recognise the current need for a land-based nutrient allocation regime rather than the grand-parented approach currently being used. I discuss the importance of a land-based approach to allocation below in paragraphs 160- 165.

[6] Paragraph 147

Policy 8 – Prioritised implementation

50. Policy 8 outlines how the management of diffuse discharges will be prioritised and as notified, includes recognition of the importance of lakes FMUs and Whangamarino wetland. Previous evidence by Dr Phillips on behalf of the Director-General identified support for amendments to Table 3.11-2 which outlines the sub-catchment priorities, and further amendments required to recognise all lake sub-catchments as Priority 1.

51. Dr Robertson also discussed the significance, and priority for the Department in protecting the significant values and uses of the Whangamarino Wetland in his evidence for Block 1. This included adding a sub-catchment identifier for the Pungarehu Canal into Table 3.11-2 to prioritise improvement of the water conveyed to the Whangamarino Wetland from Lake Waikare via the canal. I am therefore concerned that the proposed amendments by officers appear to have removed the recognition of the priority of the Whangamarino wetland. The reason for this is not discussed in the s42A report. Officers outline their agreement (in part) that 'significant lakes and wetlands should not be lowest priority'.

52. I therefore recommend amendments to the revised Policy 8 to ensure that the significant values of wetlands, and the water quality improvements required to recognise these values, continue to be prioritised. I note that this is supported by Dr Robertson at paragraph 55 of his evidence.

53. I note that officers have suggested amendments to the policy which place a focus on dairy farming generally and delete the reference to 75th percentile nitrogen leaching value dischargers, in response to submissions from Fonterra. I do not agree with this proposed amendment as I consider it focusses on dairy farming activities rather than all higher emitting land uses, which likely include some dairy farming activities, but could also include other land use activities. As a result, I consider that the reference to the 75th percentile nitrogen leaching value dischargers should be retained[7], and as a result

[7] I discuss this further at paragraphs 91 - 102 below

prioritised, as originally notified. I have recommended amendments to the policy to reflect this position.

FARM ENVIRONMENT PLANS

Policy 2 – Tailored approach to reducing diffuse discharges from farming activities

54. The Director-General was generally supportive of the intent of Policy 2 [PC1-10646]. As with Policy 1, the Director-General sought amendment to the policy to replace the wording 'require reductions' with 'reduce' which I feel gives clearer direction to the intent of the policy. I note that officers have adopted this position and have reflected this amendment in Appendix C. I am supportive of this amendment.

55. I note that matters relating to the establishment of a Nitrogen Reference Point (NRP) and the required reduction in contaminants 'proportionate' to the amount of (2016) discharge have been removed from this policy and have been included in Policy 1. I am not clear on how plan users and decision makers know what proportion of the 2016 discharge they are required to reduce to? I assume that this relates to the Nitrogen Reference Point and potentially to the requirements for those landowners discharging above the 75th percentile. If this is what is intended, I recommend that the policy be much more explicit about this so the policy can be clearly interpreted.

56. The Director-General sought that a clear goal for Farm Environment Plans (FEPs) be established to ensure that the success of any plan is measurable [PC1-10752, PC1-10647]. Officers have agreed that 'PC1 should contain clear outcome statements to guide the use of FEPs'[8] however I am not clear what amendment officers consider are needed to achieve this.

57. I recommend that a clear statement be included in Schedule 1 which outlines the purpose of the FEP. I consider that this could be achieved through the minor modification of the second paragraph of Schedule 1 and I recommend this amendment in Appendix 1 of my evidence.

[8] Paragraph 359 s42A report

58. I note that officers have referred to the expert caucusing of Schedule 1 at paragraph 319 of the s42A report. However, I also note the minute from the hearing panel dated 9 April 2019 which states that mediation and/or expert conferencing on Farm Environment Plans will not proceed as set out in the hearing schedule. New dates for this expert conferencing have not yet been scheduled

59. I have therefore provided consideration of the Director-General's submissions on Schedule 1 below given that the content of FEPs are an important component to achieving the water quality improvements necessary to provide for ecosystem health and achieve the Vision and Strategy.

60. I note that officers have revised the wording of a2 in Policy 1 from a requirement to establish a Nitrogen Reference Point to establishing one "where possible". I am not clear why this phrase was introduced as I was unable to locate any analysis in the s42A report. I am also not clear under what circumstances, calculating a NRP would not be possible. I therefore recommend that 'where possible' is deleted.

Schedule 1 – Requirements for Farm Environment Plans

61. The Director-General sought a range of requirements in relation to the content of Schedule 1 which outlines the requirements for the content of FEPs. The following relief was sought by the Director-General:

- Require FEPs to identify critical nitrogen and phosphorus sources for lakes, and to identify on farm methods to reduce nitrogen, phosphorus and sediment discharges to lakes. [PC1-10647]

- Require FEPs to identify where existing drains can be restored or intercepted to reduce nutrient and sediment runoff into lakes. [PC1-10647]

- Require that FEPs recognise the potential role for wetlands to assist in the management of water quality and to recognise their significant values by ensuring that:

    i. All wetlands, permanent and ephemeral, are identified in FEPs;

ii. Management of nutrients and sediments ensure that adverse effects on wetland systems and their values are avoided or mitigated; and

iii. Existing drainage of wetlands is stopped and any future drainage of wetlands is avoided. [PC1-12394]

- Require that the setbacks for grazing and cultivation on sloping land be evaluated in relation to soil type to ensure an appropriate setback distance is achieved.

Critical source areas of nitrogen and phosphorus

62. I note that Section 2(c) of Schedule 1 requires that 'critical sources areas from which sediment, nitrogen, phosphorus and microbial pathogens are lost be 'described' including identification of the following:

- Intermittent waterways, overland flow paths and areas prone to flooding and ponding
- Actively eroding areas, erosion prone areas and areas of bare soil
- Assessment of the risk of diffuse discharge from tracks and races and livestock crossing structures
- Areas where effluent accumulates
- Other 'hotspots' such as fertiliser, silage, compost or effluent storage facilities, wash-water facilities, offal or refuse disposal pits and feeding or stock holding areas

63. Section 3(g) requires that the above areas be clearly shown on a spatial risk map and Section 4 requires that the action to be undertaken in response to the risks be described. I note that lakes are not specifically referred to in the above list. However, the section does not specifically reference any particular type of waterbody. I therefore interpret that any critical source areas identified should apply to all relevant waterbodies for that particular farm but consider that the Schedule could be amended to make this explicitly clear. I have provided some suggested

wording in Appendix 1 to achieve this. I note the support of this approach from Dr Robertson at paragraph 28 of his evidence.

Existing drain restoration or interception

64. The creation of drainage channels has the effect of lowering the water table resulting in the reduction of water from paddock areas. Drains are cleared to prevent vegetation build up which can inhibit their drainage function. Drains tend to flow into natural streams which ultimately connect with rivers, lakes and wetlands and can have significant effects on water quality through their function of transporting water, and subsequently any contaminants in that water.

65. In my view, the Director-General has raised a worthwhile point that when developing a Farm Environment Plan, the retirement and restoration of existing drainage areas should be considered. I consider that this will ensure that any drains that are no longer required are removed from being connected to the wider catchment network of waterways and therefore, no longer affect water quality.

66. In my view, it is appropriate to include provision in Schedule 1 for the consideration of drain retirement and restoration and have recommended an amendment accordingly.

Wetlands in FEPs

67. Currently Schedule 1 requires at 3(e) that 'the location of continually flowing rivers, stream, and drains and permanent lakes, ponds and wetlands' be identified on a spatial risk map of the property. The Director-General has sought that all wetlands, including permanent and ephemeral, be identified in order to protect their significant values.

68. The Director-General also sought that the adverse effects of nutrients and sediment on wetland systems and their values be avoided or mitigated. I note that Section 2 of Schedule 1 as notified, requires that an assessment of the risk of diffuse discharge be undertaken and that those risks be prioritised against the sub-catchment targets in Table 3.11-1. This section requires the consideration of:

- Stock exclusion from water bodies;

- Setbacks and riparian management;
- Description of critical source areas;
- Assessment of land use and grazing management;
- Nutrient management practices; and
- Cultivation management

69. Section 3 requires that this is mapped, and Section 4 requires that, for the risks identified in Section 2 above, that a description of the actions taken to respond to the risks is completed.

70. Dr Robertson identifies, at paragraph 26 of his evidence, that there are a number of factors required to ensure that wetlands are protected and restored. While I acknowledge that some of these factors are reflected in Schedule 1, I consider that specific reference to waterbodies, including wetlands and lakes is a useful reminder of the importance of these waterbodies, as well as rivers and streams.

71. Dr Robertson identifies, in paragraph 13 of his evidence, that the total area of natural freshwater wetlands is 15,817ha. However, I note that the drainage of wetlands in the Waikato Region has resulted in the loss of 75% of the region's wetlands[9]. As discussed in the Block 1 evidence in chief of Dr Robertson, the 'remaining wetlands areas [in the Waikato and Waipā River catchments] are highly vulnerable to drainage, damage by pest plants and animals, sedimentation and nutrient runoff.'

72. The Director-General has sought that existing drainage of wetlands cease, and that future drainage of wetlands is avoided.

73. Dr Robertson recommends setbacks from wetlands for drainage activities of 10m to ensure that wetlands are not drained. I am supportive of this recommendation and have provided amended wording in Schedule 1 to reflect this.

[9] Threats to wetlands https://www.waikatoregion.govt.nz/environment/natural-resources/water/freshwater-wetlands/threats-to-wetlands/

STOCK EXCLUSION AND CULTIVATION

74. PC1 requires the temporary or permanent exclusion of stock from waterways through Schedule C and Rules 3.11.5.1A (new), 3.11.5.2, 3.11.5.2A (new), 3.11.5.3, 3.11.5.4. I agree with officers, at paragraph 859 of the s42A report, where they state that the role of stock exclusion is to prevent direct deposition of contaminants into waterways as well as preventing the trampling damage to beds of banks and rivers, wetlands, riparian margins and lake and riverine habitats.

75. However, I also consider it is relevant to note that there are animal health benefits and health and safety benefits for farm workers associated with the exclusion of stock from waterways. Excluding stock from waterways means that animals are not exposed to potentially dangerous situations associated with accessing and entering a waterbody or exposed to pathogens in the water itself. This also means that farm workers are not also exposed to these risks when having to remove stock from waterways.

76. The Director-General sought various amendments to the stock exclusion provisions including the following:

    i. 10m setbacks for cultivation from permanent rivers, lakes and outstanding waterbodies [PC1-12393, PC1-11055];

    ii. 5m cultivation setbacks from intermittent rivers and wetlands [PC1-12393, PC1-11055];

    iii. 20m setback for cultivation from peat lakes [PC1-12393];

    iv. 20m grazing and cultivation setbacks for sloping land of 20˚ or more [PC1-12393];

    v. Exclude sheep from outstanding water bodies [PC1-11055];

    vi. Stock exclusion apply to both intermittent and permanent water bodies including rivers, lakes and drains [PC1-11055].

77. I note that the amendments to the schedule recommended by officers include setbacks of 1m and 3m for land with a slope of less than 15 degrees and between 15-25 degrees respectively. I note that officers

recommend, at paragraph 912 of the s42A report that 'if a slope threshold is set, officers suggest that WRC produce more detailed guidance, probably by way of material published on the website, with some worked examples of how slope will be measured in accordance with the definition'. They go on to note that with an increase in LIDAR survey information, it may be possible to produce slope maps.

78. I agree that any use of slope as a determinant for whether a rule requirement is triggered or not requires clear guidance on how the slope is to be measured/determined. I also consider it is important that this measurement be easily applicable 'in the field' by farmers and land owners. I consider that such guidance needs to be developed, in consultation with farmers and be in place before any rule is being used.

79. Dr Robertson, Ms McArthur and Dr Stewart have all considered the necessary stock exclusion and cultivation setbacks for various waterbody types in the Waikato and Waipā River catchments. I summarise their recommendations in the following table:

Waterbody type	Animals to be excluded	Recommended stock exclusion setback	Recommended cultivation setback	Expert recommendation
All lakes	Cattle, horses, deer, pigs, sheep and goats	20m	20m	Dr Stewart Paragraph 31 [PC1-12393, PC1-11055]
Intermittent/ ephemeral rivers and streams	Cattle, horses, deer and pigs	5m	5m	Ms McArthur Paragraph 51 [PC1-11055]
Permanent rivers and streams	Cattle, horses, deer and pigs	10m	10m	Ms McArthur Paragraph 51 [PC1-12393, PC1-11055]
Known or predicted	Cattle, horses, deer, pigs,	20m	20m	Ms McArthur

īnanga and large-bodied galaxiids spawning areas	sheep and goats			Paragraph 50 [PC1-10639]
All natural wetlands	Cattle, horses, deer, pigs, sheep and goats	10m	10m	Dr Robertson Paragraph 42 [PC1-11055]

80. Dr Robertson also recommends setbacks (buffers) be applied 10m from all wetlands for specific activities such as fertiliser application, effluent discharge and drain construction and enhancement. I consider that the 10m setbacks for stock and cultivation recommended above will mean that there is no need for fertiliser application on ungrazed areas however I recognise that it is important to be explicit about requirements where possible. I have therefore recommended amendments to Schedule 1 to reflect Dr Robertson's recommendations.

81. I note that Dr Robertson has provided helpful guidance on how the 'edge of the bed' of a wetland is delineated at paragraph 47 of his evidence. He references tools that have been developed based on vegetation and hydric (wet) soils and recommends that these be applied in Schedules 1 and C to ensure that the bed of wetlands are accurately defined. I support these recommendations and also consider guidance could be developed by the council on this topic to assist landowners.

82. On review of the evidence-based reasoning and recommendations of the evidence provided by technical experts, I consider that the proposed setback requirements specified by officers in Schedule C are insufficient to ensure:

- Ecosystem health is restored and protected;
- Protection of riparian and wetland vegetation from stock grazing;

- Prevent soil disturbance at waterbody margins resulting in erosion and sediment runoff;
- Reduction of contaminants entering waterbodies; and
- Protection of īnanga and other large-bodied galaxiid spawning habitat.

83. I consider that the setbacks recommended by the experts are a more precautionary approach to the exclusion of animals and restrictions on the distance of cultivation activities on waterways. I consider this is appropriate given the direction from the Vision and Strategy to restore and protect the health and welling of the Waikato River.

84. In particular, I note the direction of Objective F of the Vision and Strategy which states that the 'adoption of a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River, and in particular, those effects that threaten serious or irreversible damage to the Waikato River'. I also note the direction from Objective I of the Vision and Strategy which seeks the 'protection and enhancement of significant sites, fisheries, flora and fauna' which includes native species such and īnanga and other large-bodied galaxiids.

85. I have made amendments to the requirements of Schedule C as a result. I also consider that consequential amendments are required to Schedule 1 as a result of these recommendations which I have also reflected in Appendix 1.

Intermittent and permanent water bodies

86. In Appendix C to the s42A report, officers have recommended amendments to the provisions of Schedule C to ensure that stock exclusion occurs in both permanent and intermittently flowing rivers and streams which addresses the Director-General's relief. I am supportive of this amendment as I consider it recognises the pathway for contaminants resulting from intermittently flowing water bodies.

87. I note that officers have recommended an option to add in further description of the intermittent river or stream that requires that the bed is 'predominantly unvegetated and comprises exposed fine sediment,

sand, gravel, boulders or similar material or aquatic vegetation'. Ms McArthur addresses this at paragraph 53 of her evidence where she notes that pastoral vegetation can impact on the channel of intermittent waterbodies. Despite this, they continue to provide pathways for diffuse contaminants from land and in my view, stock should also be excluded from these areas.

88. As a result, I recommend removing this optional additional wording as I consider it goes against the need to protect intermittent waterbodies.

Īnanga Spawning

89. The Block 1 evidence on behalf of the Director-General identified the need for the specific values of water bodies in the Waikato and Waipā catchments to be identified, including values relating to īnanga spawning habitat. Ms McArthur identified in her evidence that 'Īnanga are a key freshwater fish species that are at risk and declining in population nationally'[10]. She also identified that the threats to īnanga spawning habitats include 'stock access to riparian vegetation, physical alteration of inundated margins, sedimentation of spawning sites…' and that to protect this significant value, spawning habitats require stock exclusion and adequate riparian vegetation among other things[11].

90. I am concerned that the approach from the officers to protection of īnanga spawning habitat is to rely on the FEP process. While officers acknowledge that mapping and specific stock exclusion rules including sheep as is the approach in other areas of the country 'may be a better long-term solution' they consider that 'new mapping may be outside of the scope of PC1'.

91. This position is in support of various submission points raised by the Director-General of Conservation in his submission. These are summarised as follows:

- PC1- 8139 Expand on the Ecosystem Health value to effectively provide for ecological health, ecosystem process and biological

[10] Paragraph 72 of Block 1 evidence in chief
[11] Paragraph 73 of Block 1 evidence in chief

diversity at specific locations including as a minimum, additional value to recognise īnanga spawning among other things

- PC1-10639 To add new policies and rules to protect īnanga spawning habitat

- PC1-11054 Add new rule provisions to protect īnanga spawning habitat

92. I consider that the Director-General's relief is sufficient to enable the identification, and protection of īnanga spawning habitat through policies and rules in the Plan Change. I consider that if mapping is required to achieve this relief sought, this would fall within the scope of the Director-General's submission[12]. I consider that the mapping of īnanga spawning areas is useful to ensure that landowners and decision makers have clear and consistent information about where the areas are, to ensure that the necessary protection can be put in place.

93. As also identified in Ms McArthur's evidence[13], I consider that relying on the FEP process to identify īnanga spawning habitat makes the identification of this important habitat, the responsibility of individual farmers. This approach would likely require individual landowners, in preparation of any FEP, to complete a separate ecological assessment undertaken to identify whether īnanga spawning habitat exists in proximity to the property and then whether it is likely to be affected by land use activities and their subsequent discharges. If īnanga spawning habitat was identified, the appropriate setbacks from this area for stock would then need to be identified in the FEP and implemented on farm.

94. I consider that this approach is likely to be overly onerous on individual land owners. Identification of īnanga spawning habitat by the Council, which can then be mapped and made available to landowners, is in my view, likely to be a more efficient and effective way of ensuring these important habitats can be identified and appropriately protected.

[12] I also note that the Director-General's submission included relief seeking any consequential amendments or alternative relief to give effect to the relief sought – Paragraph 8, Page 7 of the Director-General's original submission
[13] Paragraph 23

95. I understand that sheep and goats respond differently to the presence of water bodies than other stock, such as cattle and horses do. However, as outlined in the evidence of Dr Stewart and Ms McArthur, there is still the potential for these animals to have significant adverse effects if able to access waterbodies on the spawning habitat of īnanga and other galaxiids. The Director-General sought to amend stock exclusion rules and Schedule C to also exclude sheep from outstanding water bodies [PC1-11054, PC1-1055, PC1-11057].

96. Dr Stewart identifies, at paragraphs 34-37 of his evidence, that the riparian margins of riverine lakes and the lower reaches of their inflow catchments should be considered priority systems for restoration and īnanga habitat enhancement. He recommends that despite sheep and goats being less likely to enter a waterbody, the damage they can cause as a result of 'camping' near water is likely to have significant adverse effects on galaxiid spawning habitat.

97. Ms McArthur references the Department of Conservation guidance sheet for staff in relation to livestock access to water[14] which identifies that sheep and goats should be excluded from high value water bodies such as outstanding water bodies and wetlands. She also references information developed by WRC which predicts the location of critical riparian fish spawning areas and suggests that this information be used to target stock exclusion, setbacks and riparian restoration in all identified water bodies as this will 'ensure the critical aspects of ecosystem health associated with sustaining indigenous fish populations in the Waikato and Waipā River catchments are captured'[15].

98. Policies and rules are sought by the Director-General to ensure stock are excluded from īnanga spawning habitat. Policies are the mechanism used in plan making to achieve or implement the objectives and achieve the identified values. Rules are the regulatory framework to achieve the plans outcomes.

[14] Attached as Appendix 2 - Livestock access 101: Technical guidance for DOC input into collaborative processes for regional freshwater plan development – September 2017
[15] Paragraphs 30-31

99. It is good planning practice for rules to clearly link to the achievement of objectives and policies. I acknowledge the recommendations of Ms McArthur at paragraphs 27- 32 of her evidence where she identifies that stock grazing and trampling can result in a loss of habitat through grazing of riparian vegetation and through the trampling of riparian spawning habitat, eggs and larvae as well as adverse effects on water quality.

100. As a result, she recommends that setbacks from all known or predicted īnanga and other large-bodied galaxiid spawning areas of 20m are required to protect these species and their habitat[16].

101. I have recommended a new policy to accompany this rule requirement which recognises the contribution of spawning habitats to achieving ecosystem health and the need to protect these areas from the adverse effects of land use activities and stock access.

Review or update of FEPs

102. I am concerned with the lack of clear direction for how and when a Farm Environment Plan is to be reviewed. It appears that as notified, there are no triggers within Schedule 1, implementation method 3.11.4.3 or any of the rules in the Plan that specify when a FEP should be reviewed or revised. I consider that the revision and updating of FEPs is important to ensure that they accurately reflect the farming activity being undertaken and the subsequent discharges.

103. In my view the review of FEPs is likely to be required at least, in the following instances:

- when all or part of the land use activity on the farm changes;
- when the land is subdivided or amalgamated;
- when farming practices change;
- where ownership changes and the land use and or farming practices also change.

[16] Paragraph 42

104. I acknowledge that officers have not reviewed the content of Schedule 1 or the implementation methods as part of this hearing block but I consider that the review of FEPs should form part of either or both of these plan sections.

75TH PERCENTILE NITROGEN LEACHING VALUE

105. I am supportive of the 75th percentile nitrogen leaching value approach to reducing the discharge of contaminants within the river FMUs. However, I am concerned that this approach is not an efficient way to manage water quality improvements for the lake FMUs.

106. Paragraph 384 of the s42A report, officers respond to submissions on the definition of the 75th percentile leaching value including the Director-General's submission in support of the definition [V1PC1-461]. Officers outline their interpretation of how the 75th percentile nitrogen leaching value will be calculated. They state that the percentile will only be calculated for river FMUs. Their reasoning for this is that 'it is not possible to do so for lake FMUs as there is an insufficient number of farms' on which to calculate a percentile for change. The report goes on to state that it has been clarified, although it is not clear how or by who, that 'NRPs for those dairy farms in lake FMUs will be used to calculate the 75th percentile nitrogen leaching values for the river FMU each lake falls in'.

107. My concern with this approach is that it is not specific enough to address the improvements necessary to improve the water quality of lakes in the Waikato and Waipā catchments.

108. As discussed in the evidence of Dr Phillips from Block 1 and reiterated in the evidence of Dr Stewart[17], lakes are particularly vulnerable to the impact of nutrient enrichment and are more effective at converting nutrients into phytoplankton. Also, due to the long residence time of nutrients in lakes, immediate action is required to restore and protect these waterbodies.

[17] Paragraph 94

109. I understand that many of the lakes are impacted by a small number of farms within their catchment, and it is these farms that have a direct impact on water quality in the lakes.

110. If the required prioritisation of farms in lake catchments is determined by the calculation of a 75th percentile nitrogen leaching value based on river FMUs, I am concerned that this will not result in the necessary reductions in discharges and improvements in lake water quality necessary to support ecosystem health and lake FMU values. I acknowledge that this issue is somewhat managed by the relief sought by the Director-General, and discussed in the previous hearing block 1, for all lakes to fall within Priority 1 in Table 3.11-2. However, should this amendment not be adopted by the commissioners, there is a risk of further degradation of lake water quality as a result of the 75th percentile nitrogen leaching value approach clarified by officers in the s42A report.

111. Dr Stewart discusses the approach to calculating the 75th percentile nitrogen leaching value and its implications for lake FMUs at paragraphs 74 - 84 of his evidence. Dr Stewart also has concerns with the effect of the 75th percentile nitrogen leaching value approach on vulnerable lake catchments. He identifies that the revised FMU approach identified by Dr Phillips in her Block 1 evidence would go some way to addressing this issue by being more representative of individual lake characteristics.

112. Dr Stewart identifies three possible options to better address the necessary reductions in nutrient discharge in lake catchments and recommends that a 60th percentile nitrogen leaching value be adopted within lake catchments. He identifies, at paragraph 79, that a 60th percentile approach recognises the differences in nutrient impacts between rivers and lakes, and addresses the concerns raised by officers regarding limits of data for Lake FMUs. This approach also supports the focus for PC1 on reducing the heaviest polluters first.

113. I recommend adopting a position such as that recommended by Dr Stewart if all lake catchments are not included as Priority 1 sub-catchments in Table 3.11-2.

114. Officers incorrectly outline, at paragraph 410, that the Director-General opposed the definition of the 75th percentile nitrogen leaching value and seeks a shorter timeframe for completing the 75th percentile calculation. The submission from the Director-General on Variation 1 outlines his support for the definition as notified. The submission also seeks an additional 18-month period for compliance with the 75th percentile to be reached, to account for the delay created by Variation 1 may be appropriate [V1PC1-461].

115. In response to requests to amend the date for the 75th percentile to be calculated, officers have stated that they are 'hesitant to recommend a further set of dates at this time, but will do so in the end of hearing reply report having considered evidence presented to the hearing panel'[18].

116. Officers outline, at paragraph 369, that the Director-General seeks 'that the NRP and 75th percentile nitrogen leaching value are removed from PC1 and that specified nitrogen targets and timeframes for different sub-catchments are inserted instead'. I am not clear where in the Director-General's submission this relief is sought as I cannot locate it and consider that this is perhaps a referencing error by officers. As I have discussed above, it is my view that the NRP and subsequent determination of the 75th percentile nitrogen leaching value is, in principle, an appropriate first step toward the achievement of better water quality in the Waikato and Waipā River catchments.

RULE FRAMEWORK

117. There are no automatically permitted discharges under the RMA therefore a regional council must be satisfied that any permitted activities allowed by a regional plan which result in a discharge described in s70 will meet the requirements of this section of the Act.

118. Section 70(1) requires that any permitted activity rule in a regional plan relating to the discharge of a contaminant or water to water, or onto or into land where it may enter water, the council must be satisfied that the discharge, either by itself or in combination with the same similar or

[18] Paragraph 412

other contaminants, is not likely to result in the following effects, on receiving water, after reasonable mixing:

- the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials:
- any conspicuous change in the colour or visual clarity:
- any emission of objectionable odour:
- the rendering of fresh water unsuitable for consumption by farm animals:
- any significant adverse effects on aquatic life.

119. The Director-General raised concerns in his submission [PC1-11054] regarding the compliance of rules in PC1 with the requirements of s70(1) above. In particular, his concern relates to the fact that existing land use activities in the Waikato and Waipā River catchments have resulted in the degraded water quality currently being experienced and consequently, the effects listed in s70.

120. Officers have recommended that instead of land use activities and their associated discharges being addressed in one rule, the land use and discharge components are separated into two rule streams where the land use component and the discharge component require consent under different rules.

121. New proposed permitted activity 3.11.5.8 provides a permitted activity for diffuse discharges where the land use activity that generates the discharge is authorised by specific rules in the plan, and that the discharge meets a narrowed interpretation of the requirements in s70.

122. As drafted, officers have in my view, omitted a critical component of s70 in their drafting of the rule. The rule fails to recognise that effects listed as s70(1)(c) to (g) and as clauses (a) to (d) in Rule 3.11.5.8 resulting from a discharge must not occur 'either by itself or in combination with the same, similar or other contaminants'. By omitting this section of the s70 requirements, I am concerned that the cumulative nature of diffuse discharges is not appropriately referenced. Should a rule of this nature

be retained, I consider that complete reference to the requirements of s70 is vital.

123. I understand that due to the nature of diffuse discharges, compliance with the requirements of s70 for an individual diffuse discharge is likely to be difficult to determine unlike a point source discharge where the effects on a receiving waterbody are more clearly identifiable. Therefore, I consider it would be difficult for any diffuse discharges resulting from a farming activity to demonstrate compliance with Rule 3.11.5.8(2) as proposed.

124. In my view, this would likely see all diffuse discharges defaulting to a non-complying activity under proposed rule 3.11.5.9. I think there is a risk that a land use activity will be granted consent but that the resulting discharge from that land use is refused consent as a non-complying activity. This would result in a land use being granted consent that cannot actually be given effect to, due to the resulting discharge not being authorised.

125. As a result, I consider that it is more appropriate to authorise the diffuse discharge resulting from a land use activity under one rule. This means that the diffuse discharge resulting from the land use activity is clearly linked to its source and both activities are authorised, or not, together. I have made amendments in Appendix 1 of my evidence to illustrate this recommendation, which includes the deletion of proposed new Rules 3.11.5.8 and 3.11.5.9 and the reintroduction of the consideration of diffuse discharges associated with land use activities together.

126. I also consider it is appropriate to amend Permitted Activity Rules 3.11.5.1A and 3.11.5.2 to specifically reference the requirements of s70 of the RMA.

Rule 3.11.5.1

127. Rule 3.11.5.1 has been recommended to be deleted by officers in Appendix C of the s42A report. The reasoning for this deletion is not entirely clear to me from the body of the s42A report.

128. As notified, this rule provided a permitted activity pathway for land use activities, and their associated diffuse discharge where they met certain permitted activity standards.

129. It appears that this rule has been combined with an amended Rule 3.11.5.2. As a result, I am supportive of the removal of the rule as recommended by officers.

Rule 3.11.5.2

130. As notified 3.11.5.2 provided a permitted activity rule for 'other' farming activities, subject to numerous permitted activity standards. The Director-General sought, through a submission on Variation 1 [V1PC1-418] to apply the dates to the permitted activity for providing the Regional Council with information on the following:

- Annual stock numbers
- Annual fertiliser use; and
- Annual brought in animal feed

131. I acknowledge that the original date, as notified, of 31 March 2019 has now passed and as a result, I consider it is appropriate for the revised date of 30 November 2020 to be used.

132. Officers have amended Rule 3.11.5.2 to add 2C which states that 'no dairy farming or grazing of dairy cattle that occurs' can be considered a permitted activity under the rule. The rule goes on to specify the stocking rates relevant to compliance with the Rule i.e. 6 stock units per ha or more than 6 but less than 10 stock units per ha with a NRP, on land under 15˚ slope etc. I consider that if a dairy farming activity (which I note is not an activity clearly defined in the WRP or PC1) or dairy cattle grazing activity complies with the specified stocking rate outlined in the rule, it seems overly onerous to exclude the activity from being able to be considered a permitted activity.

133. I therefore recommend that the permitted activity rule be amended to remove clause 2C.

Rule 3.11.5.2A

134. Rule 3.11.5.2A is a new rule option recommended by Officers in the s42A report Appendix C. At paragraph 293 officers state that they "are concerned that a controlled activity status will mean that the Council is unable to decline an application that clearly increases the losses of any or all of the four contaminants under a controlled activity framework… Officers have nevertheless included an option for a controlled activity rule for what are considered lower risk farming activities…".

135. I have considered the appropriateness of a controlled activity against utilising the proposed restricted discretionary activity provisions under Rule 3.11.5.3 and 3.11.5.4. I acknowledge that the proposed controlled activity does require a FEP, that no more than 4.1ha of the property has changed in land use to a more intensive land use activity and that either the Nitrogen Reference Point for the property is not exceeded, or a stocking rate of no greater than 18 stock units per ha applies and has not increased since the reference period. However, I am concerned that despite these controls there could be discharge of other contaminants that are not able to be controlled through these measures but that the council must grant a resource consent for the activity regardless due to the controlled activity status.

136. I therefore consider that removing proposed Rule 3.11.5.2A is appropriate. This would mean that either an activity is a permitted activity under Rule 3.11.5.2, and if not, it is subject to a resource consent process where the council maintains the discretion about whether or not to grant the application.

Rule 3.11.5.3

137. Formerly a permitted activity rule for 'Farming with a Farm Environment Plan under a Certified Industry Scheme', Rule 3.11.5.3 has been amended to a restricted discretionary activity rule. The Director-General was wholly unsupportive of the Certified Industry Scheme approach proposed under PC1 as notified due to the exclusion of the public from involvement in the process and the approval nature of certified industry schemes being outside of the regional plan and resource consent process.

138. The amendment proposed to Rule 3.11.5.3 to require a restricted discretionary resource consent for farming activities with a Farm Environment Plan developed under a Certified Industry (now Sector) Scheme goes a significant way to addressing the Director-General's concerns with this approach. I discuss this further at paragraph 152 below.

139. Again, part of the relief sought by the Director-General related to retaining the dates for compliance with the requirements of the rule. The notified and variation 1 versions of Rule 3.11.5.3 required a FEP to be provided as follows:

- By 1 July 2020 for Priority 1 extended to 1 March 2022
- By 1 July 2023 for Priority 2 extended to 1 March 2025
- By 1 July 2026 for Priority 3.

140. However, Rule 3.11.5.3 as amended removes these compliance dates. The timeframe appears to now be directed through the interim permitted activity rule inserted as new Rule 3.11.5.1A. This rule provides an 'interim permitted activity' for farming activities that do not comply with the permitted activity standards under Rule 3.11.5.2 for the period while an NRP is being prepared, 75th percentile nitrogen leaching value calculated and subsequent FEPs are being prepared and lodged with Council for consent.

141. This amended rule specifies the following timeframes:

- The later of 1 September 2021 or 6 months from the date PC1 is operative for Priority 1 (between the notified and Variation 1 dates or later)
- The later of 1 March 2025 or 1 year from the date PC1 is operative for Priority 2 (Variation 1 date or later)
- 1 January 2026 for properties in Priority 3 (sooner than proposed as notified)

142. All properties must be registered, and Nitrogen Reference Points provided to WRC by 30 November 2020 according to the dates outlined

in Schedules A and B. I note that officers have not reflected this date in the definition of 75th percentile leaching value and I consider that it is appropriate for the date in the definition to align with the dates for providing the necessary information in Schedules A and B.

143. Based on the information required to be provided through Schedules A & B, and to achieve compliance with the above timeframes, the council will need to work promptly to determine the 75th percentile nitrogen leaching value and communicate this with those landowners whose discharge is identified as being above the 75th percentile nitrogen leaching value. These landowners are then required to develop a Farm Environment Plan (to demonstrate how their discharge will be reduced by 1 July 2026) and submit the FEP for resource consent to the Council, all within a 10-month period before they lose their interim permitted activity status under Rule 3.11.5.1A.

144. As reiterated by officers, at paragraph 807 of the s42A report, it is anticipated in the s32 report that around "5000 farms within the Waikato and Waipā catchments will require FEPs". To ensure this can occur, it is my view that the Council need to be prepared and well equipped for the practical requirements of ensuring this can be achieved.

145. The determination of the 75th percentile nitrogen leaching value is a critical step in progressing the necessary reductions to discharges within sub-catchments to realise the necessary water quality improvements to achieve the values, meet the Vision and Strategy and maintain the integrity of the plan change. Delay in the provision of information from landowners on their nitrogen reference points could delay the 75th percentile calculation by Council.

146. I am concerned that if the 75th percentile calculation is undertaken without receipt of all NRPs, there is a risk that the 75th percentile will not be an accurate representation of the total reductions necessary in the catchment. However, if the Council waits for all NRPs to be provided, even after the specified timeframe, there is a risk that the timeframes specified in the Plan associated with the interim permitted activity, will not be achievable meaning that landowners will require consent without it being clear whether or not their nitrogen leaching is above or below the 75th percentile nitrogen leaching value.

147. I also consider that the provision for this work to be done '…6 months after this Plan becomes operative…' which is suggested by officers as part of Rule 3.11.5.1A(1) is a short timeframe for the necessary actions to be achieved before the interim permitted activity expires. It is also my view that if the operative date of the plan change is used as a 'trigger' for this rule, it is also appropriate to provide this 'trigger' period for any of the requiring information that landowners need to provide i.e. Schedules A & B.

Rule 3.11.5.4

148. As notified, Rule 3.11.5.4 was unclear whether the intent for the rule was for it to be a controlled or permitted activity. The Director-General sought that this be clarified [PC1-11057].

149. Officers have recommended through amendments to PC1 in Appendix C of the s42A report, that the activity be included as a restricted discretionary activity.

150. I am supportive of the certainty and clarity provided as a result of the activity status being changed to restricted discretionary and believe that this will alleviate the concerns of the Director-General regarding how the rule is to be applied.

151. I am also supportive of the ability under a restricted discretionary activity status for an application to be declined where it is not demonstrating sufficient reductions in contaminant discharge which cannot be done through a controlled activity status.

152. The Director-General also sought [V1PC1-420] that the dates for compliance with the rule be amended to reflect the originally notified dates. Officers have proposed that these dates be removed and instead, the new interim permitted activity rule 3.11.5.1A provides the dates for when compliance is required. I have discussed the appropriateness of these dates in paragraphs 133- 139 above.

153. Ultimately, I consider that the dates sought in the Director-General's submission are no longer likely to be achievable and it is not practical to pursue this relief sought.

154. Having read through the revised rules 3.11.5.3 and 3.11.5.4 as amended by officers, it seems that there is now a duplication of restricted discretionary activity rules for properties that have had less than a cumulative net total of 4.1ha change in land use. The difference in these rules being one FEP is prepared under a Certified Industry Scheme and one where no commercial vegetation production is specifically excluded (3.11.5.4).

155. I therefore consider it is appropriate to amalgamate Rules 3.11.5.3 and 3.11.5.4 into a single restricted discretionary activity rule. I note officers have also considered this position at paragraph 810 of the s42A report, where they favour deleting Rule 3.11.5.3. I agree with this position.

Rule 3.11.5.6

156. Director-General sought [PC1-11058] that Rule 3.11.5.6 be retained as the default activity status for any activity that did not meet the permitted or controlled activities as notified. As discussed above, there have been amendments to the rule framework, which I am largely in support of which have resulted in Rules 3.11.5.3 and 3.11.5.4 being classified as restricted discretionary activities.

157. These rules have effectively replaced the need for Rule 3.11.5.6 and I am satisfied that the above rules address the reasons for the Director-General's support of the original rule. I am therefore comfortable with the removal of Rule 3.11.5.6.

Rule 3.11.5.7

158. Rule 3.11.5.7 as notified, is a non-complying activity rule which seeks to control the change of land use activities, undertaken over an area exceeding 4.1ha, and provides 4 scenarios of land use change that the rule applies to:

- Woody vegetation to farming activities
- Livestock grazing other than dairy farming to dairy farming
- Arable cropping to dairy farming
- Any land use to commercial vegetation production

159. Officers have made significant changes to the rule as notified.

160. The Director-General sought to retain the rule with stronger policy guidance to support its use, such as through Policy 6. An alternative relief was that a prohibited activity rule be included to replace Rule 3.11.5.7 to avoid adverse effects of land use change [PC1-10664, PC1-11059]. The provisions from Policy 6 have been recommended by officers to be amalgamated into Policy 1 and I address this in paragraphs 168- 174 below.

161. Officers have considered submissions relating the Rule 3.11.5.7 and the activity status of land use change at paragraphs 507-512 of their report. However, they appear not to have considered the use of a prohibited activity status for those land use changes sought by the Director-General.

162. I consider that a prohibited activity in place of non-complying Rule 3.11.5.7 would mean that in any land use change with a cumulative net total of more than 4.1ha from 22 October 2016 could not be authorised through a resource consent process. Without an exemption, this would include any tangata whenua ancestral lands.

163. It is my preference that a non-complying activity be retained. To ensure that the approval of any application under this activity status is sufficiently robust, the Plan Change requires a strong policy framework to guide whether applications are approved given the 'gateway test'. A non-complying activity is the limit of what a council can consider and if approved, non-complying activities are likely to undermine the outcomes intended to be achieved. I discuss the amendments to Policy 6 that I consider are necessary to provide for this in paragraphs 167 - 23 below.

CERTIFIED INDUSTRY SCHEMES

164. The Director-General was opposed to the use of Certified Industry Schemes as they were proposed in the plan change as notified [PC1-10751, V1PC1-418, V1PC1-419, PC1-10648]. This was due to the process for approval of Farm Environment Plan through a Certified Industry Scheme that sat outside the plan making process and

excluded the participation of the public, and generally lacked transparency around the authorisation, monitoring and auditing of activities certified under such a scheme.

165. Officers have recommended including a new policy 3A to the plan change which outlines how Certified Industry Schemes, now referred to as Certified Sector Schemes, will be developed including reference to minimum standards in Schedule 2, the process for approving the schemes and the independent audit of the schemes.

166. Substantial changes have been recommended by officers to Schedule 2 for the Plan Change which, as amended, now represents 'minimum standards for Certified Sector Schemes'. I consider that the proposed amendments to Schedule 2 provide greater certainty around what will be required to establish a Certified Sector Scheme and the requirements of such a scheme in their role as FEP practitioners.

167. I am particularly supportive of the specific sections of the schedule which address the preparation, implementation and auditing requirements of FEPs and consider that the proposed amendments provide a robust and effective way of ensuring that the standards are upheld by Certified Sector Schemes and are critical to the success of such a scheme. Overall, I am supportive of the amendments to PC1 to include Policy 3A and the amendments to Schedule 2.

LAND USE CHANGE

168. PC1 applies a grand-parenting approach to the allocation of contaminants. The allocation is determined based on the discharge created from land use activities and their associated nitrogen leaching during a benchmarked period, in this case, being 1 July 2014 - 30 June 2016[19]. The modelled nitrogen discharged over this reference period is then used to determine the 75th percentile nitrogen leaching value and require those with nitrogen discharges above this value to reduce their discharge to below it.

[19] With the exception of commercial vegetation production which has a separate reference period

169. Challenges with this approach include the loss of opportunity to lower emitting land uses. This includes tangata whenua ancestral lands that have only recently been returned to iwi landowners as a result of Treaty settlements. The grand-parenting allocation regime effectively disadvantages these lower emitting land uses to achieve the desired water quality outcomes although, in the case of PC1, it appears that exemptions for these uses are made. This creates further uncertainty about the level of development and associated nitrogen discharge anticipated for changes in land use on these properties, including on tangata whenua ancestral lands.

170. The Director-General, along with a number of other submitters support an alternative, land-based approach to the allocation of nutrients.

171. A land-based approach to allocation allocates nutrients based on the natural capital or physical characteristics of the land and often uses the Land Use Capability (LUC) of the land as a proxy for determining natural capital. Under this approach, all land in a sub-catchment with the same physical characteristics have the same allocation of nutrients.

172. As this approach to allocation disregards the current use of land and any existing discharge, I consider it is a more fair and equitable way to enable flexibility in land use for all landowners while also all working towards the achievement of water quality outcomes.

173. Officers have recommended not to introduce a land-based allocation regime into the Plan Change. Officers stated that they 'do not consider that there is adequate information to make wholesale changes to the PC1 N loss framework and that this also applied to the introduction of a land use capability framework or other framework[20]'. As a result, there is no certainty for how nutrients will be allocated to tangata whenua ancestral lands to ensure that land use activities do not result in further over allocation of the catchment, nor is there any certainty about the level of land use flexibility available to current low-level discharging activities.

[20] Paragraph 147

Policy 6 – Restricting land use change.

174. Policy 6 as notified, provided broad direction on when consent applications for land use consents will be granted or not. I support the Director-General's position [PC1-10664] that the policy, as notified, does not provide sufficient direction to plan users or decision makers, particularly as guidance for Rule 3.11.5.7 which is a non-complying activity rule relating to land use change.

175. I note that officers are recommending that Policy 6 be deleted, and that its 'key components' be incorporated into Policy 1 (as 1(b3) and 1(b4)). I am supportive of this approach in principle. The amendments to Policy 1 have however, not resulted in greater certainty about the policy's application, as was sought by the Director-General [PC1-11059].

176. Policy 1(b3) outlines that land use and discharge consents will be generally granted where they demonstrate clear and enduring reductions in diffuse discharges to nitrogen, phosphorus, sediment and microbial pathogens. Policy 1(b4) outlines that land use consent applications involving land use change or an increase in the intensity of the land will generally not be granted unless clear and enduring reductions in diffuse discharges to nitrogen, phosphorus, sediment and microbial pathogens are demonstrated.

177. The policy uses the term 'generally' when describing when consent will or will not be granted. The use of this term signals to me that there are instances where there could be an exception to the 'general' guidance to approve or decline a consent application. While I note that the policy intends to exclude compliance for 'low level contaminant discharge to water bodies' (Policy 1(a)) and to tangata whenua ancestral lands (under Policy 16), it would appear that other exemptions are anticipated through the term 'generally'. I am not clear from reading the plan what these exceptions might be or when they could apply.

178. Officers state, at paragraph 508, that "there is clear direction in the PC1 provisions that resource consent applications for activities with increased diffuse discharge will not be granted". I consider that if the intent of the policy is to not approve resource consent applications for land use activities that will result in an increase in diffuse discharges the wording in the policy needs to clearly state this.

179. I consider that Policy 1(b3) and (b4) as recommended by officers simply restate the same position in two different ways;

- Consent being granted where clear and enduring diffuse discharge reductions are demonstrated and
- Consent won't be granted unless clear and enduring diffuse discharge reductions are demonstrated.

180. As a result, only one statement is required and I consider that the term 'generally' should be removed to provide certainty to plan users and decision makers about when a resource consent application is considered appropriate to be granted based on diffuse discharges. I have amended the policy in Appendix 1 to reflect this.

181. I also consider that the exemptions provided by Policy 1 (b3) and (b4) for 'low level contaminant discharge to water bodies' (Policy 1(a)) and to tangata whenua ancestral lands (under Policy 16) are not appropriate based on the current grand-parented allocation of discharges.

182. Without a land-based allocation regime it is difficult to allow any flexibility in land use change for those activities that are currently 'low level' contaminant discharges while ensuring that no further degradation of water quality occurs.

183. 'Low level' discharges, are provided for as a permitted activity under 3.11.5.2, effectively based on stocking rate. The plan change then specifies that if an activity is no longer meeting the 'low level' discharge due to an increased stocking rate or area of land use change, a restricted discretionary, full discretionary or non-complying activity status applies. As a result, it is my view that any increase in discharge from the property should be assessed along with the land use consent.

184. I consider that it is problematic for these activities to be allowed to increase their discharge, through the exemption in Policy 1(a) without there being an appropriate way of ensuring that this increase is countered with a decrease in discharge elsewhere. I note that there is no limit on the level of increased discharge that could result from these exemptions.

185. Similarly, in relation to tangata whenua ancestral lands, the discharge of contaminants from this land should not be granted consent without there being an appropriate framework for the equitable and fair distribution of contaminant discharge which achieve the necessary improvements in water quality.

186. It is the responsibility of the council[21] to allocate resources in a way that achieves the outcomes of the Vision and Strategy, and NPSFM and ultimately, the purpose of the RMA. There is a loss of opportunity for Māori as a result of previous land confiscation that must be recognised. I consider it is the responsibility of the council and the role of the plan under the Vision and Strategy to ensure that the development on that land can occur in a way that does not further contribute to the degradation in water quality in the Waikato and Waipā catchments.

187. It is not clear what level of development will be provided for on tangata whenua ancestral lands in PC1 and as a result, there is no certainty that any development of these properties will not be subject to restrictions in the future to reduce their contaminant discharge. To address this, I consider that either:

- all tangata whenua ancestral lands be allowed to develop up to the 75th percentile nitrogen leaching value, being the mark the Council has decided is appropriate, at this time to discharge to or,

- that a land-based allocation be used to set a level of allocation appropriate for the physical characteristics of all land. This would allow a level of discharge to be set that ensures fair and equitable distribution of contaminant discharge rights based on the assimilative capacity of the receiving environment and on the ability of the land to retain nutrients and optimise nutrient use.

[21] Under s 13(4) of the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010, and those Acts referred to in footnote 4 of the Opening Legal Submission for the Director-General.

188. The latter approach would ensure that the development of tangata whenua ancestral lands occurs in consideration of the capacity of the catchment.

MĀORI TREATY SETTLEMENT LAND

Policy 16 – Flexibility for development of land returned under Te Tiriti o Waitangi settlements and multiple-owned Māori land

189. The Director-General sought [PC1-10745] that Policy 16 be retained but amended to reflect a land-based allocation regime, as discussed earlier in paragraphs 160- 165 above.

190. As outlined in paragraph 165 above, Officers have not recommended that a land-based regime be introduced to the Plan Change. Officers stated that they 'do not consider that there is adequate information to make wholesale changes to the PC1 N loss framework and that this also applied to the introduction of a land use capability framework or other framework[22]'.

191. I consider a land-based allocation regime is an opportunity to ensure fair and equitable distribution of contaminant discharge based on the assimilative capacity of the receiving environment and on the ability of the land to retain nutrients and optimise nutrient use.

192. My concern is that without a land-based allocation framework there is no guidance for landowners on the establishment of land use activities on tangata whenua ancestral land. As notified, Policy 16 requires that the 'suitability of land for development into the proposed new type of land use' reflecting the principles of Policy 7, to be taken into account. Policy 7 appears to me to be an information gathering and research policy that provides little in the way of certainty around how future allocation of discharges will be undertaken but alludes to the fact that this will occur. In my view it provides no certainty for landowners of tangata whenua ancestral lands about their investment in the land or any future discharge restrictions that may be imposed.

[22] Paragraph 147

193. Many of the existing sub-catchments within the Waikato and Waipā River catchments are currently over-allocated. The Vision and Strategy recognises that 'the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities[23]'. It directs the development targets and a programme of action for improving the health and wellbeing of the Waikato River, as outlined in Strategies 3 and 4. The NPSFM requires councils to establish methods to avoid over-allocation of fresh water[24].

194. To achieve the outcomes required by higher level documents, any discharge from tangata whenua ancestral lands needs to come from within the existing allocation of discharges for those sub-catchments that are already over-allocated. Without this approach, I consider it is likely that the development of tangata whenua ancestral lands will result in further over-allocation of already over-allocated sub-catchments. This approach also poses the risk of over-allocation in those sub-catchments that are not currently over-allocated.

195. I am also concerned that the second part of the policy following the words "Taking into account…" reads more as matters of control or discretion that you may see in a controlled or restricted discretionary activity. I am not clear how an applicant or a decision maker could determine whether they are contrary with the direction in Policy 16 under this part of the policy and therefore how they determine if the non-complying 'gateway' test of s104D are met. I therefore recommend that this section of the policy be removed.

196. Ultimately, I consider an allocation regime based on the physical characteristics of the land, implemented now, will ensure that the development of tangata whenua ancestral lands will not further impact on the degraded state of water quality in the Waikato and Waipā River catchments and will provide all landowners with certainty about the allocation and management of discharges going forward.

[23] Objective H
[24] Policy A1(b)

POINT SOURCE DISCHARGES

197. There are four policies in the Plan Change that address point source discharges of the four contaminants into the Waikato and Waipā River catchments.

Policy 10 – Provide for point source discharges of regional significance

198. Policy 10 specifically provides for the continued operation of regionally significant infrastructure and regionally significant industry. Officers have not recommended any changes to Policy 10.

199. The Director-General sought [PC1-10676] that the policy be amended to ensure point source discharges are:

- managed in a manner that recognises and provides for the values of individual water bodies; and
- considered as part of a land-based allocation regime

200. Officers state, at paragraph 1067 that "the wider matters raised in relation to the determination of values in accordance with the NPSFM are addressed elsewhere in this report". Officers have not recommended any amendments to the policy to ensure that the values of water bodies are recognised and provided for.

201. It is necessary to consider the contributions of all contaminant sources, both diffuse and point source to achieve the values of the water bodies in the Waikato and Waipā River catchments[25]. Without this acknowledgement, and an associated amendment to Policy 10, the required water quality targets to achieve the identified values will be solely the requirement of diffuse discharges, and a subset of point source discharges, being those that are not recognised as being associated with the operations of regionally significant infrastructure or regionally significant industry. Ms McArthur supports amendment to Policy 10 at paragraph 10 of her evidence.

[25] I discussed this in my evidence in chief on Block 1, and the amendments I recommend to Objective 3 at paragraphs 246 and 247.

202. I discuss the benefits of a land-based approach to allocation in paragraphs 160 - 165 above.

203. The Director-General also sought that a definition be provided for regionally significant industry [PC1-10658]. I acknowledge that the RPS provides definitions for both regionally significant industry and regionally significant infrastructure.

204. The definition of regionally significant infrastructure identifies an inclusive list of the nature of the infrastructure considered to have regional significance to guide readers about what would be included. However, the definition of regionally significant industry, does not provide this level of certainty. The definition identifies the following must be met in order for an activity to be considered regionally significant industry:

- The activity is an economic activity; and
- The activity is based on the use of natural and physical resources in the region; and
- The activity is identified in a regional or district plan; and
- The activity has significant benefits at a regional or national scale including any social, economic or cultural benefits.

205. At Para 1070 - 1072 of the s42A report, officers recommend including the definitions from the RPS for Regionally Significant Industry and Regionally Significant Infrastructure. They do not propose to include any specific regionally significant industry in the Plan Change to despite the requirement that the activities be identified in a regional or district plan. I understand that there are no existing industries identified as being regionally significant in the WRP.

206. As a result, I understand that those industries that consider themselves to fall within the definition of a regionally significant industry are required to seek that this be specifically included in the Plan if it is not already adequately covered in a district plan.

207. I understand this would require a separate plan change process to include this level of detail in the plan and would therefore be subject to

the first schedule process unless information can be presented through the PC1 process which satisfies the requirements of the definition. If sufficient information is provided through this process, I consider it is appropriate to include those industries in the definition in the Plan Change now as this provides greater certainty for plan users and decision makers.

208. It would seem appropriate to me that a regional plan or policy statement is the appropriate place to identify an activity considered to have regional significance, rather than at a district plan level. In my view, it would be appropriate for any appropriate regionally significant industry already identified in district plans to be included in the regional plan definition, for that particular district. This ensures that those industries that are already identified as regionally significant industry in a District Plan are confirmed as such for the purposes of regionally planning matters such as the management of water quality.

Policy 11 – Application of Best Practicable Option and mitigation or offset of effects to point source discharges

209. Director-General's submission [PC1-10694] sought to ensure that a hierarchy was established for the management of adverse effects associated with point source discharges. Officers have considered this relief sought at paragraph 1110 where they consider that a hierarchy approach to addressing adverse effects is appropriate.

210. The proposed amendments to the policy address the concerns raised by the Director-General in relation to the hierarchy of measures that should be taken in regard to adverse effects. I support the amendments proposed to Policy 11 as a result.

211. The Director-General also sought [PC1-10694] that the values of waterbodies be considered when evaluating whether offsetting is an appropriate option given that some systems are irreplaceable and that this should be a factor in considering the appropriateness of applying offsetting in relation to point source discharges. In this regard, the Director-General referenced the Department's Guidance on Good Practice Biodiversity Offsetting in New Zealand as useful context.

212. Ms McArthur's addresses the application of offsetting in a point source discharge context in her evidence[26]. She has provided a useful comparison to the use of offsetting in relation to biodiversity where best-practice guidance and principles have been developed, based on more recent Local Government guidance, developed in September 2018 (which I acknowledge has been developed since PC1 was notified). I note that all of the principles identified in the Department's guidance are reflected in the more recent guidance for biodiversity.

213. Ms McArthur discusses the importance of the gains required from offsetting. With regard to the water quality of the Waikato and Waipā catchments, the gains for offsetting would need to be additional to any water quality improvements that are already required under PC1. She concludes that the proposed approach in Policy 11 is contaminant trading rather than offsetting and considers this unlikely to achieve the objectives of PC1 and the Vision and Strategy.

214. Based on the views of Ms McArthur, I have suggested amendments to Policy 11 to remove the ability for offsetting to be considered relating to point source discharges.

Policy 12 – Additional considerations for point source discharges in relation to water quality targets

215. The Director-General sought that this policy be retained [PC1-10738] in the absence of a land-based allocation regime. I note that officers have not recommended a change to the allocation regime for the plan change and have discussed this above.

216. I am comfortable with the remainder of the changes recommended by officers and consider they help to clarify the policy intent.

Policy 13 – Point sources consent duration

217. The Director-General's submission [PC1-10739] sought the introduction of a common catchment expiry date for consent terms to ensure that the water quality targets for a particular catchment can be reviewed together.

[26] Paragraphs 12 - 16

218. I am supportive of the establishment of a common catchment, or in this instance sub-catchment, expiry date. I consider this is a useful method for enabling the review of point sources discharges within a catchment at the same time and enables changes to all consents if the water quality targets for the catchment are not being achieved. In my view, this is fair and equitable approach to the achievement of water quality targets. I consider that it is appropriate for the Plan Change to specify a table of these dates within the Plan to aid transparency for plan users and decision makers and to establish a regular review period, say 10 years.

219. At paragraph 1183 of the s42A report, officers consider that having common catchment expiry dates would "cause resourcing issues to manage all consents at once". While all point source discharges in a single sub-catchment would expire and need to be reviewed at one time, this would be a set timeframe which would enable the council to prepare for the workload. I consider that this workload could be planned for and managed. Ultimately, all resource consents will expire and require review at some point and without a common catchment expiry date this would be on an ad hoc basis which the council would need to respond to. I consider there is a potential benefit in anticipating workloads as a result of applying common catchment dates.

220. Common catchment expiry dates provide a shared date where the management of discharges in a sub-catchment can be reviewed. This can allow, for example, changes to all relevant discharge consents in that catchment to be made should additional reductions in the discharge of contaminants be required.

221. I agree with the Director-General's submission that point source and diffuse discharges should be managed together to achieve the FMU values and water quality outcomes, given that both forms of discharge contribute to their achievement. I also consider that a common catchment expiry date is an effective way of dealing with cumulative effects of discharges within a sub-catchment.

222. I note that the amendments recommended by officers alter the policy to "the appropriateness of a longer consent duration…" at clause a. I am not clear what officers intend "longer" to mean, is this longer than 25

years? I consider that a clear, simple first clause that considers whether the application demonstrates compliance with the water quality targets in Table 3.11-1, which are intended to ensure values are achieved and water quality outcomes are met is appropriate.

223. Should the hearing panel be of the mind to utilise a common sub-catchment expiry date approach, I have included recommended wording in Policy 13 to provide for the establishment of these dates in a Table in the Plan Change.

SCHEDULE A - PROPERTY REGISTRATION

224. The Director-General sought a number of points of relief in relation to the provision of information as part of the property registration process required by Schedule A.

225. The relief sought included:

- Use of the dates for registration as originally notified in the Plan Change[27] [V1PC1-422];
- Require verification of stocking numbers via reconciliations/receipts [PC1-11060]; and
- Require regular updates to information (6-monthly) including stocking numbers and land area (to account for subdivision/amalgamation [PC1-11060].

226. With regard to the dates for registration, I acknowledge that the dates for property registration as originally notified have passed. It therefore makes sense to me to align with the dates proposed as a result of Variation 1. However, I consider an alternative approach could be that this information be required to be provided by landowners within 6 months of the plan change being made operative.

227. I consider that this allows for the final stages of the first schedule process to be completed and gives landowners ample opportunity to

[27] I note that the Director-General's relief was originally that this information be collected more quickly.

collate and provide the requested information, recognising that the requirement for this information has been signalled as a requirement since the plan change was notified.

228. With regard to the verification of information provided to the Council and any requirements for updating this information, officers have stated at paragraph 622 that 'the intent of Schedule A is to assist in the implementation of the policies rules and methods of PC1 and FEPs by gathering baseline information…'. It is my view that the intended purpose of Schedule A is not clear from the Plan Change as notified, so it is useful that officers have clarified this in the s42A report.

229. I consider that the purpose of Schedule A could be usefully included in PC1 itself and suggest an amendment to reflect this accordingly. The clarified intent of the schedule raises further questions for me about whether it is intended that all information provided under Schedule A be required to reflect the land use activities, land area and stocking rate as at 22 October 2016 or whether it is 'current day' information.

230. As notified, a description of the land use activity or activities undertaken on the property at 22 October 2016 is required. However, I note that this date is not applied to the other aspects of Schedule A including size of the property, the annual average and maximum stocking rate of animals grazed on the land, the name of any enterprise or the map of livestock grazing.

231. If the purpose of Schedule A is to establish a baseline of information of farms at 26 October 2016, I consider that the schedule should be amended to reflect this requirement and I have included what I consider are the necessary changes in Appendix 1 to my evidence. I acknowledge that there may be challenges for some farmers obtaining this information in situations where the farm has been purchased since October 2016 as this information would need to be obtained from a previous landowner.

232. If I have misinterpreted the purpose of the schedule, and the intention is to capture 'current day' information about properties, this should be clearly specified in the wording of Schedule A and the reference to 22 October 2016 at 5(d) needs to be removed.

SCHEDULE B - NITROGEN REFERENCE POINT

233. The Director-General made two submissions seeking that Schedule B be retained and following amendments recommended as part of Variation 1, that the 'starting date' for providing information to the Council be revised to the original dates as notified [V1PC1-423, PC1-11065].

234. While I appreciate the intent of the submission by the Director-General to ensure that the establishment of Nitrogen Reference Points be undertaken as soon as practicable, the delays in the Plan Change progressing as a result of the Variation 1 process has meant that the dates as notified are no longer achievable.

235. I am therefore comfortable with the dates for requiring that Nitrogen Referent Point Analysis be published proposed through Variation 1 and note that officers have not recommended any alteration to this in the s42A report.

POLICY 14 – LAKES FRESHWATER MANAGEMENT UNITS

236. The Director-General submitted on Policy 14 [PC1-10742] and sought that the policy be amended using existing data and information from work already completed to avoid further delay in improving lake water quality.

237. Officers recommended, at paragraph 651, minor amendments to the policy but nothing that addresses the relief sought by the Director-General that recognises existing data and information, including existing Lake Catchment Plans are already available to assist with this task. Given the degraded state of many of the lakes in the catchment, I consider it is vital and efficient to utilise any existing information to guide improvement of lakes water quality and ecosystem health. I note that this aligns Strategies 2 and 3 in the Vision and Strategy which direct the establishment of current health status and targets for improving the health and wellbeing of the Waikato River utilising mātauranga Māori and the latest available scientific information.

238. As a result, I recommend amendments to the policies that ensure this existing work is acknowledged and utilised in the improvement of lake water quality and in achieving values associated with lakes.

DATED this 3rd day of May 2019

APPENDIX 1 – TRACKED CHANGES TO PC1

Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments

~~Notified version (October 2016)~~

Officer's Block 2 "Tracked Changes" Recommendations

Red tracked changes are insertions or deletions due to Variation 1

Black tracked changes are insertions or deletions recommended by the Council Officers

Note: Parts in grey shading are part of future recommendations.
Parts in green shading are part of previous recommendations

Blue tracked changes are insertions or deletions recommended by experts for the Director-General of Conservation – Hearing Blocks 1 & 2
Numbers in square brackets identify the reference number given to the Director-General's submission

Contents

Disclaimer

The te reo Māori version is a translation of the original in English. The translation is provided for information purposes only and is not a substitute for the English version. In case of any discrepancy between the te reo Māori and English versions, the English version will prevail. While Waikato Regional Council has made all reasonable efforts to provide an accurate te reo Māori translation, parts may be incorrect. Waikato Regional Council makes no warranties or representations express or implied, as to the completeness, correctness, currency or fitness for any particular purpose of the translation. While Waikato Regional Council has exercised all reasonable skill and care in providing the translation, Waikato Regional Council accepts no liability in contract, tort or otherwise, for any loss, damage, injury or expense (whether direct, indirect or consequential) arising out of the provision of the translation or its use by your or any other party.

Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments

From the Healthy Rivers Wai Ora committee co-chairs

Tuia te rangi e tū nei

Tuia te papa e takoto nei

Tuia te muka tangata e whiria nei i te mata o te whenua

Kīngi Tuheitia - te mauri o te motu

Tuia ngā manako o ngā iwi kia whakaorangia, kia tiakina hoki te mauri o ngā wai

Paimārire

We are honoured to introduce the Waikato Regional Plan Change 1 - Waikato and Waipa River Catchments (Proposed).

This document represents the start of the regional community's journey in restoring and protecting the health and wellbeing of the Waikato and Waipa rivers for the benefit of current and future generations, as set out in the Vision and Strategy for the Waikato River/Te Ture Whaimana o Te Awa o Waikato.

The proposed plan change sets out an 80 year timeframe for the Waikato and Waipa rivers and their tributaries to be swimmable and safe for food collection along their entire lengths, and in doing so, achieving the requirements of the Vision and Strategy/Te Ture Whaimana, the primary direction setting document for the rivers. In achieving this outcome, it sets a higher bar than the National Policy Statement for Freshwater Management 2014's requirement of wadeable water bodies.

The proposed plan change has been developed under a unique set of circumstances.
What sets this proposed plan change apart is that six organisations – Maniapoto Māori Trust Board, Raukawa Charitable Trust, Tūwharetoa Māori Trust Board, Te Arawa River Iwi Trust and Waikato Raupatu River Trust representing Waikato and Waipa River iwi – and Waikato Regional Council partnered on the project to develop this proposed plan change, Healthy Rivers: Plan for Change/Wai Ora: He Rautaki Whakapaipai. The partnership gives effect to the co-management arrangements between the five River iwi and Waikato Regional Council for the Waikato and Waipa Rivers. The guardians of the Vision and Strategy/Te Ture Whaimana, the Waikato River Authority, have also been closely involved.

The policies outlined in the following pages have been principally developed by a group of exceptional individuals as part of the Healthy Rivers/Wai Ora project. Over two and a half years, the 24-strong Collaborative Stakeholder Group, led by an independent chair and assisted by a very capable facilitator, stepped up to represent stakeholders – a diverse range of sectors and the community – in developing the proposed plan change. To ensure they had the right information to make justifiable and achievable decisions, they received technical information, including Mātauranga Māori (Māori knowledge) from a highly qualified Technical Leaders Group. The Collaborative Stakeholder Group's task has not been easy, and we would like to express our gratitude for their commitment to the process and for what they've collectively achieved.

As co-chairs of the Healthy Rivers Wai Ora committee, a joint decision making body of River iwi governors and regional councillors, we have been privileged to attend many of the Collaborative Stakeholder Group's workshops. It has been inspiring to witness the diverse range of interests represented in the room working together for solutions to restore and protect our precious fresh water, and putting in place a long term plan for bringing the Vision and Strategy/Te Ture Whaimana to life.

Every person who has come forward and shared their ideas with the Collaborative Stakeholder Group deserves acknowledgement for contributing to the solutions for the rivers. Whether a member of the public or part of an organisation, thank you for being part of the process that has produced this document.

Councillor Alan Livingston

Co-chair, Healthy Rivers Wai Ora Committee

Waikato Regional Council

Kataraina Hodge

Co-chair, Healthy Rivers Wai Ora Committee

Raukawa Charitable Trust

From the Waikato Regional Council chair

Waikato Regional Council is proud to have been one of the partners in the Healthy Rivers: Plan for Change/Wai Ora: He Rautaki Whakapaipai project that developed this proposed plan change.

This document is important, not just for the people of the Waikato region but for all of New Zealand, given the Waikato River's national importance and its contribution to our country's cultural, social and environmental wellbeing. The plan proposes to reduce key contaminants entering water bodies in the Waipa and Waikato river catchments, which cover 1.1 million hectares.

For Waikato Regional Council, the collaborative approach taken to develop this plan change marks a new way of producing this type of policy.

Addressing water quality issues is complex. Progress can only be made through seeking sensible, practical solutions and working with others.

Everyone in the Waikato and Waipa river catchments holds a stake in the rivers, as do many beyond. The rivers' stakeholders are diverse, as reflected in the composition of the Collaborative Stakeholder Group (CSG) instrumental in developing this plan change. People and sectors hold a wide range of values for the rivers. The CSG travelled far and wide in the catchments to hear different perspectives and to experience and understand the diversity.

Initially there was little agreement on causes of the problem, no direct cause and effect relationship and, in addition, technically complex issues. The Vision and Strategy/Te Ture Whaimana also required the group to develop a plan for the rivers to be swimmable and safe for food collection. To address this an impartial group of specialists was specially formed to provide the CSG and others involved with technical information. As a result, this plan change is based on scientific evidence and also incorporates Mātauranga Māori, or traditional and contemporary Māori knowledge.

On behalf of Waikato Regional Council I thank the Collaborative Stakeholder Group, the Technical Leaders Group and the wider community for their involvement and commitment to the collaborative process and the desired outcomes for our waterways. The conversations do not stop here. Waikato Regional Council staff are available at any stage to address your questions and information needs. We want to get this plan right so I encourage you to submit your feedback. Water quality is a shared problem and we need shared solutions.

Chairperson Paula Southgate

Waikato Regional Council

Nā ngā hoa-kaihautū o te komiti o Wai Ora

Tuia te rangi e tū nei

Tuia te papa e takoto nei

Tuia te muka tangata e whiria nei i te mata o te whenua

Kīngi Tuheitia - te mauri o te motu

Tuia ngā manako o ngā iwi kia whakaorangia, kia tiakina hoki te mauri o ngā wai

Paimārire

Nō māua te hōnore ki te tāpae i te Panonitanga 1 i te Mahere ā-Rohe a Waikato - ngā Riu o ngā Awa o Waikato me Waipā (e marohitia nei).

Ko tā tēnei pukapuka, he kōkiri i te haerenga o te hapori ā-rohe ki te whakaora, ki te tiaki hoki i te ora me te mauri o ngā awa o Waikato me Waipā, hei painga mō ngā whakatupuranga o nāianei me ngā whakatupuranga o anamata, e takoto ana i roto i Te Ture Whaimana o Te Awa o Waikato.

E takoto ana i te panonitanga ā-mahere e marohitia nei, tētehi pae wā e 80 tau te roa, kia ora ngā wai o Waikato me Waipā me ngā kautawa hei kauranga, hei wāhi kohi kai, i ngā wāhi katoa o aua awa, mai i ngā mātāpuna ki ngā pūaha, ā, mā reira e tutuki ai ngā herenga o Te Ture Whaimana, o te pukapuka matua e whakatau ana i te ahunga whakamuatanga mō aua awa. Ki te tutuki taua putanga, ka teitei ake te paerewa i tērā o te herenga o te Tauākī Kaupapa Here ā-Motu mō te Whakahaeretanga o te Wai Māori, o te tau 2014, kia wātea ngā wai hei kautūtanga.

Kua whakaritea te panonitanga ā-mahere e marohitia nei i runga i ētehi tūāhuatanga ahureinga.
Ko te mea e motuhake ai tēnei panonitanga ā-mahere e marohitia nei, e ono ngā whakahaere i mahi ngātahi i tēnei kaupapa - arā, ko te Poari o Maniapoto rātou ko te Poari Manaaki o Raukawa, ko te Poari Māori o Tūwharetoa, ko te Tarahati o ngā Iwi o ngā Awa o Te Arawa, ko te Tarahati o te Awa o Waikato Raupatu hei māngai mō ngā iwi o ngā awa o Waikato me Waipā - me te Kaunihera ā-Rohe o Waikato, ki te whakarite i tēnei panonitanga ā-mahere, i a Wai Ora: He Rautaki Whakapaipai. Mā tēnei mahi ngātahitanga e whakatinana ngā whakaritenga mō te whakahaere ngātahitanga i waenga i ngā iwi e rima o te awa me te Kaunihera ā-Rohe o Waikato mō ngā awa o Waikato me Waipā. Kua āta whai wāhi mai hoki ngā kaitiaki o te Mana Whakahaere o te Awa o Waikato, o Te Ture Whaimana.

Kua whakaritea te nuinga o ngā kaupapa here e takoto ana i ngā whārangi e whai ake nei e tētehi rōpū tuatangata i roto i te kaupapa o Wai Ora. I roto i ngā tau e rua me te hāwhe, i tū ake te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga, i raro i te ārahitanga o tētehi kaihautū motuhake, i āwhinatia ai hoki e tētehi kaiwhakahaere tino mātau, hei māngai mō ngā hunga whai pānga - mō ngā momo rāngai rerekē me te hapori, ki te whakarite i te panonitanga ā-mahere e marohitia nei. E tika ai ngā pārongo i a rātou, e whaitake ai, e tutuki ai hoki ā rātou whakatau, i whiwhi pārongo whāiti rātou, whērā i te Mātauranga Māori i ahu mai i tētehi Rōpū Kaiārahi Whāiti. Kāore i māmā noa iho te mahi a te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga, nā konei e rere nei ā māua whakamānawa ki tō rātou ū ki te tukanga, ki ngā mahi hoki i whakatutukihia petapetahia e rātou.

I ō māua tūnga hei hoa-kaihautū mō te komiti o Wai Ora, mō te rangapū whakatau tukutahi o ngā kaihautū o ngā iwi o ngā awa me ngā kaikaunihera ā-rohe, māringanui ana māua i te taenga ki ngā hui maha a te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga. Kua whakaawehia māua i te rongotanga i ngā momo tūmanako rerekē e whakakanohihia ana i te rūma, e te hunga e mahi ngātahi ana ki te kimi rongoā hei whakaora, hei tiaki hoki i ō tātou wai Māori matahīapo, e whakarite ana hoki i tētehi mahere tauroa e puta ai Te Ture Whaimana ki te ao mārama.

Me mihi ka tika ia tangata i haere mai ki te tuku whakaaro ki te aroaro o te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga, mō rātou i whakatakoto rongoā mō ngā awa. Ahakoa nō te marea, ahakoa nō tētehi whakahaere rānei, tēnā koutou i whai wāhi mai ki te tukanga i puta ai tēnei pukapuka.

Councillor Alan Livingston

Co-chair, Healthy Rivers Wai Ora Committee

Waikato Regional Council

Kataraina Hodge

Co-chair, Healthy Rivers Wai Ora Committee

Raukawa Charitable Trust

Nā te kaihautū o te Kaunihera ā-Rohe o Waikato

E ngākau whakapuke nei te Kaunihera ā-Rohe o Waikato kia noho hei hoa mahi i te kaupapa o Wai Ora: He Rautaki Whakapaipai, i whakarite ai i tēnei panonitanga ā-mahere e marohitia nei.

He whakahirahira tēnei pukapuka, kaua noa iho ki ngā tāngata o te rohe o Waikato, engari ki ngā tāngata katoa o Aotearoa, inā hoki, e hiranga ana te awa o Waikato ki te motu, e whai wāhi ana hoki te awa ki te oranga ā-ahurea, ā-pāpori, ā-taiao hoki o tō tātou whenua. E marohi ana te mahere kia whakaitihia te urunga o ētehi matū tāhawahawa matua ki ngā wai i roto i ngā riu o ngā awa o Waipā me Waikato, 1.1 miriona heketea nei te whānui.

Ki te Kaunihera ā-Rohe o Waikato, e tohu ana te kaupapa mahi ngātahi i whāia ai ki te whakarite i tēnei panonitanga ā-mahere i tētehi huarahi hou hei whakaputa i tēnei momo kaupapa here.
He uaua te whakatau i ngā take e pā ana ki te kounga o te wai. Mā te rapu rongoā whai take, e taea ana te whakatutuki, mā te mahi ngātahi hoki me ētehi atu, mā reira rawa e neke whakamua ai te kaupapa.

He pānga tō ngā tāngata katoa kei ngā riu o ngā awa o Waikato me Waipā ki ngā awa, tae atu hoki ki te tokomaha kei tua atu. He rerekē ngā hunga whai pānga ki te awa, e whakaatahia ana i te tōpū o te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga nāna tonu tēnei panonitanga ā-mahere i whakarite. He whānui ngā momo uara o ngā tāngata me ngā rāngai e pā ana ki ngā awa. I puta te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga ki ngā tōpito o ngā riu ki te whakarongo ki ngā whakaaro rerekē, ki te kite ā-kanohi i ngā rerekētanga, ki te whai māramatanga hoki ki ngā rerekētanga.

I te tīmatanga, kāore i nui ngā whakaaetanga e pā ana ki ngā pūtake o te raruraru, karekau he hononga hāngai e kitea ai te pūtake me te pānga, ā, hei āpiti atu, he maha ngā take whāiti i uaua. I herea hoki te rōpū e Te Ture Whaimana kia whakaritea he mahere e kauria ai ngā awa, e ora ai hoki te wai hei wāhi kohi kai. Hei whakatau i tēnei, i āta whakatūria tētehi rōpū mātanga e noho motuhake ana, hei tuku mai i ngā pārongo whāiti ki te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga me ētehi atu i whai wāhi mai. Nā konā, ka noho ngā taunakitanga ā-pūtaiao hei pūtake mō tēnei mahere, ka whai wāhi mai hoki te Mātauranga Māori.

Hei māngai mō te Kaunihera ā-Rohe o Waikato, tēnei au e mihi nei ki te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga, ki te Rōpū Kaiārahi Whāiti, ki te hapori whānui hoki, mō rātou i whai wāhi mai, mō rātou hoki i ū ki te tukanga mahi ngātahi, ki ngā hua hoki mō ō tātou arawai e manakohia ana. Kāore ngā kōrero e mutu i konei. E wātea ana ngā kaimahi o te Kaunihera ā-Rohe o Waikato i ngā wā katoa, ki te whai kia ea ā koutou pātai me ō koutou hiahia ki ngā pārongo. E hiahia ana mātou kia tika tēnei mahere, nō reira e akiaki nei au i a koutou kia tukuna mai ō koutou whakaaro. Ka pā te raruraru o te kounga o te wai ki a tātou katoa, ā, me puta ngā rongoā i a tātou katoa.

Chairperson Paula Southgate

Waikato Regional Council

Explanatory Statement/He Tauākī Whakamārama

(This statement does not form part of the Plan Change and is for explanatory purposes only).

Proposed Waikato Regional Plan Change 1 - Waikato and Waipa River Catchments to the Waikato Regional Plan pursuant to Schedule 1 of the Resource Management Act 1991.

This document is a change to the Operative Waikato Regional Plan (WRP), to restore and protect water quality in the Waikato and Waipa Rivers by managing discharges of nitrogen, phosphorus, sediment and microbial pathogens to land in the catchment, where it may enter surface water or ground water and subsequently enter the rivers, or directly into a water body.

This plan change document is divided into five parts:

Part A inserts a new Chapter 3.11 as text to be added after Chapter 3.10 but before Module 4.

Part B inserts a new condition to section 5.1.5 as text to be added after 5.1.5 (p) iii. but before the Advisory Note.

Part C inserts new items into the Glossary of Terms in the Regional Plan, in alphabetical order.

Part D inserts amendments to existing text of the Regional Plan. Text to be deleted are shown as ~~strikethrough~~ and additional text to be added shown as underline.

Terms in the Objectives, Policies and Implementation methods of Chapter 3.11 which are bolded can be found in the Glossary. Note also, that as a convention of the Waikato Regional Plan:

- Terms marked * are defined by the Resource Management Act 1991
- Terms marked ^ are defined by the National Policy Statement for Freshwater Management 2014.
- Terms marked ´are defined by the Waikato Regional Policy Statement 2016.
- Unless a direct source is specified in a footnote, all other terms have been developed specifically for the purpose of this plan change.

The Rules in Part A - Rules 3.11.5.1 to 3.11.5.7 of Chapter 3.11 have immediate legal effect from the date of notification (22 October 2016) in accordance with section 86B(3)(a) of the Resource Management Act 1991. The new condition (q) to section 5.1.5 in Part B, and the consequential amendments to the text in Part D have immediate legal effect from the date of notification.

PART A

Insert the following Section as a new chapter after Chapter 3.10 and before Chapter 4 of the Waikato Regional Plan

3.11 Waikato and Waipa River Catchments/Ngā Riu o ngā Awa o Waikato me Waipā

Area covered by Chapter 3.11/Ngā Riu o ngā Awa o Waikato me Waipā

This Chapter 3.11 applies to the Waikato and Waipa River catchments. The map shown in Map 3.11-1 shows the general catchment boundary. This Chapter is additional to all other parts of the Waikato Regional[1] Plan. Where there are any inconsistencies, Chapter 3.11 prevails.

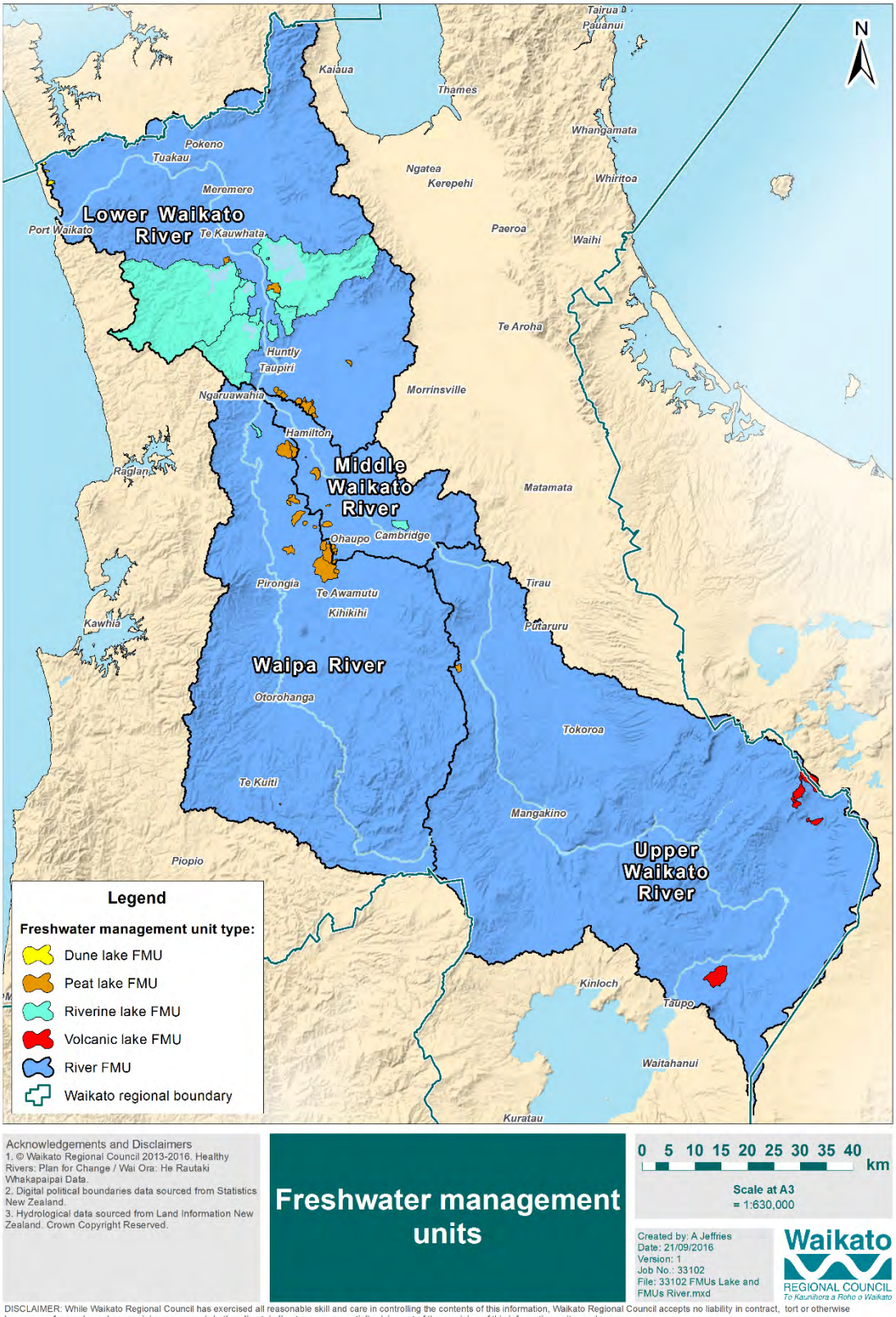
Map 3.11-1 shows the general catchment boundary and includes the boundaries of each Freshwater Management Unit^ (FMU): The FMUs are:

- Upper Waikato River
- Middle Waikato River
- Lower Waikato River
- Waipa River
- Peat Lakes
- Riverine Lakes
- Dune Lakes
- Volcanic Lakes
- Whangamarino Wetland [V1PC1-1139]

FMUs are required by central government's National Policy Statement for Freshwater Management 2014. FMUs enable monitoring of progress towards meeting targets^ and limits^.

The Plan maps of the Waikato and Waipa River catchments are available electronically or for viewing at Waikato Regional Council offices on request.

[1] Waikato Regional Council PC1-2976



Map 3.11-1: Map of the Waikato and Waipa River catchments, showing Freshwater Management Units

Updated map showing corrected boundaries to be inserted

Scale of this map to be revised to provide greater certainty to plan users and decision makers on FMU boundaries [PC1-10504]
Also revise map and key to include Whangamarino Wetland FMU extent boundary [PC1-10504] [V1PC1-1139]

Background and explanation

Co-management of the Waikato and Waipa Rivers

There are three River Acts that establish co-governance arrangements for the Waikato and Waipa Rivers and catchment. These are 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.

The iwi partners in the development of Chapter 3.11 are Maniapoto, Raukawa, Ngāti Tūwharetoa, Te Arawa River Iwi and Waikato-Tainui. The processes for preparing, reviewing, changing or varying the regional plan, in terms of River Iwi involvement in the process, is set out in the legislation. This includes a requirement for Council to establish a Joint Working Party with each of the River Iwi, the purposes of which include making joint recommendations to the Council regarding the plan change.

The three River Acts established the Vision and Strategy for the Waikato River/Te Ture Whaimana o Te Awa o Waikato (Vision and Strategy) as the primary direction setting document for the Waikato and Waipa Rivers. The Vision and Strategy prevails over any inconsistencies in a national policy statement or New Zealand coastal policy statement, and is deemed to be part of the Waikato Regional Policy Statement.

The Vision and Strategy states that the Waikato and Waipa Rivers are degraded and require, amongst other things, restoration and protection. One objective[2] has been given particular focus for this chapter: The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length. The Vision and Strategy is being given effect to in Chapter 3.11 by:

- Reducing nitrogen, phosphorus, sediment and microbial pathogen losses from land
- Ongoing management of diffuse and point source discharges of nitrogen, phosphorus, sediment and microbial pathogens
- Giving people and communities time to adapt to the requirements of Chapter 3.11 and supporting actions to achieve short-term objectives while being clear that further reductions in nitrogen, phosphorus, sediment and microbial pathogen losses from land will be required in subsequent regional plans
- Ensuring that Waikato Regional Council continues to facilitate ongoing research, monitoring and tracking of changes on the land and in the water to provide for the application of Mātauranga Māori and latest scientific methods, as they become available
- Preparing for future requirements on what can be undertaken on the land, with limits^ ensuring that the management of land use and activities is closely aligned with the biophysical capabilities of the land, the spatial location, ~~and the likely effects of discharges on the~~ protecting and restoring the intrinsic values and uses of lakes, rivers, wetlands and estuaries in the catchment. [Consequential amendment]

Collaborative approach

The co-governance partners agreed to adopt a collaborative approach to investigate and develop fresh water management approaches that would be implemented in the Waikato and Waipa River Catchments.

A key feature of the collaborative approach was the Collaborative Stakeholder Group (CSG), which represented stakeholders and the wider community in Healthy Rivers: Plan for Change/Wai Ora: He Rautaki Whakapaipai. The CSG was the central channel for stakeholder and broader community collaboration in the project. It intensively reviewed and deliberated on technical material from a group of external technical experts from a range of disciplines. For Proposed Plan Change 1, t~~T~~he CSG also sought input from their sectors and from the community, and ultimately proposed the contents of Chapter 3.11 to decision makers.

Consultation

Schedule 1 of the RMA includes requirements to consult with certain parties, including iwi authorities, during the preparation of the Variation. Consultation has taken place with affected parties including the relevant iwi authorities and the issues raised during consultation have been taken into account by Waikato Regional Council in the development of Variation 1. Consultation has led to a Variation to Proposed Plan Change 1.

[2] *Te Ture Whaimana o te Awa o Waikato, Objective K*

Water quality and National Policy Statement for Freshwater Management

The National Policy Statement for Freshwater Management 2014 (NPS FM) requires regional councils to formulate freshwater objectives^ and set limits^ or targets^ (a target is a limit to be achieved within a specified timeframe). Regional councils must ensure over-allocation^ of the water resource is avoided, or addressed where that has already occurred.

Current water quality monitoring results show that while there is variability across the Waikato and Waipa River catchments, there are adverse effects on water bodies associated with discharges of nitrogen, phosphorus, sediment and microbial pathogens. The CSG concluded that from a water quality point of view, over-allocation^ has occurred. Water bodies in the Waikato and Waipa River catchments are not able to assimilate further discharges of nitrogen, phosphorus, sediment and microbial pathogens, without adversely affecting community-held values. Achieving the numeric, long-term freshwater objectives^ in Chapter 3.11 will require reductions in diffuse and point source contaminants.

The NPS FM directs the Waikato Regional Council to establish freshwater objectives^ that give effect to the objectives of the NPS FM and describe the state that Waikato regional communities want for fresh water in the future.

The NPS FM process followed in developing Chapter 3.11, included identifying FMUs and the values for each, and then choosing relevant water quality attributes^ and attribute states^ that can be monitored over time. Freshwater objectives^ and limits^ or targets^ set out what is required to achieve the attribute states^. Under the NPS FM, a limit^ is the maximum amount of resource use available, which allows a freshwater objective^ to be met.

The CSG identified resource use that affects the achievement of the freshwater objectives^ and long-term desired water quality, and for achieving the Vision and Strategy. Chapter 3.11 sets out policies and methods that restrict what can be done on the land and discharged to land or water.

Full achievement of the Vision and Strategy will be intergenerational

The CSG has chosen an 80-year timeframe to achieve the water quality objectives of the Vision and Strategy. The timeframe is intergenerational and more aspirational than the national bottom lines set out in the NPS FM because it seeks to meet the higher standards of being safe to swim in and take food from over the entire length of the Waikato and Waipa Rivers and catchment. Based on the information currently available, the CSG has concluded full achievement of the Vision and Strategy by 2096 is likely to be costly and difficult. The 80-year timeframe recognises the 'innovation gap' that means full achievement of water quality requires technologies or practices that are not yet available or economically feasible. In addition, the current understanding is that achieving water quality restoration requires a considerable amount of land to be changed from land uses with moderate and high intensity of discharges to land use with lower discharges (e.g. through reforestation).

Because of the extent of change required to restore and protect water quality in the 80-year timeframe, the CSG has adopted a staged approach. This approach breaks the required improvements into a number of steps, the first of which is to put in place and implement the range of actions in a 10 year period that will be required to achieve 10 percent of the required change between current water quality and the long term water quality in 2096. The staged approach recognises that immediate large scale land use change may be socially disruptive, and there is considerable effort and cost for resource users, industry and Waikato Regional Council to set up the change process in the first stage. New implementation processes, expertise and engagement are needed to support the first stage. The staged approach also allows time for the innovation in technology and practices that will need to be developed to meet the targets^ and limits^ in subsequent regional plans to be developed.

Because of the extent of change required to meet the 80-year limits^, achieving even the first step towards the long-term freshwater objectives in this Plan is an ambitious target. This means the effects of actions and changes on the land may not be seen as water quality improvements in the water bodies in the short term. This is partly due to the time required for the concentration of contaminants in the water to reduce, following mitigation actions being put in place, and specifically, the time it takes for nitrogen to move through the soil profile to groundwater, and then to surface water. This means that the effect of actions put in place to reduce nitrogen now may not be seen in the water for some time (the length of time lag varies across the catchment). It also means there is a nitrogen 'load to come' from historic land use that is yet to be seen in the water.

The approach to reducing contaminant losses from pastoral farm land implemented by Chapter 3.11 requires:

- stock exclusion from water bodies as a priority mitigation action

- Farm Environment Plans (including those for commercial vegetable producers) that ensure industry-specific good management practice, and identify additional mitigation actions to reduce diffuse discharges by specified dates, which can then be monitored
- a property scale nitrogen reference point to be established by modelling current nutrient losses from each property, with no property being allowed to increase losses ~~exceed its reference point~~ in the future and higher dischargers being required to reduce their nutrient losses
- an accreditation system to be set up for people who will assist farmers to prepare their Farm Environment Plan, and to certify agricultural industry schemes
- Waikato Regional Council to develop approaches outside the rule framework that allow contaminant loss risk factors to be assessed at a sub-catchment level, and implement mitigations that look beyond individual farm boundaries to identify the most cost-effective solutions.

There are a number of existing provisions, including rules, in the Waikato Regional Plan that will continue to apply for point source discharges.

Municipal and industrial point source dischargers will also be required to revise their discharges in light of the Vision and Strategy and the water quality objectives, and sub-catchment limits^ and targets^ that have been set. This will happen as the current consent terms expire.

~~There are a range of existing provisions in this Plan that deal with activities that relate to forestry. Forestry activities will continue to be managed by these existing provisions, with the addition of requirements around preparing harvest plans and notifying Waikato Regional Council of harvest activities.~~

~~In the short term, l~~Land use change from tree cover to animal grazing, or any livestock grazing other the dairy or arable cropping to dairy, or any land use to commercial vegetable production, will be constrained. Provision has been made for some flexibility of land use for Māori land that has not been able to develop due to historic and legal impediments. As these impediments have had an impact on the relationship between tangata whenua and their ancestral lands, with associated cultural and economic effects, Chapter 3.11 seeks to recognise and provide for these relationships. These constraints on land use change are interim, until a future plan change introduces a second stage, where further reductions in discharges of sediment, nutrients and microbial pathogens from point sources and activity on the land will be required. This second stage will focus on land suitability and how land use impacts on water quality, based on the type of land and the sensitivity of the receiving water. Methods in Chapter 3.11 include the research and information to be developed to support this.

Reviewing progress toward achieving the Vision and Strategy

The overall intent of Chapter 3.11 is to require resource users to make a start on reducing discharges of contaminants as the first stage of achieving the Vision and Strategy, with on-farm actions carried out and point source discharges reviewed as existing resource consents come up for renewal. The staged approach gives people and communities time to adapt, while being clear that further reductions will be required by subsequent regional plans.

The Vision and Strategy contained in each of the three River Acts is required to be reviewed periodically by the Waikato River Authority, which may make changes to insert limits and methods.

The Resource Management Act requires that regional councils commence reviews of their regional plans 10 years after those plans are operative. When this is done in the future, further changes to reduce diffuse and point source discharges will need to follow the initial preparatory stage embodied in Chapter 3.11 of this Plan.

During the life of this Plan, Waikato Regional Council will track the progress of actions undertaken on the land towards achieving the Vision and Strategy. In addition, research and information collation will be used when this Plan is reviewed, to inform any future property-level allocation of contaminant discharges.

Te Horopaki me ngā Whakamārama

Te whakahaere ngātahi i ngā awa o Waikato me Waipā

E toru ngā Ture mō ngā Awa e whakatū ana i ngā whakaritenga whakahaere ngātahi mō ngā awa o Waikato me Waipā, me ngā riu o aua awa. Ko ngā ture ēnei, ko te Te Ture Whakataunga Kokoraho Raupatu a Waikato-Tainui (Te Awa o Waikato) 2010, ko Te Ture o Ngā Iwi o Te Awa o Waikato 2010, arā o Ngāti Tūwharetoa, o Raukawa, o Te Arawa anō hoki me Te Ture o Ngā Wai o Maniapoto (Te Awa o Waipā) 2012.

Ko ngā āpiti ā-iwi i whai wāhi ki te whanaketanga o te Upoko 3.11, ko Maniapoto rātou ko Raukawa, ko Ngāti Tūwharetoa, ko ngā iwi o ngā awa o Te Arawa me Waikato-Tainui. Kei roto i te ture ngā whakamārama mō te āhua o te whai wāhitanga o ngā iwi o te awa ki ngā tukanga whakarite, arotake, panoni rānei i te mahere ā-rohe. Kei reira anō hoki te here kei runga i te Kaunihera ki te whakatū i tētehi Ohu Mahi Ngātahi i te taha o tēnā iwi, o tēnā iwi o te awa, ko tētehi o ngā aronga, ko te whakatakoto ngātahi i ngā tūtohunga ki te Kaunihera mō te panonitanga o te mahere.

I whakatūria Te Ture Whaimana o Te Awa o Waikato e ngā Ture e toru mō ngā Awa hei pukapuka matua e whakatau ana i te anga whakamuatanga mō ngā awa o Waikato me Waipā. Mehemea ka kitea he taupatupatutanga i tētehi Tauākī kaupapa here ā-motu, i te Tauākī kaupapa here takutai moana a Aotearoa rānei, kei runga ko Te Ture Whaimana, waihoki he wāhanga tēnei nō Te Tauākī Kaupapa Here ā-Rohe a Waikato.

E kī ana te Ture Whaimana, kua whakakinongia ngā awa o Waikato me Waipā, ā, me whakaora mai, me tiaki anō hoki ka tika, heoi he mahi anō i tua atu i ērā. E kaha arotahingia ana tētehi whāinga i tēnei upoko, arā ko te whakaoranga o te kounga wai o roto i te awa o Waikato, kia pai ai tā te tangata kaukau ki roto, kia pai ai te kohi kai i ngā wāhi katoa o te awa, mai i te mātāpuna ki te pūaha. E whakatinanahia ana te Ture Whaimana i te Upoko 3.11 mā te:

- whakaiti i te ngaronga o te hauota, o te pūtūtae-whetū, o te waiparapara me te tukumate ora poto i te whenua
- whakahaere tonu i te rukenga roha me te rukenga pū tuwha o te hauota, o te pūtūtae-whetū, o te waiparapara, o te tukumate ora poto anō hoki
- tuku i te tangata me ngā hapori kia taunga haere ai rātou ki ngā here o te Upoko 3.11 me te tautoko i ngā tūmahi kia tutuki ai ngā whāinga taupoto, i runga anō i te mārama me whai wāhi tonu ki ngā mahere ā-rohe ka whai ake, te whakaitinga o te ngaronga o te hauota, o te pūtūtae-whetū, o te waiparapara me te tukumate ora poto i te whenua
- whakaū kia whakahaere tonu te Kaunihera ā-rohe o Waikato i ngā rangahau, i te aroturuki me te mātai i ngā rerekētanga ā-whenua, i roto anō hoki i te wai kia āhei ai te whai i te Mātauranga Māori me ngā tikanga pūtaiao o te wā, ka puta mai ana aua tikanga
- whakarite i ngā herenga o anamata mō ngā mahi i runga i te whenua, me te āpiti atu i ngā tāpuitanga^ e whakaū ana i te hāngai pū o ngā tūmahi me te whakahaeretanga o te whakamahinga whenua ki ngā āheinga ahupūngao koiora o te whenua, ki te wāhi me ngā pānga o ngā rukenga ki ngā roto, ki ngā awa me ngā repo i roto i te riu.

Te huarahi o te mahi ngātahi

I whakaae ngā āpiti hautū ngātahi ki te whai i te huarahi o te mahi ngātahi ki te whakatewhatewha me te whakawhanake i ngā huarahi whakahaere wai Māori ka whāia i ngā riu o ngā awa o Waikato me Waipā.

Ko tētehi āhuatanga matua o te huarahi o te mahi ngātahi ko te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga, i noho mai hei kanohi mō te hunga whai pānga me te hapori whānui i te kaupapa o Wai Ora: He Rautaki Whakapaipai. Ko te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga te huarahi matua i mahi ngātahi ai te hunga whai pānga me te hapori whānui i te kaupapa. I āta arotake, i āta whiriwhiri mārire anō te rōpū i ngā rauemi whāiti nā tētehi rōpū mātanga ā-waho i ahu mai i ētehi tūmomo pekanga mātauranga. I te Panonitanga Tuatahi o te Mahere e Marohitia nei, i whai hoki te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga i ngā whakaaro o ō rātou rāngai me te hapori, ā, nā rātou ngā kōrero o te Upoko 3.11 i whakatakoto ki te hunga whakatau.

Te Whakawhiti Kōrero

Kei roto i te Rārangi Whakawhiti Kōrero 1 o te RMA ngā here kia mātua whakawhiti kōrero me ētehi hunga, pērā i ngā rūnanga ā-iwi, i te wā e whakaritea ana te Whakataurangitanga. Kua oti ngā whakawhitinga kōrero me ngā hunga e pāngia ana, tae atu ki ngā rūnanga ā-iwi e hāngai ana, ā, kua āta arohia ngā take i ara ake ai i aua whakawhitinga kōrero e te Kaunihera ā-Rohe o Waikato i te whakaritenga o Te Whakataurangitanga Tuatahi. Nā ngā whakawhitinga kōrero i hua ai Te Whakataurangitanga i te Panonitanga Tuatahi o te Mahere e Marohitia nei.

Te Kounga Wai me te Tauākī Kaupapa Here ā-Motu mō te Whakahaere Wai Māori

Kua herea ngā kaunihera ā-rohe e te Tauākī Kaupapa Here ā-Motu mō te Whakahaere Wai Māori 2016 ki te whakarite whāinga wai Māori^ me te whakatakoto tāpuitanga^, whāinga^ rānei (he tāpuitanga te whāinga me whakatutuki i roto i te wā i tohua ai). Me mātua whakaū ngā kaunihera ā-rohe kāore e nui rawa te tohanga^ o te rawa wai, me whakatika rānei e rātou tērā tohanga mehemea kua whērā kē.

E whakaaturia mai ana i ngā hua o te aroturuki ā-kounga wai, ahakoa ngā rerekētanga i ngā wāhi katoa o ngā riu o ngā awa o Waikato me Waipā, he kino tonu ngā pānga ki ngā hōpua wai nā ngā rukenga ā-hauota, ā-pūtūtae-whetū, ā-waiparapara, ā-tukumate ora poto anō hoki. I whakatau te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga, he nui rawa te tohanga^ i te horopaki o te kounga wai. Kāore e taea e ngā hōpua wai o ngā riu o ngā awa o Waikato me Waipā te whakaputa ētehi atu rukenga ā-hauota, ā-pūtūtae-whetū, ā-waiparapara, ā-tukumate ora poto anō hoki, me te kore e puta o ngā pānga kino ki ngā uara o te hapori. Me whakaiti ngā tāhawahawatanga roha me ngā tāhawahawatanga i ngā pū tuwha e tutuki ai ngā whāinga ā-tau me ngā whāinga tauroa mō te wai Māori, o te Upoko 3.11.

Ka tohutohu te Tauākī Kaupapa Here ā-Motu mō te Whakahaere Wai Māori i te Kaunihera ā-Rohe o Waikato ki te whakarite whāinga wai Māori e whakamana ana i ngā whāinga o te Tauākī Kaupapa Here ā-Motu mō te Whakahaere Wai Māori, e whakamārama ana anō hoki i te āhua o te wai e hiahiatia ana e ngā hapori ā-rohe o Waikato hei ngā tau e heke mai ana.

Ko tētehi wāhanga o te tukanga o te Tauākī Kaupapa Here ā-Motu mō te Whakahaere Wai Māori i whāia ai hei whakarite i te Upoko 3.11, ko te tautuhi i ngā wae whakahaere wai māori me ngā uara o ia wae, kātahi ka kōwhiria ngā āhuatanga o te kounga wai^ e hāngai ana me ngā āhuatanga^ ka taea te aroturuki i roto i te wā. Mā ngā whāinga wai Māori^ me ngā tāpuitanga^, ngā whāinga^ rānei e whakatau ngā here e tutuki ai ngā āhuatanga^. Kei raro i te Tauākī Kaupapa Here ā-Motu mō te Whakahaere Wai Māori, ko te tāpuitanga^ te taumata o te whakamahinga o ngā rawa e wātea ana, kia āhei ai te whakatutukitanga o tētehi whāinga wai Māori.

I tautuhi te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga i te whakamahinga rawa ka pā ki te whakatutukitanga o ngā whāinga wai Māori^, ki ngā hiahia tauroa mō te kounga wai me te whakatutukitanga o te Ture Whaimana. E takoto ana i te Upoko 3.11 ngā kaupapa here me ngā tikanga e here ana i ngā mahi i runga i te whenua me te rukenga ki te whenua, ki te wai rānei.

Ka pā ki ngā whakatupuranga maha te whakatutukitanga o Te Ture Whaimana

Kua kōwhiri te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga i te 80 tau hei pae wā ki te whakatutuki i ngā whāinga kounga wai o Te Ture Whaimana. He pae wā tēnei ka pā ki ngā whakatupuranga maha, ā, he nui ake hoki te tūmanako i ngā pae o raro ā-motu kua whakatakotoria i te Tauākī Kaupapa Here ā-Motu mō te Whakahaere Wai Māori, nā te mea e whai ana tēnei ki te whakatutuki i ngā paerewa teitei ake kia pai ai tā te tangata kaukau ki roto i te wai, kia pai ai hoki te kohi kai i ngā wāhi katoa o ngā awa o Waikato me Waipā, mai i ngā mātāpuna ki ngā pūaha, me ngā riu. E ai ki ngā pārongo e wātea anaināianei, kua whakatau te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga ka nui te utu, ka uaua hoki te whakatutukitanga katoatanga o Te Ture Whaimana i mua i te tau 2096. Kua kitea te ‘āputa auahatanga’ i te pae wā o te 80 tau, arā e whakatutuki katoatia ai te kounga wai me whai hangarau, me whai tikanga rānei kāore anō kia hua ake, kāore anō rānei e taea, i ngā āhuatanga ā-ōhanga. Hei āpiti atu, e mōhiotia ana ināianei, e tutuki ai te whakaoranga o te kounga wai me whakarerekē te whakamahinga o ētehi whenua nui tonu, he āhua nui, he tino nui rānei te rukenga o ērā whenua kia iti ake te rukenga (hei tauira, mā te whakatupu rākau).

Kua whai te Rōpū Mahi Ngātahi o ngā Hunga Whai Pānga i tētehi huarahi wāwāhi nā te nui o ngā panonitanga me whai kia whakaorangia mai anō, kia tiakina hoki te kounga wai i te roanga o te pae wā o te 80 tau. Nā tēnei huarahi i wāhia ai ngā whakatikahanga me puta mai, ko te tuatahi o ngā whakatikahanga he whakarite, he whakatinana anō hoki i ngā tūmomo tūmahi me mahi rawa i roto i te tekau tau, e tutuki ai te tekau ōrau o ngā panonitanga, i te kounga wai ināianei ki te kounga wai tauroa hei te tau 2096. E kitea ana i tēnei huarahi wāwāhi he raru pea ka pā ki te pāpori i te nui o ngā panonitanga ā-whakamahinga whenua i roto i te wā poto, ā, he nui te mahi, he nui hoki te utu ki te hunga whakamahi rawa, ki te ahumahi, ki te Kaunihera ā-rohe o Waikato hoki ki te whakarite i te tukanga panonitanga i te wāhanga tuatahi. Me whai tukanga whakatinana hou, me whai tohungatanga, me whakatū hui whiriwhiri kaupapa hei taunaki i te wāhanga tuatahi. Mā te huarahi wāwāhi e whai wā ai kia puta mai ngā hangarau me ngā tikanga auaha e tika ana kia puta hei whakatutuki i ngā whāinga^ me ngā tāpuitanga^ i roto i ngā mahere ā-rohe ka whai ake.

Nā te nui o te panonitanga me puta rawa e tutuki ai ngā tāpuitanga^ i roto i te 80 tau, he whāinga nui tonu te whakatutuki i te wāhanga tuatahi o ngā whāinga wai Māori tauroa o tēnei Mahere. Nā konei, kāore pea e kitea i roto i te wā poto te pānga o ngā tūmahi me ngā panonitanga i runga i te whenua ki te kounga wai i roto i ngā hōpua wai. I whēnei ai, nā te roa o te wā e memeha haere ai te kukūnga o ngā tāhawahawatanga i roto i te wai, whai i muri mai i te whakaritenga o ngā mahi whakangāwari i ngā pānga, otirā nā te roa o te wā e heke ai te hauota i te oneone ki ngā wai o te whenua, tae atu ki te wai ka rere ki ngā kōawāwa. Nā konei, ka roa pea te wā kātahi ka kitea i roto i te wai te pānga o ngā tūmahi o

nāianei kua whakaritea kia iti iho ai te hauota (ka rerekē te roa o te wā i ngā wāhi katoa o te riu). I runga hoki i tērā, he 'utanga hauota' kāore anō kia kitea i te wai e puta tonu mai ana nā te whakamahinga whenua i mua.

I runga i te huarahi e whāia ana i te Upoko 3.11 hei whakaiti i te ngaronga o ngā tāhawahawatanga i ngā pāmu kararehe, me:

- aukati i ngā kararehe i ngā hōpua wai hei tūmahi whakangāwari totoa
- whai Mahere Taiao ā-Pāmu (tae atu ki ngā kaiwhakatupu huawhenua ā-arumoni) e whakaū ana i ngā tikanga whakahaere pai ā-ahumahi, e tautuhi ana anō hoki i ētehi atu tūmahi whakangāwari hei whakaiti i ngā rukenga roha i mua i ētehi rā ka āta tohua, ka aroturukihia ai
- whakarite tauine tohu hauota ā-whenua mā te whakatauira i ngā ngaronga whakamōmona i ia whenua, kāore tētehi whenua e āhei ki te hipa i tana tohu hei ngā tau e heke mai ana, ā, me whakaiti rawa ngā kairuke kaha rawa i ngā ngaronga whakamōmona
- whakarite tētehi pūnaha whakamanatanga mō te hunga ka āwhina i ngā kaipāmu ki te whakarite i ā rātou Mahere Taiao ā-Pāmu, ki te whakapūmau anō hoki i ngā kaupapa ā-ahumahi ahuwhenua
- whakawhanake te Kaunihera ā-rohe o Waikato i ētehi huarahi kāore e herea ana ki te anga ā-ture kia āhei ai te arotake i ngā tūponotanga ngaronga tāhawahawatanga i ngā riu o ngā kautawa, ka whakatinana hoki i ngā mahi whakangāwari pānga kāore e herea ki ngā rohenga o ngā pāmu, hei tautuhi i ngā urupare, iti katoa te utu.

He nui ngā whakatau kua mana kē me ngā ture kei roto i tēnei Mahere, ka hāngai tonu ki ngā rukenga pū tuwha.

Me panoni rawa ngā kairuke i ngā pū tuwha nō ngā whakahaere ā-rohe, nō ngā ahumahi anō hoki i ā rātou rukenga kia hāngai ki Te Ture Whaimana, ki ngā whāinga hoki mō te kounga wai, ki ngā tāpuitanga^ o ngā riu kōawāwa me ngā whāinga^ kua whakaritea. Ka whēnei hei te paunga o ngā here ā-whakaaetanga o tēnei wā.

He nui ngā tūmomo whakataunga kei roto i tēnei Mahere e hāngai ana ki ngā mahinga ngahere. Ka riro tonu mā ēnei whakataunga ngā mahinga ngahere e whakahaere, engari ka tāpirihia atu ētehi atu here e pā ana ki te whakarite mahere hauhake me te whakamōhio i te Kaunihera ā-Rohe o Waikato ki ngā tūmahi hauhake.

Hei ngā tau e tū tata mai ana, ka herea te panonitanga ā-whakamahinga whenua, whēnei i te huringa o te ngahere hei pāmu kararehe, i te huringa rānei o te pāmu whakatupu kararehe hei pāmu miraka kau. Kua whakaritea kia āhua ngāwari ake ngā here mō te whakamahinga o ngā whenua Māori kāore anō kia whanake nā ngā raruraru ā-hītori me ngā raruraru ā-ture. Nā te mea kua pā ēnei raruraru ki te hononga i waenganui i te tangata whenua me ō rātou whenua tūpuna, me ngā pānga ā-ahurea, ā-ōhanga i puta i tērā, e whai ana te Upoko 3.11 ki te whakamana, ki te whakarite hoki i ēnei hononga. Mō tēnei wā ēnei here i runga i ngā panonitanga ā-whakamahinga whenua, kia whakatakotoria rā anōtia tētehi wāhanga tuarua i tētehi panonitanga ā-mahere o anamata, e herea ai ngā kairuke ki te whakaiti anō i ngā rukenga waiparapara, whakamōmona, tukumate ora poto anō hoki i ngā rukenga pū tuwha me ngā mahi i runga i te whenua. Ka aro tēnei wāhanga tuarua ki te pai o te whenua me te pānga o te whakamahinga whenua ki te kounga wai, i runga i te āhua o te whenua me te āhua o ngā wai taketake. Kei te Upoko 3.11 ngā tikanga whēnei i ngā rangahau me ngā pārongo me whakawhanake ake hei taunaki i tēnei.

Te arotake i te kokenga ki te whakatutuki i Te Ture Whaimana o Te Awa o Waikato

Ko te whāinga matua o te Upoko 3.11, he here i ngā kaiwhakamahi rawa kia tīmata rātou ki te whakaiti i ngā rukenga tāhawahawatanga, koia nei te wāhanga tuatahi e tutuki ai Te Ture Whaimana, ka whakahaerehia ētehi tūmahi i runga pāmu, ka arotakehia anō hoki ngā rukenga pū tuwha ka tata ana ki te wā e whakahoungia ai ngā whakaaetanga rawa. Mā te huarahi wāwāhi e taunga haere ai te tangata me ngā hapori, i runga i te mārama he whakaitinga atu anō ka whakaritea e ngā mahere ā-rohe ka whai ake.

Me arotake pokapoka Te Ture Whaimana kei roto i ngā Ture e toru mō ngā Awa e te Te Manatū Whakahaere i Te Awa o Waikato, ākuanei pea māna e panoni aua tuhinga kia whakaurua atu he tāpuitanga, he tikanga anō hoki.

E here ana Te Ture Penapena Rawa i ngā kaunihera ā-rohe kia tīmata tā rātou arotake i ā rātou mahere ā-rohe kia pau te tekau tau e whakahaerehia ana aua mahere. Kia oti tēnei hei ngā tau e heke mai ana, me whai i muri i te wāhanga tuatahi kei roto i te Upoko 3.11 o tēnei Mahere ētehi atu panonitanga hei whakaiti i ngā rukenga roha me ngā rukenga i ngā pū tuwha.

I te wā e whāia ana tēnei Mahere, ka mātai te Kaunihera ā-rohe o Waikato i te kokenga o ngā tūmahi e kawea ana i runga i te whenua hei whakatutuki i Te Ture Whaimana. Hei āpiti atu, ka whakamahia ngā rangahau me ngā kohinga pārongo i te arotakenga o tēnei Mahere, hei ārahi i ngā tohanga ā-whenua o ngā rukenga tāhawahawatanga hei ngā tau e heke mai ana.

3.11.1 Values and uses for the Waikato and Waipa Rivers/Ngā Uara me ngā Whakamahinga o ngā Awa o Waikato me Waipā

~~The National Policy Statement – Freshwater Management Policy CA2 requires certain steps to be taken in the process of setting limits^. These include establishing the values^ that are relevant in a FMU^, identifying the attributes^ that correspond to those values^, and setting objectives based on desired attribute states^. This section describes values and uses for the Waikato and Waipa Rivers, to provide background to the objectives and limits^ in later sections.~~

This section describes the values and uses for the Waikato and Waipā Rivers. The values and uses reflect the Vision and Strategy for the Waikato River. The values and uses set out below apply to all FMU's unless explicitly stated, and provide background to the freshwater objectives[3], and the attributes and attribute states outlined in Table 3.11-1.

Vision and Strategy for the Waikato River/Te Ture Whaimana o Te Awa o Waikato[4]

"Our vision is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come."[5]

The values below have been prepared and are supported by the Collaborative Stakeholder Group.

[3] Wairakei Pastoral Ltd PC1-11260, DoC PC1-1831

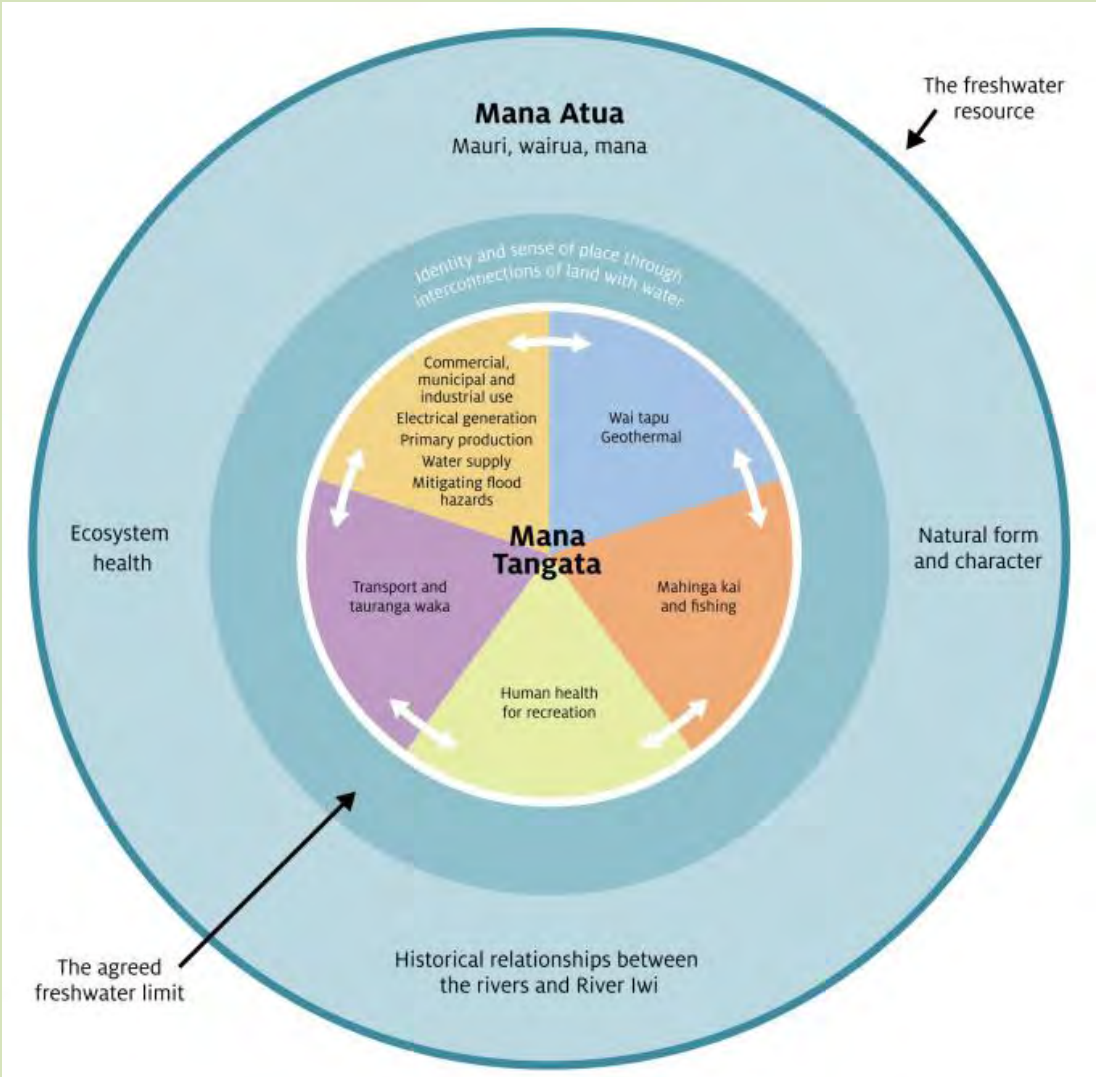
[4] *The Nga Wai o Maniapoto (Waipa River) Act 2012 extended Te Ture Whaimana o te Awa o Waikato to also cover the Waipa River and its catchment*

[5] *The Vision and Strategy is intended by Parliament to be the primary direction setting document for the Waikato River and activities within its catchment affecting the Waikato River. Values and uses are intrinsic to, and embedded in the Vision and Strategy.*

Te Mana o te Wai: Mana Atua, Mana Tangata

Values can be thought of in terms of Mana Atua and Mana Tangata, which represent Te Mana o te Wai[6]. Mana Atua represents the intrinsic values of water including the mauri (the principle of life force), wairua (the principle of spiritual dimension) and inherent mana (the principle of prestige, authority) of the water and its ecosystems in their natural state. Mana Tangata refers to values of water arising from its use by people for economic, social, spiritual and cultural purposes. Mana Atua and Mana Tangata values encompass past, present and future.

A strong sense of identity and connection with land and water (hononga ki te wai, hononga ki te whenua) is apparent through the Vision and Strategy and the many values associated with the rivers. This is represented in the figure below as a unifying value that provides an interface between the Mana Atua and Mana Tangata values.



Note: New diagram from Variation 1 to be inserted.

[6] *The National Policy Statement for Freshwater Management 2014 states that the aggregation of a range of community and tangata whenua values, and the ability of fresh water to provide for them over time, recognises the national significance of fresh water and Te Mana o te Wai.*

Hononga ki te wai, hononga ki te whenua - Identity and sense of place through the interconnections of land with water

- The rivers, streams, tributaries, lakes, wetlands and the coastal environment contribute to a sense of community and sustaining community wellbeing.
- The rivers, streams, tributaries, lakes, wetlands and the coastal environment are an important part of whānau/family life, holding nostalgic feelings and memories and having deep cultural and historical significance.
- For River Iwi and other iwi, respect for the rivers, streams, tributaries, lakes, the coastal environment wetlands and springs, lies at the heart of the spiritual and physical wellbeing of iwi and their tribal identity and culture. The river, streams, tributaries, lakes, the coastal environment, wetlands and springs are ~~is~~ not separate from the people but part of the people, "Ko au te awa, ko te awa ko au" (I am the river and the river is me).
- Whanaungatanga is at the heart of iwi relationships with rivers, streams, tributaries, lakes, the coastal environment wetlands and springs. Te taura tāngata is the cord of kinship that binds iwi to rivers, wetlands and springs. It is a braid that is tightly woven, tying in all its strands. It is unbroken and infinite, forming the base for kaitiakitanga and the intergenerational role that iwi have as kaitiaki.
- The rivers, streams, tributaries, lakes, wetlands and the coastal environment are a shared responsibility, needing collective stewardship: kaitiakitanga – working together to restore the rivers. There is also an important intergenerational equity concept within kaitiakitanga.
- Mahitahi (collaborative work) encourages us all to work together to achieve common goals. [Consequential amendment]

3.11.1.1 Mana Atua – Intrinsic values

~~**Intrinsic values - Ancestry and History**~~[7]

~~Ko te whakapapa o ngā iwi ki ōna awa tūpuna~~ Ko ngā hononga tūpuna me ngā hononga o mua i waenga i ngā iwi o te awa me ētehi atu iwi me ngā awa, ngā repo me ngā puna / Ancestral and Historical ~~relationships~~ connections between the rivers, wetlands, springs and River Iwi and other iwi

Ko ngā kōrero tūpuna me ngā Kōrero o Mua~~o nehera~~ / Ancestry and History

~~Each~~ River Iwi and other iwi have ~~has~~ their own unique and intergenerational relationship with the rivers, tributaries, lakes, estuaries, wetlands and springs.	▪ ~~The~~ R~~r~~ivers, tributaries, lakes, estuaries, wetlands and springs have always been seen as taonga (treasures) to all River Iwi and other iwi. ▪ ~~The~~ R~~r~~ivers, tributaries, lakes, estuaries, wetlands and springs have always given River Iwi and other iwi a strong sense of identity and connection with the land and water. ▪ Rivers, tributaries, lakes, estuaries, wetlands and springs were used holistically; River Iwi and other iwi understood the functional relationships with and between all parts of the rivers, tributaries, lakes, estuaries, wetlands and springs, spiritually and physically as kaitiaki. ▪ Tribal taniwha and tupua dwell in the rivers which are also the location of continued spiritual and cultural traditions and practices maintained over the many centuries. ▪ Iwi tupuna inhabited a rohe that teemed with life in the rivers, tributaries, lakes, estuaries, wetlands and springs. These resources were subject to access and use rights as an essential part of kaitiakitanga. ▪ Iwi strive to maintain and restore these relationships despite the modification and destruction that has occurred through different types of development ~~along~~ affecting the rivers, tributaries, lakes, estuaries, wetlands and springs.[PC1-8136]

~~**Intrinsic values - Ecosystem health**~~

Ko te hauora me te mauri o te wai / The health and mauri of water

[7] Watercare V1PC1-888

Ecosystem health

The Waikato and Waipa catchments support resilient freshwater ecosystems and healthy freshwater populations of indigenous plants and animals.	▪ Clean fresh water restores and protects aquatic native vegetation to provide habitat and food for native aquatic species and for human activities or needs, including swimming and drinking. ▪ Clean fresh water restores and protects macroinvertebrate communities for their intrinsic value and as a food source for native fish, native birds and introduced game species. ▪ Clean fresh water supports the natural ecological functioning of river, wetland, lake and estuarine ecosystems ▪ Clean fresh water supports healthy populations and intact communities of native freshwater fish and their habitats, including spawning and migration habitats, and restores and sustains threatened and at-risk fish species into the future. ▪ Wetlands and floodplains provide ~~water purification~~, refuge, feeding and breeding habitat for aquatic species, habitat for water fowl and other ecosystem services such as flood attenuation. ▪ Fresh water contributes to unique habitats including peat lakes, shallow riverine lakes and karst formations which all support unique biodiversity. ▪ Rivers and adjacent riparian margins are critical components of ecosystem health ~~have value as ecological corridors~~. ▪ Protection and regonition of Priority Biodiversity Areas is a key component of achieving ecosystem health [PC1-8139]

~~**Intrinsic values - Natural form and character**~~

Ko te hauora me te mauri o te taiao / The health and mauri of the environment

Natural form and character

Retain the integrity of ~~the~~ lakes, rivers, tributaries and wetlands within the landscape and its aesthetic features and natural qualities for people to enjoy.	▪ ~~The~~ Lakes, rivers, , tributaries, estuaries and wetlands[8] have amenity and naturalness values, including native vegetation, undeveloped stretches, and significant sites. ▪ People are able to enjoy the natural environment; it contributes to their health and wellbeing. ▪ The rivers are an ecological and cultural corridor. ▪ The lakes, rivers, tributaries, estuaries and wetlands as a whole living entity. ▪ Matters contributing to the natural form and character of fresh water bodies are the biological, visual and physical characteristics that are valued by the community including: i. its biophysical, ecological, geological, geomorphological and morphological aspects; ii. the natural movement of water and sediment including hydrological and fluvial processes; iii. the location of the water body relative to its natural course; iv. the relative dominance of indigenous flora and fauna; v. the presence of culturally significant species; vi. the colour of the water; and vii. the clarity of the water. [PC1-8152]

3.11.1.2 Mana Tangata – Use values

~~**Use values - Wai tapu**~~

Ko ngā wai tapu me ngā wai kino / Sacred and harmful waters

Wai tapu and wai kino

[8] DoC PC1-8136, 8189, 8152, 8532, 8533, 8535, 8540

Area of water body set aside for spiritual activities that support spiritual, cultural and physical wellbeing or have properties that require additional caution or care.	▪ ~~The~~ Lakes, rivers, tributaries, estuaries and wetlands are a place for sacred rituals, wairua, healing, spiritual nurturing and cleansing. ▪ ~~The~~ Lakes, rivers, tributaries, estuaries and wetlands provide for cultural and heritage practices and cultural wellbeing, particularly at significant sites. ▪ ~~The~~ Lakes, rivers , tributaries, estuaries and wetlands have different states of wai tapu and wai kino that are adhered to and respected. [PC1-8132]

~~**Use values – Geothermal**~~

Ko ngā Ngāwhā / Geothermal

Geothermal

A valued resource that is naturally gifted to sustain certain activities (meeting spiritual and physical needs).	▪ Geothermal areas and their various resources were prized by tūpuna (ancestors) for their many uses and are still valued and used today. ▪ Geothermal areas of the river have natural form and character, and unique flora found only in the geothermal environment. ▪ Geothermal areas are a special microclimate.

~~**Use values - Mahinga kai**~~

Ko ngā wāhi mahinga kai / Food gathering, places of food

Mahinga kai

The ability to access the Waikato and Waipa Rivers, lakes, and wetlands and their tributaries to gather sufficient quantities of kai (food) that is safe to eat and meets the social and spiritual needs of their stakeholders.	▪ ~~The~~ Lakes, rivers, tributaries, estuaries and wetlands provide for freshwater native species, native vegetation, and habitat for native animals. ▪ ~~The~~ Lakes, rivers , tributaries, estuaries and wetlands provide for freshwater game and introduced kai species. ▪ ~~The~~ Lakes, rivers , tributaries, estuaries and wetlands provide for cultural wellbeing, knowledge transfer, intergenerational harvest, obligations of manaakitanga (to give hospitality to, respect, generosity and care for others) and cultural opportunities, particularly at significant sites. ▪ The rivers, , tributaries, estuaries should be safe to take food from, both fisheries and kai. ▪ ~~The~~ Lakes, rivers, , tributaries, estuaries and wetlands support aquatic life, healthy biodiversity, ecosystem services, flora and fauna and biodiversity benefits for all. ▪ The rivers and tributaries are a corridor. ▪ ~~The~~ Lakes, rivers, , tributaries, estuaries and wetlands provide resources available for use which could be managed in a sustainable way. ▪ ~~The rivers provide for recreation needs and for social wellbeing.~~[9] [PC1-8133]

~~**Use values - Human health for recreation**~~

Ko te hauora me te mauri o ngā tāngata / The health and mauri of the people

Human health for recreation

~~The~~ Lakes wetlands, tributaries, estuaries and rivers are a place to swim and undertake recreation activities in an	▪ ~~The~~ Lakes ,wetlands, tributaries, estuaries and rivers provide for recreational use, social needs and social wellbeing, are widely used by the community, and are a place to relax, play, exercise and have an active lifestyle.

[9] Federated Farmers V1PC1-106

environment that poses minimal risk to health.	▪ An important value for the lakes, estuaries ~~and~~ rivers and tributaries is cleanliness; the lakes estuaries ~~and~~ rivers and tributaries should be safe for people to swim in. ▪ The lakes estuaries ~~and~~ rivers and tributaries provide resources available for use which could be managed in a sustainable way. [PC1-8135]

~~**Use values - Transport and tauranga waka**~~

He urungi / Navigation

Transport and tauranga waka

All communities can use ~~the~~ lakes and rivers to pilot their vehicles and waka and navigate to their destinations.	▪ ~~The~~ Lakes and rivers provide for recreational use (navigation), and sporting opportunities. ▪ ~~The~~ Lakes and rivers are a corridor, mode of transport and mode of communication. ▪ ~~The~~ Lakes and rivers provide for culture and heritage, cultural wellbeing, and social wellbeing, particularly at significant sites.

~~**Use values - Primary production**~~

Ko ngā mahi māra me ngā mahi ahu matua / Cultivation and primary production

Primary production

The rivers support regionally and nationally significant primary production in the catchment (agricultural, horticultural, forestry). These industries contribute to the economic, social and cultural wellbeing of people and communities, and are the major component of wealth creation within the region. These industries and associated primary production also support other industries and communities within rural and urban settings.	▪ The rivers support a wide variety of primary production in the catchment, including dairy, meat, wool, horticulture and forestry. ▪ Due to the economies of scale of these industries, other service sectors, such as agritech, aviation and manufacturing, are able to operate. ▪ These industries combined contribute significantly to regional and national GDP, exports, food production and employment. ▪ The rivers 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 rural and urban[10] Waikato.

~~**Water supply**~~

Ko ngā hapori wai Māori / Municipal and domestic water supply

Water supply

The rivers provide for community water supply, municipal supply and~~,~~ drinkable water supply ~~and health~~.[11]	▪ The catchments' surface and subsurface water is of a quality that can be effectively treated to meet appropriate health standards for both potable and non-potable uses.

~~**Use values - Commerical, municipal and industrial use**~~

[10] Hamilton CC PC1-10067
[11] Federated Farmers V1PC1-117

Ko ngā āu putea / Economic or commercial development

Commercial, municipal and industrial use

The rivers, lakes, and wetlands provide economic opportunities to people, businesses and industries.	Fresh water is used for industrial and municipal processes, which rely on the assimilative capacity for discharges to surface water bodies. In addition: ▪ ~~The~~ Lakes, rivers and wetlands provide for economic wellbeing, financial and economic contribution, individual businesses and the community and the vibrancy of small towns. They are working lakes, rivers and wetlands; they create wealth. ▪ Those industries are important to the monetary economy of Waikato region, enabling a positive brand to promote to overseas markets. ▪ ~~The~~ Lakes, rivers and wetlands provide for domestic and international tourism. Promotion of a clean, green image attracts international and domestic visitors. ▪ ~~The~~ Lakes, rivers and wetlands provide assimilative capacity for wastewater disposal, flood and stormwater, and ecosystem services through community schemes or on site disposal. ▪ Wetlands and floodplains provide water purification [Consequential amendment]

~~**Use values - Electricty generation**~~

Electricity generation

The river provides for reliable, renewable hydro and geothermal energy sources and thermal generation, securing national self-reliance and resilience. New Zealand's social and economic wellbeing are dependent on a secure, cost-effective electricity supply system. Renewable energy contributes to our international competitive advantage. Electricity also contributes to the health and safety of people and communities.	▪ Waikato hydro scheme extends over 186km, comprising Lake Taupō storage, dams, lakes, and power stations. Tongariro Power scheme adds 20 per cent to natural inflows to Lake Taupō. ▪ Huntly Power Station's role in the New Zealand electricity system is pivotal, particularly when weather dependent renewable generation is not available. Fresh water is used for cooling and process water. ▪ Geothermal power stations located on multiple geothermal systems use fresh water for cooling, process water and drilling.

~~**Use values - Mitigating flood hazards**~~

Mitigating flood hazards

Flood management systems protect land used and inhabited by people and livestock.[12]	▪ River engineering, including stopbanks and diversions, protect land and infrastructure from damage by flooding. ▪ Natural infrastructure that mitigate flood impacts, recognising that altered flood regimes, can impact on intrinsic values and uses. [Consequential amendment]

[12] Hamilton CC PC1-10167

3.11.2 Objectives/Ngā Whāinga

New Objective #1

Air, land, fresh water bodies, the coastal marine area and ecosystems are managed as integrated and connected resources to restore the health and wellbeing of the Waikato and Waipā River catchments; ki uta ki tai – mountains to the sea. [PC1-10521][VCPC1-1701]

New Objective #2

To restore and protect the health and wellbeing of fresh water bodies and the coastal marine area within the Waikato and Waipā River catchments, waterbodies are managed to:

- Safeguard the life supporting capacity of aquatic ecosystems; [PC1-10521]
- Recognise and provide for indigenous biodiversity including freshwater fish species; [PC1-10521]
- Recognise and provide for the significant values of all wetlands; and[PC1-10521] [VCPC1-997]
- Ensure that water quality in the catchments is improved. [V1PC1-997]

Objective 1~~: Long-term restoration and protection of water quality for each sub-catchment and Freshwater Management Unit/Te Whāinga 1: Te whakaoranga tauroa me te tiakanga tauroa o te kounga wai ki ia riu kōawaawa me te Wae Whakahaere i te Wai Māori~~

~~By 2096 at the latest[13], a reduction in the discharges of nitrogen, phosphorus, sediment and microbial pathogens to land and water results in achievement of the restoration and protection of the Waikato and Waipā Rivers, such that of the 80 year water quality attribute targets states[14] in Table 3.11-1 are met[15].~~
To restore and protect the Waikato and Waipā catchments so that the 80 year water quality limits/targets in Tables 3.11-1, 3.11-1a, 13.11-3 and 3.11-4 are achieved by 2096 [PC1-10535]

Objective 2~~: Social, economic and cultural wellbeing is maintained in the long term/Te Whāinga 2: Ka whakaūngia te oranga ā-pāpori, ā-ōhanga, ā-ahurea hoki i ngā tauroa~~

~~Waikato and Waipa communities and their economy benefit from the~~ Long -term restoration and protection of water quality in the Waikato and Waipā[16] River catchments, , from the reduction of discharges, ~~which~~ will enable~~s the~~ people and communities ~~to continue~~ to provide for their social, economic and cultural wellbeing. [PC1-10537]

Objective 3~~: Short-term improvements in water quality in the first stage of restoration and protection of water quality for each sub-catchment and Freshwater Management Unit/Te Whāinga 3: Ngā whakapainga taupoto o te kounga wai i te wāhanga tuatahi o te whakaoranga me te tiakanga o te kounga wai i ia riu kōawāwa me te Wae Whakahaere Wai Māori~~[17]

~~Actions put in place and implemented by 2026 to~~ Rreduce diffuse and point source[18] discharges ~~of nitrogen, phosphorus, sediment and microbial pathogens, are sufficient~~ to achieve the short-term water quality ~~attribute states~~ limits/targets in Tables 3.11-1.[19] , 3.11.1a,3.11-3 and 3.11-4 by 2030. ~~ten percent of the required change between current water quality and the 80 year water quality attribute targets in Table 3.11-1. A ten percent change towards the long-term water quality improvements is indicated by the short-term water quality attribute targets in Table 3.11-1.~~ [PC1-10537]

[13] Tangata Whenua – Waikato and Waipa River Iwi PC1-3245
[14] Fonterra PC1-10455
[15] Watercare PC1-8450; Beef and Lamb PC1-11154
[16] Mercury NZ Ltd PC1-9506
[17] Watercare PC1-8450
[18] DoC PC1-10540
[19] Southern Pastures Ltd Partnership PC1-11095

~~**Objective 4: People and community resilience/Te Whāinga 4: Te manawa piharau o te tangata me te hapori**~~

~~A staged approach to change enables people and communities to undertake adaptive management to continue to provide for their social, economic and cultural wellbeing in the short term while:~~

~~a. considering the values and uses when taking action to achieve the attribute^ targets^ for the Waikato and Waipa Rivers in Table 3.11-1; and~~

~~b. recognising that further contaminant reductions will be required by subsequent regional plans and signalling anticipated future management approaches that will be needed to meet Objective 1.~~

OR

~~**Objective 4: People and community resilience/Te Whāinga 4: Te manawa piharau o te tangata me te hapori**~~

~~A staged approach to~~ reducing contaminant losses ~~change~~[20] ~~enables people and communities to undertake adaptive management to continue to provide for their social, economic and cultural wellbeing in the short term while:~~

~~a. considering the values and uses when~~[21] ~~taking action to achieve the attribute^ targets^~~ states[22] ~~for the Waikato and Waipa Rivers in Table 3.11-1; and~~

~~b. recognising that further contaminant reductions will be required by subsequent regional plans and signalling anticipated future management approaches that will be needed~~ in order[23] ~~to meet Objective 1~~[24]~~.~~ [PC1-10542]

Objective 5~~: Mana Tangata – protecting and restoring tangata whenua values/Te Whāinga 5: Te Mana Tangata – te tiaki me te whakaora i ngā uara o te tangata whenua~~

Tangata whenua values are integrated into the co-management of the rivers and other water bodies within the catchment such that:

a. tangata whenua have the ability to:
   i. manage their own lands and resources, by exercising mana whakahaere, for the benefit of their people; and
   ii. actively sustain a relationship with ancestral land and with the rivers and other water bodies in the catchment; and
b. new impediments to the flexibility of the use of tangata whenua ancestral lands are minimised; and
c. improvement in the rivers' water quality and the exercise of kaitiakitanga increase the spiritual and physical wellbeing of iwi and their tribal and cultural identity.
d. Intrinsic values of waterbodies and ecosystems are recognised and provided for. [PC1-10521] [VCPC1-997][PC1-10545]

~~**Objective 6: Whangamarino Wetland/Te Whāinga 6: Ngā Repo o Whangamarino**~~

~~a. Nitrogen, phosphorus, sediment and microbial pathogen loads in the catchment of Whangamarino Wetland are reduced in the short term, to make progress towards the long-term restoration of Whangamarino Wetland; and~~

~~b. The management of contaminant loads entering Whangamarino Wetland is consistent with the achievement of the water quality attribute^targets^ in Table 3.11-1.~~

OR

~~**Objective 6: Whangamarino Wetland/Te Whāinga 6: Ngā Repo o Whangamarino**~~

~~a. Nitrogen, phosphorus, sediment and microbial pathogen loads in the catchment of Whangamarino Wetland are reduced in the short term, to make progress towards the long-term restoration of Whangamarino Wetland; and~~

~~b. The management of contaminant loads entering Whangamarino Wetland is consistent with the achievement of the water quality attribute^targets^ in Table 3.11-1.~~

[20] Rotorua Lakes DC PC1-2468
[21] Southern Pastures Ltd Partnership PC1-11096 and Ata Rangi PC1-6113
[22] Fonterra PC1-10451
[23] Southern Pastures Ltd Partnership PC1-11096 and Ata Rangi PC1-6113
[24] Rotorua Lakes DC PC1-2468

To achieve the restoration and protection of the Whangamarino Wetland, an integrated approach to the reduction of contaminant discharge in the catchment is required and shall be consistent with achieving the water quality attribute limits/targets in Tables 3-11.1, 3.11-1a and 3.11-4. [PC1-10545]

New Objective #3

By 2026, policies and methods are implemented that safeguard the ecosystem health of all wetlands by specifically minimising and avoiding the impact of nitrogen, phosphorus and sediment on natural wetlands, and associated hydrological drivers of water quality decline, including a programme for benchmarking and setting numeric targets for wetland attributes. [PC1-10521, V1PC1-997]

~~Principal Reasons for Adopting Objectives 1-6/Ngā Take Matua me Whai ngā Whāinga 1 ki te 6~~

~~Reasons for adopting Objective 1~~

~~**Objective 1** sets long term limits^ for water quality consistent with the Vision and Strategy. Objective 1 sets aspirational 80-year water quality targets^, which result in improvements in water quality from the current state monitored in 2010-2014. The water quality attributes^ listed in Table 3.11-1 that will be achieved by 2096 will be used to characterise the water quality of the different FMUs when the effectiveness of the objective is assessed.~~[25] ~~Objective 1 sets the overall context for what is to be achieved in terms of water quality improvements. There is not any hierarchy of Objectives 1 to 6~~[26]

~~Reasons for adopting Objective 2~~

~~**Objective 2** sets the long term outcome for people and communities, recognising that restoration and protection of water quality will continue to support communities and the economy. The full achievement of the Table 11-1 2096 water quality attribute^ targets^ may require a potentially significant departure from how businesses and communities currently function, and it is important to minimise social disruption during this transition.~~[27]

~~Reasons for adopting Objective 3~~

~~**Objective 3** sets short term goals for a 10 year period, to show the first step toward full achievement of water quality consistent with the Vision and Strategy.~~

~~The effort required to make the first step may not be fully reflected in water quality improvements that are measureable in the water in 10 years. For this reason, the achievement of the objective will rely on measurement and monitoring of actions taken on the land to reduce pressures on water quality.~~

~~Point source discharges are currently managed through existing resource consents, and further action required to improve the quality of these discharges will occur on a case-by-case basis at the time of consent renewal, guided by the targets and limits set in Objective 1.~~[28]

~~Reasons for adopting Objective 4~~

~~**Objective 4** provides for a staged approach to long term achievement of the Vision and Strategy. It acknowledges that in order to maintain the social, cultural and economic wellbeing of communities during the 80-year journey, the first stage (the short term 10 year period) must ensure that overall costs to people can be sustained.~~

~~In the future, a property level allocation of contaminant discharges may be required. Chapter 3.11 sets out the framework for collecting the required information so that the most appropriate approach can be identified. Land use type or intensity at July 2016 will not be the basis for any future allocation of property level contaminant discharges. Therefore, consideration is needed of how to manage impacts in the transition.~~

[25] Watercare PC1-8450; Beef and Lamb PC1-111541
[26] Oji Ltd PC1-6392
[27] Forest and Bird PC1-8220
[28] Watercare PC1-8450

~~Objective 4 seeks to minimise social disruption in the short term, while encouraging preparation for possible future requirements.~~

~~**Reasons for adopting Objective 5**~~

~~**Objective 5** seeks to ensure that this Plan recognises and provides for the relationship of tangata whenua with ancestral lands, by ensuring the other provisions of Chapter 3.11 do not provide a further impediment to tangata whenua making optimal use of their land. Historic impediments included customary tenure in the nineteenth century, public works, rating law, Te Ture Whenua Māori Act, and confiscation. Some impediments or their effects continue currently, including issues of governance, fragmentation and compliance with central and local government regulations such as regional and district plans, or the emissions trading scheme. Land relevant to this objective is land returned through Treaty of Waitangi settlement, and land under Māori title that has multiple owners.~~

~~**Reasons for adopting Objective 6**~~

~~**Objective 6** seeks to recognise the significant value of Whangamarino Wetland, a Ramsar site of international importance, and the complexity of this wetland system. It seeks to recognise that the bog ecosystems (which are particularly sensitive to discharges of contaminants) need protection over time. The effort required to restore Whangamarino Wetland over 80 years is considerable and as a minimum needs to halt and begin to reverse the decline in water quality in the first 10 years. This objective describes how wetland restoration needs to be supported by restoration of the Lower Waikato Freshwater Management Unit sub-catchments that flow into Whangamarino Wetland.~~

3.11.3 Policies/Ngā Kaupapa Here

Policy 1: ~~Manage d~~ Diffuse discharge management ~~s of nitrogen, phosphorus, sediment and microbial pathogens~~/Te Kaupapa Here 1: Te whakahaere i ngā rukenga roha o te hauota, o te pūtūtae-whetū, o te waiparapara me te tukumate ora poto

Reduce ~~Manage and require reductions in~~[29] ~~catchment wide and~~[30] sub-catchment ~~wide~~ diffuse[31] discharges ~~of nitrogen, phosphorus, sediment and microbial pathogens,~~ by:

a1. Requiring all farming activities to operate at Good Farming Practice, or better; and[32]

a2. Establishing~~, where possible,~~ a Nitrogen Reference Point for all properties or enterprises; and[33]

a. Enabling activities with a low level of contaminant discharge to water bodies ~~provided those discharges do not increase~~[34]; and

b. Requiring ~~farming~~ activities with moderate to high levels of contaminant discharge to water bodies to reduce their discharges proportionate to the amount of (2016) discharge and the water quality improvements required in the sub-catchment[35]; and

b1. Calculating the 75th percentile and 50th percentile nitrogen leaching values and requiring farmers with a Nitrogen Reference Point greater than the 75th percentile to reduce nitrogen loss to below the 75th percentile and farmers with a Nitrogen Reference Point between the 50th and 75th percentile to demonstrate real and enduring reductions of nitrogen leaching, with resource consents specifying an amount of reduction or changes to practices required to take place; and[36]

~~b2. Where Good Farming Practices are not adopted, to specify controls in a resource consent that ensures contaminant losses will be reducing;~~[37]

~~b3. Except as provided for in Policies [1(a) and] 16, generally granting only those land use and discharge consent applications that demonstrate clear and enduring reductions in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens; and~~[38]

b4. ~~Except as provided for in Policies [1(a) and] Policy 16, generally not granting land use~~ Consent application~~s that involve a change in the use of the land, or an increase in the intensity of the use of land, unless the application~~ will only be granted where the application demonstrate~~s~~ clear and enduring reductions in diffuse discharges of contaminants ~~nitrogen, phosphorus, sediment and microbial pathogens~~; and[39]

c. Progressively excluding cattle, horses, deer and pigs from rivers, streams, drains, wetlands and lakes. [PC1-10639]

Policy 2: Farm Environment Plans ~~Tailored approach to reducing diffuse discharges from farming activities~~/Te Kaupapa Here 2: He huarahi ka āta whakahāngaihia hei whakaiti i ngā rukenga roha i ngā mahinga pāmu

Reduce ~~Manage and require reductions in~~[40] catchment-wide and[41] sub-catchment ~~wide~~[42] diffuse discharges ~~of nitrogen, phosphorus, sediment and microbial pathogens~~ from farming activities on properties and enterprises, through Farm Environment Plans[43] that:

a1. Set out clear, specific and timeframed minimum standards for Good Farming Practice; and[44]

a. Take ~~Taking~~ a tailored, risk based approach to define mitigation actions on the land that will reduce diffuse discharges ~~of nitrogen, phosphorus, sediment and microbial pathogens, with the mitigation actions to be specified in a Farm Environment Plan either associated with a resource consent, or in specific requirements established by participation in a Certified Industry Scheme~~[45]; and

[29] DoC PC1-10643
[30] WRC V1PC1-1497
[31] Fert NZ PC1-9707, Federated Farmers V1PC1-162
[32] Dairy NZ PC1-10196
[33] Hort NZ PC1-10051, Hira Bhana and Co Ltd PC1-4020 (shifted from Pol 2 with modifications)
[34] Beef and Lamb PC1-12576
[35] Beef and Lamb PC1-12711 (shifted from Pol 2 with modifications)
[36] C and G Tierney PC1-7717, Sinclair Family Trust PC1-6180, Federated Farmers V1PC1-357
[37] Consequential to DairyNZ PC1-10196
[38] DoC PC1-71759
[39] DoC PC1-71759
[40] DoC PC1-10643
[41] WRC V1PC1-1497
[42] Consequential to WRC V1PC1-1497
[43] Federated Farmers V1PC1-172
[44] Ballance PC1-6862, FANZ PC1-9712
[45] South Waikato District Council PC1-12522

b. Undergo ~~Requiring~~ the same level of rigour in developing, monitoring and auditing ~~of mitigation actions on the land that is~~ set out in a Farm Environment Plan, whether the consent holder is a member of a Certified Sector Scheme or not ~~it is established with a resource consent or through Certified Industry Schemes~~[46]; and

b2. Are flexible and able to be updated so that continuous improvement, new technologies and mitigation practices can be adopted, such that diffuse discharges ~~of nitrogen, phosphorus, sediment and microbial pathogens~~ further reduce over time.[47]

~~c. Establishing a Nitrogen Reference Point for the property or enterprise; and~~[48]

~~d. Requiring the degree of reduction in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens to be proportionate to the amount of current discharge (those discharging more are expected to make greater reductions), and proportionate to the scale of water quality improvement required in the sub-catchment; and~~[49]

~~e. Requiring stock exclusion to be completed within 3 years following the dates by which a Farm Environment Plan must be provided to the Council, or in any case no later than 1 July 2026.~~[50] [PC1-10646]

Policy 3: Tailored approach to reducing diffuse discharges from commercial vegetable production systems/Te Kaupapa Here 3: He huarahi ka āta whakahāngaihia hei whakaiti i ngā rukenga roha i ngā pūnaha arumoni hei whakatupu hua whenua

Manage and require reductions in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens from commercial vegetable production through a tailored, property or enterprise-specific approach where:

a. Flexibility is provided to undertake crop rotations on changing parcels of land for commercial vegetable production, while reducing average contaminant discharges over time; and

b. The maximum area in production for a property or enterprise is established and capped utilising commercial vegetable production data from the 10 years up to 2016; and

c. Establishing a Nitrogen Reference Point for each property or enterprise; and

d. A 10% decrease in the diffuse discharge of nitrogen and a tailored reduction in the diffuse discharge of phosphorus, sediment and microbial pathogens is achieved across the sector through the implementation of Best or Good Management Practices; and

e. Identified mitigation actions are set out and implemented within timeframes specified in either a Farm Environment Plan and associated resource consent, or in specific requirements established by participation in a Certified Industry Scheme.

f. Commercial vegetable production enterprises or reduce nitrogen, phosphorus, sediment and microbial pathogens are enabled; and

g The degree of reduction in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens is proportionate to the amount of current discharge (those discharging more are expected to make greater reductions), and the scale of water quality improvement required in the sub-catchment.

Policy 3A: Certified Sector Schemes

Waikato Regional Council will support the development of Certified Sector Schemes as groups or organisations responsible for preparing and monitoring the implementation of Farm Environment Plans by:

a. Setting out minimum standards for Certified Sector Schemes in Schedule 2; and

b. Establishing a process for approving Certified Sector Schemes based on their ability to meet the minimum standards, including entering into a contractual agreement with each Certified Sector Scheme to meet and maintain those standards; and

c. Requiring independent audit of the performance of Certified Sector Schemes in preparing and monitoring the implementation of Farm Environment Plans for their members.[51]

Policy 4: Future discharge reductions ~~Enabling activities with lower discharges to continue or to be established while signalling further change may be required in future/~~Te Kaupapa Here 4: Te tuku kia haere tonu, kia whakatūria rānei ngā tūmahi he iti iho ngā rukenga, me te tohu ake ākuanei pea me panoni anō hei ngā tau e heke mai ana

[46] Huirimu Farms Ltd PC1-5909, Ata Rangi PC1-6244, Southern Pastures Limited Partnership PC1-11197
[47] Federated Farmers V1PC1 -175
[48] Hort NZ PC1-10051, Hira Bhana and Co Ltd PC1-4020 (shifted to Pol 1 with modifications)
[49] Beef and Lamb PC1-12711 (shifted to Pol 1 with modifications)
[50] G and J Jeffries PC1-12802
[51] Huirimu Farms Ltd PC1-5909, Ata Rangi PC1-6244, Waipapa Farms Ltd and Carlyle Holdings Ltd PC1-4704

~~Manage sub-catchment-wide diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens, and enable existing and new low-discharging activities to continue provided that cumulatively the achievement of Objective 3 is not compromised. Activities and uses currently defined as low dischargers may in the future need to~~ To recognise that future regional plan changes or regional plans are likely to require all farming activities make further reductions in the ~~take mitigation actions that will reduce~~ diffuse discharges of contaminants ~~of nitrogen, phosphorus, sediment and microbial pathogens~~ in order for Objective 1 to be met.[52] Future necessary discharge reductions should be considered when assessing resources consent applications.

~~To grant resource consents that authorise farming activities for a duration that will enable further reductions in contaminant losses to be implemented through replacement resorce consents rather than by way of a review of consent conditions; unless the application demonstrates clear and enduring ongoing reductions of contaminant losses beyond those imposed in response to the short term water quality attribute states in Table 3.11-1 and the property is not in a Priority 1 sub-catchment.[53]~~ [PC1-10655]

Policy 5: Staged approach/Te Kaupapa Here 5: He huarahi wāwāhi

To recognise that~~:a. Aa~~ll farmers, businesses and communities[54] will need to contribute to achieving the water quality targets ~~attribute states~~[55] in Table 3.11-1~~; and~~ To achieve this:

b. Changes in practices and activities need to start immediately[56]; and

c. The rate of change will need to be staged over the coming decades to minimise social, economic[57] and cultural disruption and enable innovation and new practices to develop; and

d. Responding to the reasonably foreseeable effects of climate change will mean that different regulatory and non-regulatory responses may be needed in future.[58] [PC1-10661]

~~Recognise that achieving the water quality attribute^ targets^ set out in Table 11-1 will need to be staged over 80 years, to minimise social disruption and allow for enable innovation and new practices to develop, while making a start on reducing discharges of nitrogen, phosphorus, sediment and microbial pathogens, and preparing for further reductions that will be required in subsequent regional plans.~~

~~Policy 6: Restricting land use change/Te Kaupapa Here 6: Te here i te panonitanga ā-whakamahinga whenua~~

~~Except as provided for in Policy 16, land use change consent applications that demonstrate an increase in the diffuse discharge of nitrogen, phosphorus, sediment or microbial pathogens will generally not be granted.~~

~~Land use change consent applications that demonstrate clear and enduring decreases in existing diffuse discharges of nitrogen, phosphorus, sediment or microbial pathogens will generally be granted.~~[59]

Policy 7: Preparing for allocation in the future/Te Kaupapa Here 7: Kia takatū ki ngā tohanga hei ngā tau e heke mai ana

Prepare for further diffuse discharge reductions and any future property or enterprise-level allocation of diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens that will be required by subsequent regional plans, by implementing the policies and methods in this chapter. To ensure this occurs, collect information and undertake research to support this, including collecting information about current discharges, developing appropriate modelling tools to estimate contaminant discharges, and researching the spatial variability of land use and contaminant losses and the effect of contaminant discharges in different parts of the catchment that will assist in defining 'land suitability'.

Any future allocation should consider the following principles:

[52] C Barker PC1-3748
[53] Federated Farmers PC1-12754, FANZ PC1-11176
[54] M & R Johnston PC1-8099, K Stokes PC1-5248
[55] Winstone Aggregates PC1-3607
[56] Forest and Bird PC1-8257
[57] Charion Investment Trust PC1-7748
[58] WRC PC1-2985
[59] Federated Farmers V1PC1-194

a. Land suitability[60] which reflects the biophysical and climate properties, the risk of contaminant discharges from that land, and the sensitivity of the receiving water body, as a starting point (i.e. where the effect on the land and receiving waters will be the same, like land is treated the same for the purposes of allocation); and
b. Allowance for flexibility of development of tangata whenua ancestral land; and
c. Minimise social disruption and costs in the transition to the 'land suitability' approach; and
d. Future allocation decisions should take advantage of new data and knowledge.

Policy 8: Prioritised implementation/Te Kaupapa Here 8: Te raupapa o te whakatinanatanga

Prioritise the management of diffuse discharges ~~of nitrogen, phosphorus, sediment and microbial pathogens~~ ~~land and water resources by implementing Policies 2, 3 and 9, and~~[61] in accordance with the prioritisation of areas set out in Table 3.11-2, commercial vegetable production activities[62] ~~[OPTION and dairy farming[63]]. and ,~~the catchments of lakes and the Whangamarino Wetland.[64] ~~Priority areas include:~~

~~a. Sub-catchments where there is a greater gap between the water quality targets^ in Objective 1 (Table 3.11-1) and current water quality; and~~
~~b. Lakes Freshwater Management Units^; and~~
~~c. Whangamarino Wetland.~~

In addition to the priority sub-catchments listed in Table 3.11-2, the 75th percentile nitrogen leaching value dischargers will also be prioritised for the development of Farm Environment Plans focussed on reducing diffuse discharge.[65]
[V1PC1-404]

Policy 9: Sub-catchment (including edge of field) mitigation planning, co-ordination and funding/Te Kaupapa Here 9: Te whakarite mahi whakangāwari, mahi ngātahi me te pūtea mō te riu kōawāwa (tae atu ki ngā taitapa)

Take a prioritised and integrated approach to sub-catchment water quality management by undertaking sub-catchment planning, and use this planning to support actions including edge of field mitigation measures. Support measures that efficiently and effectively contribute to water quality improvements. This approach includes:
a. Engaging early with tangata whenua and with landowners, communities and potential funding partners in sub-catchments in line with the priority areas listed in Table 3.11-2; and
b. Assessing the reasons for current water quality and sources of contaminant discharge, at various scales in a sub-catchment; and
c. Encouraging cost-effective mitigations where they have the biggest effect on improving water quality; and
d. Allowing, where multiple farming enterprises contribute to a mitigation, for the resultant reduction in diffuse discharges to be apportioned to each enterprise in accordance with their respective contribution to the mitigation and their respective responsibility for the ongoing management of the mitigation.

Policy 10: Provide for point source discharges of regional significance/Te Kaupapa Here 10: Te whakatau i ngā rukenga i ngā pū tuwha e noho tāpua ana ki te rohe

[60] *Future mechanisms for allocation based on land suitability will consider the following criteria:*
a) The biophysical properties of the land that determine productive potential and susceptibility to contaminant loss (e.g. slope, soil type, drainage class, and geology); and
b) the local climate regime that determines productive potential and the likelihood of water storage and runoff patterns (e.g. frost, rainfall and its seasonal distribution); and
c) The natural capacity of the landscape to attenuate contaminant loss; and
d) the Objective 1 water quality limits^ related to nitrogen, phosphorus, microbial pathogens and sediment for the surface waters that the land is hydrologically connected to; and
e) the desired values^ in those receiving waters (ecological and human health) and how they are influenced by the four contaminants.
The future weightings are to be determined.
For the avoidance of doubt, land suitability criteria exclude current land use and current water quality, the moderating effects of potential mitigations, and non-biophysical criteria (economic, social and cultural). Instead these factors will be of importance in analysing the implications of a completed land suitability classification.

[61] Ravensdown PC1-10119
[62] J Reeves & A Taylor PC1-8537
[63] Fonterra PC1-10489
[64] DoC PC1-10670
[65] Fonterra PC1-10489 (consequential to option to add dairy farming)

When deciding resource consent applications for point source discharges ~~of nitrogen, phosphorus, sediment and microbial pathogens~~ to water or onto or into land, provide for the values of the Freshwater Management Unit and the water quality targets in Table 3.11-1 when considering the:

a. Continued operation of regionally significant infrastructure; and
b. Continued operation of regionally significant industry.

[PC1-10676]

Policy 11: Application of Best Practicable Option ~~and mitigation or offset of effects~~ to point source discharges/Te Kaupapa Here 11: Te whakahāngai i te Kōwhiringa ka Tino Taea me ngā mahi whakangāwari pānga; te karo rānei i ngā pānga ki ngā rukenga i ngā pū tuwha

Require any person undertaking a point source discharge ~~of nitrogen, phosphorus, sediment or microbial pathogens~~ to water or onto or into land in the Waikato and Waipa River catchments to, as a minimum,[66] adopt the Best Practicable Option* to avoid or mitigate the adverse effects of the discharge~~, at the time a resource consent application is decided~~[67].

~~Where it is not practicable to avoid or mitigate all any~~[68] ~~adverse effects, cannot be reasonably avoided, they should be mitigated, and where they cannot be reasonably mitigated, it is encouraged that~~[69] ~~an offset measure may be proposed in an alternative location or locations to the point source discharge, for the purpose of ensuring positive effects on the environment to lessen any residual adverse effects of the discharge(s) that will or may result from allowing the activity provided that the:~~

~~a. Primary discharge does not result in any significant or~~[70] ~~toxic adverse effect at the point source discharge location; and~~
~~b. Offset measure is for the same contaminant; and~~
~~c. Offset measure occurs preferably within the same sub-catchment in which the primary discharge occurs and if this is not practicable, then within the same Freshwater Management Unit^ or a Freshwater Management Unit^ located upstream, and~~
~~d. Offset measure remains in place for the duration of the consent and is secured by consent condition or another legally binding mechanism~~[71]

[PC1-10694]

Policy 12: ~~Additional considerations for~~ Considering point source discharges ~~in relation to water quality targets~~/Te Kaupapa Here 12: He take anō hei whakaaro ake mō ngā rukenga i ngā pū tuwha e pā ana ki ngā whāinga ā-kounga wai

When deciding a resource consent application, c~~C~~onsider[72] the contribution made by a point source discharge to the ~~nitrogen, phosphorus, sediment and microbial pathogen~~ catchment loads and the impact of that contribution on the ~~likely~~[73] achievement of the short term water quality targets ~~attribute states^ targets^~~ in Table 3.11-1~~Objective 3~~ or the progression towards the 80-year water quality targets ~~attribute states^ targets^~~ in ~~Objective 1~~Table 3.11-1[74], taking into account:

a. The relative proportion of contaminants ~~nitrogen, phosphorus, sediment or microbial pathogens~~ that the particular point source discharge contributes to the catchment load; and
b. Past ~~technology~~ upgrades undertaken to ~~model, monitor and~~[75] reduce the discharge of contaminants ~~nitrogen, phosphorus, sediment or microbial pathogens~~ within the previous consent term; and
c. ~~The ability~~Whether it is appropriate to stage future mitigation actions to allow investment costs to be spread over time ~~and~~ to[76] meet the water quality targets ~~attribute states^ targets^~~ specified above.~~; and~~
~~d. The diminishing return on investment in treatment plant upgrades in respect of any resultant reduction in nitrogen, phosphorus, sediment or **microbial pathogens** when treatment plant processes are already achieving a high level of contaminant reduction through the application of the Best Practicable Option*.~~[77]

[PC1-10738]

[66] BT Mining PC1-9924
[67] Tangata Whenua – Waikato and Waipa River Iwi PC1-3349
[68] DoC PC1-10694
[69] DoC PC1-10694
[70] Fish & Game PC1-10887
[71] GBC Winstone PC1-2947
[72] Hamilton CC PC1-10843
[73] Tangata Whenua – Waikato and Waipa River Iwi PC1-3353
[74] Fonterra PC1-10609
[75] Hamilton CC PC1-10843
[76] Fish & Game PC1-10888
[77] Tangata Whenua – Waikato and Waipa River Iwi PC1-3353

Policy 13: Point sources consent duration/Te Kaupapa Here 13: Te roa o te tukanga tono whakaaetanga mō te pū tuwha

When determining an appropriate duration for any point source discharge[78] consent granted consider the following matters:

a. ~~The appropriateness of a longer consent duration~~ ~~A consent term exceeding 25 years,~~ ~~where~~ Whether the applicant demonstrates that the discharge is consistent with achieving the values of the Freshwater Management Unit and water quality targets ~~attribute states~~ set out in Table 3.11-1 ~~the approaches set out in Policies 11 and 12 will be met~~[79]; and

b. The magnitude and significance of the investment made or proposed to be made in contaminant reduction measures and any resultant improvements in the receiving water quality; and

c. The need to provide appropriate certainty of investment where contaminant reduction measures are proposed (including investment in treatment plant upgrades or land based application technology); and

d. Any common catchment expiry date listed in Table XX and every 10 years thereafter. For consents granted wthin three years prior to the common catchment expiry date, the consent duration may be granted to align with the date 10 years after the common catchment expiry date. [PC1-10739]

Policy 14: Lakes Freshwater Management Units/Te Kaupapa Here 14: Ngā Wae Whakahaere Wai Māori i ngā Roto

Restore and protect lakes by 2096 through the implementation of a tailored lake-by-lake approach, guided by existing data and information and any existing Lake Catchment Plans as well as Lake Catchment Plans prepared over the next 10 years, which will include collecting and using data and information to support improving the management of land use[80] activities in the lakes Freshwater Management Units^.[PC1-10742]

Policy 15: Whangamarino Wetland/Te Kaupapa Here 15: Ngā Repo o Whangamarino

Protect and make progress towards restoration of Whangamarino Wetland by reducing the diffuse discharge of contaminants ~~nitrogen, phosphorus, sediment and microbial pathogens~~ in the sub-catchments that flow into the wetland to:

a. Reduce and minimise further loss of the bog ecosystem; and

b. Provide increasing availability of mahinga kai; and

c. Support implementation of any catchment plan prepared in future by Waikato Regional Council that covers Whangamarino Wetland.

Policy 16: Flexibility for development of land returned under Te Tiriti o Waitangi settlements and multiple owned Māori land/Te Kaupapa Here 16: Te hangore o te tukanga mō te whakawhanaketanga o ngā whenua e whakahokia ai i raro i ngā whakataunga kokoraho o Te Tiriti o Waitangi me ngā whenua Māori kei raro i te mana whakahaere o te takitini

For the purposes of considering land use change applications under Rule 3.11.5.7, land use change that enables the development of tangata whenua ancestral lands shall be managed in a way that recognises and provides for:

a. The relationship of tangata whenua with their ancestral lands; and

b. The exercise of kaitiakitanga; and

c. The creation of positive economic, social and cultural benefits for tangata whenua now and into the future;

~~Taking into account:~~

~~i. Best management practice actions for nitrogen, phosphorus, sediment and microbial pathogens for the proposed new type of land use; and~~

~~ii. The suitability of the land for development into the proposed new type of land use, reflecting the principles for future allocation as contained in Policy 7, including the risk of contaminant discharge from that land and the sensitivity of the receiving water body; and~~

~~iii. The short term water quality attribute states targets^[81] to be achieved in Objective 3.~~ [PC1-10745]

[78] Mercury PC1-9577
[79] Forest & Bird PC1-8325
[80] Tangata Whenua – Waikato and Waipa River Iwi PC1-3404
[81] Fonterra PC1-10451

Policy 17: Considering the wider context of the Vision and Strategy/Te Kaupapa Here 17: Te whakaaro ake ki te horopaki whānui o Te Ture Whaimana

When applying policies and methods in Chapter 3.11, seek opportunities to advance those matters in the Vision and Strategy and the values^ for the Waikato and Waipa Rivers that fall outside the scope of Chapter 3.11, but could be considered secondary benefits of methods carried out under this Chapter, including, but not limited to:

a. Opportunities to enhance biodiversity, wetland values^ and the functioning of ecosystems; and
b. Opportunities to enhance access and recreational values^ associated with the rivers.

Policy 18: Protection of indigenous fish habitat

To contribute toward achieving ecosystem health, ensure the protection of spawning habitats of īnanga and other large-bodied galaxiids from the adverse effects of land use activities and stock access. [PC1-10639]

3.11.4 Implementation methods/Ngā tikanga whakatinana

3.11.4.1 Working with others/Te mahi tahi me ētehi atu

Waikato Regional Council will work with stakeholders including Waikato River iwi partners, Waikato River Authority, Waikato River Restoration Strategy partners, Department of Conservation, territorial authorities, industry and sector bodies, to implement Chapter 3.11 including all the following methods in 3.11.4. This will include coordinating priorities, funding and physical works, promoting awareness and providing education, to assist in giving effect to the *Vision and Strategy for the Waikato River/Te Ture Whaimana o Te Awa o Waikato* for the Waikato and Waipa Rivers.

3.11.4.2 Certified Industry Scheme/Te kaupapa ā-ahumahi kua whai tohu

Waikato Regional Council will develop an industry certification process for industry bodies as per the standards outlined in Schedule 2. The **Certified Industry Scheme** will include formal agreements between parties. Agreements will include:

a. Provision for management of the **Certified Industry Schemes**;
b. Oversight, and monitoring of **Farm Environment Plans**;
c. Information sharing;
d. Aggregate reporting on **Certified Industry Scheme** implementation; and
e. Consistency across the various **Certified Industry Schemes**

3.11.4.3 Farm Environment Plan/Ngā Mahere Taiao ā-Pāmu

Waikato Regional Council will prepare parameters and minimum requirements for the development of a certification process for professionals to develop, certify and monitor **Farm Environment Plans** in a consistent approach across the region. A **Farm Environment Plan** will be prepared by a certified person as per the requirements outlined in Schedule 1, and will assess the risk of **diffuse discharges** ~~of nitrogen, phosphorus, sediment and **microbial pathogens**~~ and specify actions to reduce those risks in order to bring about reductions in the discharges of those contaminants. Waikato Regional Council will develop guidance for risk assessments, auditing and compiling **Farm Environment Plans**.

Waikato Regional Council will take a risk based approach to monitoring **Farm Environment Plans**, starting with more frequent monitoring and then moving to monitoring based on risk assessment. Robust third party audit (independent of the farmer and **Certified Farm Environment Planner**) and monitoring will be required.

3.11.4.4 Lakes and Whangamarino Wetland/Ngā Roto me ngā Repo o Wangamarino

Waikato Regional Council, working with others, will:

a. Build on the Shallow Lakes Management Plan by developing Lake Catchment Plans and investigate lake-specific options to improve water quality and ecosystem health, and manage pest species. In many instances, this may require an adaptive management approach.
b. Prepare and implement Lake Catchment Plans with community involvement which include:
    i. A vision for the lake developed in consultation with the community.
    ii. Description of the desired state of lake and recognition of the challenges (e.g. costs) and opportunities (e.g. benefits) in achieving it.
    iii. An evidence-based description of the problem (i.e. what is the gap between the current state and desired state) that recognises the presence of multiple stressors and uncertainty in responses and time frames.
    iv. Community engagement in defining actions that will move the lake towards its desired state.
    v. Responsibility for achieving the agreed actions and expected timeframes, developed in consultation with those who will be undertaking the work.
    vi. A monitoring regime that will provide evidence of the implementation of the defined actions and any changes in the state of the lake.
c. As a priority, undertake the development and implementation of the Lake Waikare and Whangamarino Wetland Catchment Management Plan using the process set out in b).
d. Work towards managing the presence of pest weeds and fish in the shallow lakes and connected lowland rivers area, including Whangamarino Wetland.
e. Support research and testing of restoration tools and options to maintain and enhance the health of shallow lakes and Whangamarino Wetland (e.g. lake modelling, lake bed sediment treatments, constructed wetlands, floating wetlands, silt traps, pest fish management, and farm system management tools).
f. Support lake and Whangamarino Wetland restoration programmes including, but not limited to, advice, funding, and project management. Restoration programmes may have a wider scope than water quality, including hydrological restoration, revegetation and biodiversity restoration.
g. Develop a set of 10-year water quality attribute^ targets^ for each lake Freshwater Management Unit^.

3.11.4.5 Sub-catchment scale planning/Te whakamāherehere mō to whānuitanga o ngā riu kōawaawa

Waikato Regional Council will work with others to develop **sub-catchment** scale plans (where a catchment plan does not already exist) where it has been shown to be required. **Sub-catchment** scale planning will:

a. Identify the causes of current water quality decline, identify cost-effective measures to bring about reductions in contaminant discharges, and coordinate the reductions required at a **property**, **enterprise** and **sub-catchment** scale (including recommendations for funding where there is a public benefit identified).
b. Align works and services to reduce ~~nitrogen, phosphorus, sediment and **microbial pathogen**~~ discharges including riparian management, targeted reforestation, constructed wetlands, sediment traps and sediment detention bunds.
c. Assess and determine effective and efficient placement of constructed wetlands at a **sub-catchment** scale to improve water quality.
d. Support research that addresses the management of wetlands, including development of techniques to monitor ecological change and forecasting evolution of wetland characteristics resulting from existing land use in the wetland catchments.
e. Integrate the regulatory requirements to fence waterways with the requirements for effective drainage scheme management.
f. Coordinate funding of mitigation work by those contributing to water quality degradation, in proportion to that contribution.
g. Utilise public funds to support **edge of field mitigations** where those mitigations provide significant public benefit.

3.11.4.6 Funding and implementation/Te pūtea me te whakatinanatanga

Waikato Regional Council will:

a. Provide staff resources and leadership within the organisation for the implementation of Chapter 3.11.
b. Seek to secure funding for the implementation of Chapter 3.11 through the annual plan and long term plan processes.

3.11.4.7 Information needs to support any future allocation/Ngā pārongo e hiahiatia ana hei taunaki i ngā tohanga o anamata

Gather information and commission appropriate scientific research to inform any future framework for the allocation of diffuse discharges including:

a. Implementing processes that will support the setting of property or enterprise-level diffuse discharge limits in the future.
b. Researching:
    i. The quantum of contaminants that can be discharged at a sub-catchment and Freshwater Management Unit^ scale while meeting the Table 3.11-1 water quality attribute^ targets^.
    ii. Methods to categorise and define ‘land suitability’.
    iii. Tools for measuring or modelling discharges from individual properties, enterprises and sub-catchments, and how this can be related to the Table 3.11-1 water quality attribute^ targets^.

3.11.4.8 Reviewing Chapter 3.11 and developing an allocation framework for the next Regional Plan/Te arotake i te Upoko 3.11, te whakarite hoki i tētehi anga toha mō te Mahere ā-Rohe e whai ake ana

Waikato Regional Council will:

a. Develop discharge allocation frameworks for individual **properties** and **enterprises** based on information collected under Method 3.11.4.7, taking into account the best available data, knowledge and technology at the time; and
b. Use this to inform future changes to the Waikato Regional Plan to manage discharges ~~of nitrogen, phosphorus, sediment and **microbial pathogens** ~~at a **property** or **enterprise**-level to meet the targets^ in the Objectives.

3.11.4.9 Managing the effects of uban development/Te whakahaere i ngā pānga o te whanaketanga ā-tāone

Waikato Regional Council will:

a. Continue to work with territorial authorities to implement the Waikato Regional Policy Statement set of principles that guide future development of the built environment which anticipates and addresses cumulative effects over the long term.
b. When undertaking sub-catchment scale planning under Method 3.11.4.5 in urban sub-catchments engage with urban communities to raise awareness of water quality issues, and to identify and implement effective solutions for the urban context.

3.11.4.10 Accounting system and monitoring/Te pūnaha kaute me te aroturuki

Waikato Regional Council will establish and operate a publicly available accounting system and monitoring in each Freshwater Management Unit^, including:

a. Collecting information on nitrogen, phosphorus, sediment and **microbial pathogen** levels in the respective fresh water bodies in each Freshwater Management Unit^ from:
   i. Council's existing river monitoring network; and
   ii. **Sub-catchments** that are currently unrepresented in the existing monitoring network; and
   iii. Lake Freshwater Management Units^.
b. Using the information collected to establish the baseline data for compiling a monitoring plan and to assess progress towards achieving the Table 11-1 water quality attribute^ targets^; and
c. Using state of the environment monitoring data including biological monitoring tools such as the Macroinvertebrate Community Index to provide the basis for identifying and reporting on long-term trends; and
d. An information and accounting system for the **diffuse discharges** from **properties** and **enterprises** that supports the management of nitrogen, phosphorus, sediment and **microbial pathogens diffuse discharges** at an **enterprise** or **property** scale.

3.11.4.11 Monitoring and evaluation of the implementation of Chapter 3.11/Te aroturuki me te arotake i te whakatinanatanga o te Upoko 3.11

Waikato Regional Council will:

a. Review and report on the progress towards and achievement of the 80-year water quality objectives of Chapter 3.11.
b. Research and identify methods to measure actions at a **sub-catchment, property** and **enterprise** level, and their contribution to reductions in the discharge of contaminants.
c. Monitor the achievement of the values^ for the Waikato and Waipa Rivers and the uses made of those rivers.
d. Collate data on the number of land use resource consents issued under the rules of this chapter, the number of **Farm Environment Plans** completed, compliance with the actions listed in **Farm Environment Plans**, **Nitrogen Reference Points** for **properties** and **enterprises**, and nitrogen discharge data reported under **Farm Environment Plans**.
e. Work with industry to collate information on the functioning and success of any **Certified Industry Scheme**.

3.11.4.12 Support research and dissemination of best practice guidelines to reduce diffuse discharges/Te taunaki i te rangahautanga me te tuaritanga o ngā aratohu mō ngā mahi tino whai take hei whakaiti i ngā rukenga roha

Waikato Regional Council will:

a. Develop and disseminate **best management practice** guidelines for reducing the **diffuse discharges** of nitrogen, phosphorus, sediment and **microbial pathogens**; and
b. Support research into methods for reducing **diffuse discharges** of contaminants to water.

3.11.5 Rules/Ngā Ture

~~3.11.5.1 Permitted Activity Rule – Small and Low Intensity farming activities/Te Ture mō ngā Mahi e Whakaaetia ana – Ngā mahi iti, ngā mahi pāiti hoki i runga pāmu~~

~~**Rule 3.11.5.1 Permitted Activity Rule – Small and Low Intensity farming activities**~~

~~The use of land for farming activities (excluding commercial vegetable production) and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water is a permitted activity subject to the following conditions:~~

~~1. The property is registered with the Waikato Regional Council in conformance with Schedule A; and~~
~~2. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C; and~~

~~Either:~~
~~3. The property area is less than or equal to 4.1 hectares; and~~
~~4. The farming activities do not form part of an enterprise being undertaken on more than one property; or~~

~~The property area Where the property area is greater than 4.1 hectares:~~
~~5. For grazed land, the stocking rate of the land is less than 6 stock units per hectare; and~~
~~6. No arable cropping occurs.; and~~
~~7. The farming activities do not form part of an enterprise being undertaken on more than one property.~~[82,83]

3.11.5.1A Interim Permitted Activity Rule – Farming

Rule 3.11.5.1A – Interim Permitted Activity Rule – Farming

The use of land for farming and the associated diffuse discharge of contaminants onto or into land in circumstances which may result in those contaminants entering water that would otherwise contravene section 15(1) of the RMA, which is not a permitted activity under Rule 3.11.5.2, is a permitted activity until:

1. ~~The later of~~ 1 September 2021~~ or 6 months after this Plan becomes operative~~, for properties in Priority 1 sub-catchments listed in Table 3.11-2, and all properties with a Nitrogen Reference Point greater than the 75th percentile nitrogen leaching value; and
2. The later of 1 March 2025 or 1 year after this Plan becomes operative for properties in Priority 2 sub-catchments listed in Table 3.11-2;[84] and
3. 1 January 2026 for properties in Priority 3 sub-catchments listed in Table 3.11-2;

subject to the following conditions:

1. The property is registered with the Council in conformance with Schedule A; and
2. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C; and
3. No commercial vegetable production occurs; and
4. A Nitrogen Reference Point is produced for the property in conformance with Schedule B; and
5. Full electronic access to Overseer or any other software or system that models or records diffuse contaminant losses for the farming land use authorised by this rule is granted to the Council; ~~and~~[85]

6. There has been less than a cumulative net total of 4.1 hectares of change in the use of land from that which was occurring at 22 October 2016 within a property or enterprise from:
   1. Woody vegetation to farming activities; or
   2. Any farming activity other than dairy farming to dairy farming; or
   3. Any farming activity to Commerical Vegetable Production[86]~~; and~~
7. The discharge of any contaminant is managed to ensure that after reasonable mixing, either by itself or in combination with the same similar or other contaminants, it does not give rise to any of the following effects on receiving waters:
   (a) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials:
   (b) any conspicuous change in the colour or visual clarity:
   (c) any emission of objectionable odour:

[82] Fonterra V1PC1-757, Waipa DC PC1-3249, Waitomo DC PC1-10312
[83] H Oatway PC1-6524
[84] Beef + Lamb V1PC1-1719, J Craig PC1-9675, Drummon Dairy Holdings Ltd PC1-5652, K and A Reese PC1-7784
[85] WRC V1PC1-218
[86] Fonterra V1PC1-757, Waipa DC PC1-3249, Waitomo DC PC1-10312

(d) the rendering of fresh water unsuitable for consumption by farm animals:
(e) any significant adverse effects on aquatic life. [PC1-11054]

3.11.5.2 Permitted Activity Rule – ~~Other~~ Low intensity farming ~~activities~~/Te Ture mō ngā Mahi e Whakaaetia ana – Ētehi atu mahi i runga pāmu

Rule 3.11.5.2 - Permitted Activity Rule – ~~Other~~ Low intensity farming ~~activities~~

The use of land for farming ~~activities (excluding commercial vegetable production)~~ and the associated diffuse discharge of contaminants ~~nitrogen, phosphorus, sediment and microbial pathogens~~ onto or into land in circumstances which may result in those contaminants entering water and the associated diffuse that would otherwise contravene section 15(1) of the RMA ~~where the property area is greater than 4.1 hectares, and has more than 6 stock units per hectare or is used for arable cropping,~~[87] is a permitted activity subject to the following conditions:

A. For all properties:
   1. The property is registered with the Waikato Regional Council in conformance with Schedule A; and
   2. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C ~~and Conditions 3(c) and 4(c) of this Rule~~; and
   2A. The farming activities do not form part of an enterprise; and
   2B. No commercial vegetable production occurs; and
   2C. No dairy farming or grazing of dairy cattle occurs; and
   2D. No feedlots or sacrifice paddocks are used on the property; and
   2E. No more than 5% of the land used for farming is used for cropping, including winter forage crops; and[88]
   2F The discharge of any contaminant is managed to ensure that after reasonable mixing, either by itself or in combination with the same similar or other contaminants, it does not give rise to any of the following effects on receiving waters:
      (a) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials:
      (b) any conspicuous change in the colour or visual clarity:
      (c) any emission of objectionable odour:
      (d) the rendering of fresh water unsuitable for consumption by farm animals:
      (e) any significant adverse effects on aquatic life [PC1-11054]

B~~3~~. ~~Where t~~The property area is less than or equal to 20 hectares; or~~:~~
   ~~a. The farming activities do not form part of an enterprise being undertaken on more than one property; and~~
   ~~b. Where the land is:~~
      ~~i. used for grazing livestock, the stocking rate of the land is no greater than the stocking rate of the land at 22 October 2016; or~~
      ~~ii. not used for grazing livestock, the land use has the same or lower diffuse discharges of nitrogen, phosphorus, sediment or microbial pathogens as the land use at 22 October 2016; and~~
   ~~c. Upon request, the landowner shall obtain and provide to the Council independent verification from a Certified Farm Environment Planner that the use of land is compliant with either (b)(i) or (b)(ii) above; and~~
   ~~d. Upon request from the Council, a description of the current land use activities shall be provided to the Council; and~~
   ~~e. Where the property or enterprise contains any of the water bodies listed in Schedule C, new fences installed after 22 October 2016 must be located to ensure cattle, horses, deer and pigs cannot be within three metres of the bed of the water body (excluding constructed wetlands and drains).~~[89]

C~~4~~. ~~Where t~~The property ~~or enterprise~~ area is greater than 20 hectares, and either:
   1. The stocking rate of the land is less than 6 stock units per hectare; or
   2. The only farming activity occurring on the property is the raising, training or housing of horses; or[90]
   3. The stocking rate of the land is greater than 6 stock units but less than 10 stock units per hectare; and[91]
      a. A Nitrogen Reference Point is produced for the property ~~or enterprise~~ in conformance with Schedule B; and
      ~~b. The diffuse discharge of nitrogen from the property or enterprise does not exceed either:~~
         ~~i. the Nitrogen Reference Point; or~~
         ~~ii. 15kg nitrogen/hectare/year;~~
         ~~whichever is the lesser, over the whole property or enterprise when assessed in accordance with Schedule B; and~~[92]

[87] Fonterra V1PC1-757, Waipa DC PC1-3249, Waitomo DC PC1-10312
[88] J Alcock and J Easton PC1-9217, L Ashton PC1-7032, G Gleeson PC1-6410
[89] P Hurley PC1-1088, Federated Farmers V1PC1-338
[90] G Kilgour PC1-1906, R Cave PC1-3900
[91] P Keeling PC1-5497, Fonterra V1PC1-765
[92] Fonterra V1PC1-765, Balle Bros Group PC1-11423, Hill Country Farmers Group PC1-7845

c No part of the property ~~or enterprise~~ over 15 degrees slope is cultivated; and ~~or~~

c1. No part of the property over XX degrees of slope is[93] grazed; and

d. No winter forage crops are grazed in situ; and

~~e. Where the property or enterprise contains any of the water bodies listed in Schedule C:~~

~~i. There shall be no cultivation within 5 metres of the bed of the water body; and~~

~~ii. New fences installed after 22 October 2016 must be located to ensure cattle, horses, deer and pigs cannot be within three metres of the bed of the water body (excluding constructed wetlands and drains); and~~[94]

f~~5~~. ~~For all properties greater than 4.1 hectares, f~~From ~~31 March 2019~~ 30 November 2020~~, in addition to the requirements of Schedule A,~~ the following information is ~~must be~~ provided to the Waikato Regional Council by 1 September each year:

a. The monthly average ~~Annual~~ stock numbers of each stock class from 1 July to 30 June in the following year; and

b. Tonnes and type of ~~Annual~~ fertiliser applied from 1 July to 30 June in the following year ~~use~~; and

c. Tonnes of and type of ~~Annual brought in~~ animal feed brought onto the property in the previous 12 months~~.~~; and[95]

g. Full electronic access to Overseer or any other software or system that models or records diffuse contaminant losses for the farming land use authorised by this rule is granted to the Council; and[96]

h. Upon request, the landowner shall obtain and provide to the Council independent verification from a Certified Farm Environment Planner that the use of land is compliant with the conditions of this Rule within 20 working days of the request (unless otherwise agreed in writing by Council).[97]

[93] Hill Country Farmers PC1-7845

[94] G Holmes PC1-4693, Huirimu Farms Ltd PC1-5908, A McGovern PC1-8319

[95] Consequential to Ballance PC1-6570, FANZ PC1-10642

[96] WRC V1PC1-218

[97] Shifted from within the rule ((3)(c)).

OPTION

3.11.5.2A Controlled Activity Rule – Medium intensity farming

Rule 3.11.5.2A - Controlled Activity Rule – Medium intensity farming

The use of land for farming, which is not a permitted activity under Rules 3.11.5.1A to 3.11.5.2, is a controlled activity subject to the following conditions:

1. The property is registered with the Council in conformance with Schedule A; and
2. A Nitrogen Reference Point is produced for the property in conformance with Schedule B; and
3. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C; and
4. The farming activities do not form part of an enterprise; and
5. No commercial vegetable production occurs; and
6. Full electronic access to Overseer or any other software or system that models or records diffuse contaminant losses for the farming land use authorised by this rule is granted to the Council; and
7. A Farm Environment Plan has been prepared in conformance with Schedule 1 and has been approved by a Certified Farm Environment Planner, and is provided to the Council at the time the resource consent application is lodged; and
8. Either:
    a. The Nitrogen Reference Point is not exceeded; or
    b. The stocking rate of the land is no greater than 18 stock units per hectare and has not increased above the stocking rate during the Reference Period in Schedule B; and
6. There has been less than a cumulative net total of 4.1 hectares of change in the use of land from that which was occurring at 22 October 2016 within a property or enterprise from:
    1. Woody vegetation to farming activities; or
    2. Any farming activity other than dairy farming to dairy farming; or
    3. Any farming activity to Commerical Vegetable Production

Waikato Regional Council reserves control over the following matters:

i. The content, compliance with and auditing of the Farm Environment Plan.
ii. The actions and timeframes to achieve Good Farming Practices or better in order to reduce the diffuse discharge of contaminants nitrogen, phosphorus, sediment or microbial pathogens to water or to land where they may enter water.
iii. For enterprises, the procedures and limitations, including Nitrogen Reference Points, to be applied to land that enters or leaves the enterprise.
iv. Where the Nitrogen Reference Point exceeds the 75th percentile nitrogen leaching value, actions, timeframes and other measures to ensure the diffuse discharge of nitrogen is reduced so that it does not exceed the 75th percentile nitrogen leaching value by 1 July 2026.
v. The term of the resource consent.
vi. The timeframe and circumstances under which the consent conditions may be reviewed.
vii. Procedures for reviewing, amending and re-approving the Farm Environment Plan.

OPTION

3.11.5.3 Permitted Restricted Discretionary Activity Rule – Farming activities with a Farm Environment Plan under a Certified Industry Sector Scheme/Te Ture mō ngā Mahi e Whakaaetia ana – Ngā mahi i runga pāmu kua whai Mahere Taiao ā-Pāmu i raro i te Kaupapa ā-Ahumahi kua Whai Tohu

Rule 3.11.5.3 - Permitted Restricted Discretionary Activity Rule – Farming activities with a Farm Environment Plan under a Certified Industry Sector Scheme

Except as provided for in Rule 3.11.5.1 and Rule 3.11.5.2 tThe use of land for farming activities (excluding commercial vegetable production) where the land use is registered to a Certified Industry Sector Scheme, and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water is a permitted restricted discretionary activity subject to the following conditions:

1. The property is registered with the Waikato Regional Council in conformance with Schedule A; and
2. A Nitrogen Reference Point is produced for the property or enterprise in conformance with Schedule B; and
3. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C; and
4. The Certified Industry Sector Scheme meets the criteria set out in Schedule 2 and has been approved by the Chief Executive Officer of the Waikato Regional Council as meeting the standards set out in Schedule 2; and
5. A Farm Environment Plan which has been prepared in accordance with Schedule 1 and has been approved by a Certified Farm Environment Planner, and is provided to the Waikato Regional Council at the time the resource consent application is lodged; and as follows:
   a. By 1 July 2020 1 March 2022 for properties or enterprises within Priority 1 sub-catchments listed in Table 3.11-2, and all properties or enterprises with a Nitrogen Reference Point greater than the 75th percentile nitrogen leaching value;
   b. By 1 July 2023 1 March 2025 for properties or enterprises within Priority 2 sub-catchments listed in Table 3.11-2;
   c. By 1 July 2026 for properties or enterprises within Priority 3 sub-catchments listed in Table 3.11-2; and

5a. Full electronic access to Overseer or any other software or system that records farm data and models or records diffuse contaminant losses for the farming land use authorised by this rule is granted to the Waikato Regional Council; and

5b. There have been less than a cumulative net total of 4.1 hectares of change in the use of land from that which was occurring at 22 October 2016 within a property or enterprise from:
   1. Woody vegetation to farming activities; or
   2. Any farming activity other than dairy farming to dairy farming; or
   3. Any farming activity to Commerical Vegetable Production

6. The use of land shall be undertaken in accordance with the actions and timeframes specified in the Farm Environment Plan; and
7. The Farm Environment Plan provided under Condition 5 may be amended in accordance with the procedure set out in Schedule 1 and the use of land shall thereafter be undertaken in accordance with the amended plan; and
8. A copy of the Farm Environment Plan amended in accordance with condition (7) shall be provided to the Waikato Regional Council within 30 working days of the date of its amendment.

Waikato Regional Council restricts its discretion to the following matters:

i. The content, compliance with and auditing of the Farm Environment Plan.
ii. The actions and timeframes to achieve Good Farming Practices or better in order to reduce the diffuse discharge of nitrogen, phosphorus, sediment or microbial pathogens to water or to land where they may enter water.
iii. The effects, including cumulatively, of diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens, particularly where the activity may lead to an increase in the discharge of one or more contaminants.
iv. For enterprises, the procedures and limitations, including Nitrogen Reference Points, to be applied to land that enters or leaves the enterprise.
v. Where the Nitrogen Reference Point exceeds the 75th percentile nitrogen leaching value, actions, timeframes and other measures to ensure the diffuse discharge of nitrogen is reduced so that it does not exceed the 75th percentile nitrogen leaching value by 1 July 2026.
vi. The term of the resource consent.
vii. The timeframe and circumstances under which the consent conditions may be reviewed.
viii. Procedures for reviewing, amending and re-approving the Farm Environment Plan.

3.11.5.4 ~~Controlled~~ Restricted Discretionary Activity Rule – Farming activities with a Farm Environment Plan ~~not under a Certified Industry Scheme~~/Te Ture mō ngā Mahi ka āta Whakahaerehia – Ngā mahi i runga pāmu kua whai Mahere Taiao ā-Pāmu kāore i raro i te Kaupapa ā-Ahumahi kua Whai Tohu

Rule 3.11.5.4 – ~~Controlled~~ Restricted Discretionary Activity Rule – Farming ~~activities~~ with a Farm Environment Plan ~~not under a Certified Industry Scheme~~

~~Except as provided for in Rule 3.11.5.1 and Rule 3.11.5.2 t~~The use of land for farming ~~activities (excluding commercial vegetable production) where that land use is not registered to a Certified Industry Scheme,~~ and the associated diffuse discharge of contaminants onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene section 15(1) of the RMA ~~nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water~~, which is not a permitted activity under Rules 3.11.5.1A to 3.11.5.2, is a Restricted Discretionary ~~permitted~~[98] activity ~~until:~~

~~1. 1 January 2020 1 September 2021 for properties or enterprises in Priority 1 sub-catchments listed in Table 3.11-2~~
~~2. 1 January 2023 1 September 2024 for properties or enterprises in Priority 2 sub-catchments listed in Table 3.11-2;~~
~~3. 1 January 2026 for properties or enterprises in Priority 3 sub-catchments listed in Table 3.11-2;~~[99]

subject to the following conditions:

1. The property is registered with the Waikato Regional Council in conformance with Schedule A; and
2. A Nitrogen Reference Point is produced for the property or enterprise in conformance with Schedule B; and
3. No commercial vegetable production occurs; and
4. A Farm Environment Plan has been prepared in conformance with Schedule 1 and has been approved by a Certified Farm Environment Planner, or prepared under a Certified Sector Scheme, and is provided to the Council at the time the resource consent application is lodged; and[100]
5. Cattle, horses, deer, sheep, goats and pigs are excluded from water bodies in accordance with Schedule C; and[101]
6. Full electronic access to Overseer or any other software or system that models or records diffuse contaminant losses for the farming land use authorised by this rule is granted to the Waikato Regional Council; and[102]
7. There have been less than a cumulative net total of 4.1 hectares of change in the use of land from that which was occurring at 22 October 2016 within a property or enterprise from:
    1. Woody vegetation to farming activities; or
    2. Any farming activity other than dairy farming to dairy farming; or
    3. Any farming activity to Commerical Vegetable Production[103]

~~After the dates set out in 1), 2) and 3) above the use of land shall be a controlled activity (requiring resource consent), subject to the following standards and terms:~~

~~a. A Farm Environment Plan has been prepared in conformance with Schedule 1 and has been approved by a Certified Farm Environment Planner, and is provided to the Waikato Regional Council at the time the resource consent application is lodged by the dates specified in I-III below; and~~
~~b. The property is registered with the Waikato Regional Council in conformance with Schedule A; and~~
~~c. A Nitrogen Reference Point is produced for the property or enterprise in conformance with Schedule B and is provided to the Waikato Regional Council at the time the resource consent application is lodged; and~~
~~d. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C.~~

Waikato Regional Council restricts its discretion to the following matters: ~~Matters of Control~~
~~Waikato Regional Council reserves control over the following matters:~~

i. The content, compliance with and auditing of the Farm Environment Plan.
ii. The actions and timeframes to achieve Good Farming Practices or better in order to ~~for undertaking mitigation actions that maintain or~~ reduce the diffuse discharge of contaminants ~~nitrogen, phosphorus, sediment or microbial pathogens~~ to water or to land where they may enter water.
iia. The effects, including cumulative~~ly~~ effects, of diffuse discharge of contaminants ~~nitrogen, phosphorus, sediment and microbial pathogens, particularly where the activity may lead to an increase in the discharge of one or more contaminants.~~

[98] H G and S J Brooks PC1-86, Denzie, B PC1-3617
[99] Fonterra V1PC1-757, Waipa DC PC1-3249, Waitomo DC PC1-10312
[100] Previously part of rule (condition a) with addition of Certified Sector Schemes.
[101] Previously part of rule (condition d)
[102] WRC V1PC1-218
[103] Fonterra PC1-10644

iib. For enterprises, the procedures and limitations, including Nitrogen Reference Points, to be applied to land that enters or leaves the enterprise.

~~iii. The actions, timeframes and other measures to ensure that the diffuse discharge of nitrogen from the property or enterprise, as measured by the five-year rolling average annual nitrogen loss as determined by the use of the current version of OVERSEER®, does not increase beyond the property or enterprise's Nitrogen Reference Point, unless other suitable mitigations are specified.~~

iv. Where the Nitrogen Reference Point exceeds the 75th percentile nitrogen leaching value, actions, timeframes and other measures to ensure the diffuse discharge of nitrogen is reduced so that it does not exceed the 75th percentile nitrogen leaching value by 1 July 2026.

v. The term of the resource consent.

vi. The monitoring, record keeping, reporting and information provision requirements for the holder of the resource consent to demonstrate and/or monitor compliance with the Farm Environment Plan.

vii. The timeframe and circumstances under which the consent conditions may be reviewed ~~or the Farm Environment Plan shall be amended~~.

viii. Procedures for reviewing, amending and re-approving the Farm Environment Plan.

ix. Information to be provided to show that the property is being managed in a way that would not cause an increase in loss of contaminants, which may include annual Overseer modelling for the property or enterprise, or information on matters such as stocking rate, fertiliser application, imported feed and cropping

~~**Dates:**~~

~~I. For Priority 1 sub-catchments, and properties with a Nitrogen Reference Point of greater than 75th percentile nitrogen leaching value, by 1 July 2020~~

~~II. For Priority 2 sub-catchments, by 1 July 2023~~

~~III. For Priority 3 sub-catchments, by 1 July 2026~~

~~**Notification:**~~

~~Consent applications will be considered without notification, and without the need to obtain written approval of affected persons.~~[104]

[V1PC1-420]

~~3.11.5.6 Restricted Discretionary Activity Rule – The use of land for farming activities/Te Ture mō ngā kōwhiringa mahi e herea ana – te whakamahinga o te whenua mō ngā mahinga pāmu~~

~~**Rule 3.11.5.6 - Restricted Discretionary Activity Rule – The use of land for farming activities**~~

~~The use of land for farming activities that does not comply with the conditions, standard or terms of Rules 3.11.5.1 to 3.11.5.5 and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water is a restricted discretionary activity (requiring resource consent)~~

~~Waikato Regional Council restricts its discretion over the following matters:~~

~~i. Cumulative effects on water quality of the catchment of the Waikato and Waipa Rivers.~~

~~ii. The diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens.~~

~~iii. The need for and the content of a Farm Environment Plan.~~

~~iv. The term of the resource consent.~~

~~v. The monitoring, record keeping, reporting and information provision requirements for the holder of the resource consent.~~

~~vi. The time frame and circumstances under which the consent conditions may be reviewed.~~

~~vii. The matters addressed by Schedules A, B and C.~~

~~**Notification:**~~

~~Consent applications will be considered without notification, and without the need to obtain written approval of affected persons.~~

[104] Forest and Bird PC1-8208

3.11.5.6A Discretionary Activity Rule

Rule 3.11.5.6A - Discretionary Activity Rule

The use of land for farming that does not meet one or more of ~~[conditions (1) to (5a) of Rule 3.11.5.3 or]~~ conditions (1) to (6) of Rule 3.11.5.4 and any associated diffuse discharge of contaminants onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene section 15(1) of the RMA is a Discretionary activity.[105] [PC1-11054]

3.11.5.7 Non-Complying Activity Rule ~~– Land Use Change~~/Te Ture mō ngā mahi kāore e whai i ngā ture – Te Panonitanga ā-Whakamahinga Whenua

Rule 3.11.5.7 - Non-Complying Activity Rule ~~– Land Use Change~~

The use of land for farming that does not meet ~~[condition (5b) of Rule 3.11.5.3 or]~~ condition (7) of Rule 3.11.5.4 and any associated diffuse discharge of contaminants onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene section 15(1) of the RMA is a non-complying activity.[106] [PC1-11054]

~~Notwithstanding any other rule in this Plan, any of the following changes in the use of land from that which was occurring at 22 October 2016 within a property or enterprise located in the Waikato and Waipa catchments, where prior to 1 July 2026 the change exceeds a total of 4.1 hectares:~~

~~1. Woody vegetation to farming activities; or~~
~~2. Any livestock grazing other than dairy farming to dairy farming; or~~
~~3. Arable cropping to dairy farming; or~~
~~4. Any land use to commercial vegetable production except as provided for under standard and term g. of Rule 3.11.5.5 is a non-complying activity (requiring resource consent) until 1 July 2026.~~

~~**Notification:**~~

~~Consent applications will be considered without notification, and without the need to obtain written approval of affected persons, subject to the Council being satisfied that the loss of contaminants from the proposed land use will be lower than that from the existing land use.]~~[107]

~~3.11.5.8 Permitted Activity Rule – Authorised Diffuse Discharges~~

~~The diffuse discharge of nitrogen, phosphorus, sediment and or microbial contaminants from farming onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene section 15(1) of the RMA is a permitted activity, provided the following conditions are is met:~~

~~1. the land use activity associated with the discharge is authorised under Rules 3.11.5.1 to 3.11.5.7; and~~
~~2. the discharge of a contaminant is managed to ensure that after reasonable mixing it does not give rise to any of the following effects on receiving waters:~~
~~(a) any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or~~
~~(b) any conspicuous change in the colour or visual clarity; or~~
~~(c) the rendering of fresh water unsuitable for consumption by farm animals; or~~
~~(d) any significant adverse effects on aquatic life.~~[108]

~~3.11.5.9 Non-Complying Activity Rule – Unauthorised Diffuse Discharges~~

[105] Fonterra PC1-10506
[106] Fonterra V1PC1-757, Waipa DC PC1-3249, Waitomo DC PC1-10312
[107] Forest and Bird PC1-8214
[108] Ata Rangi PC1-11127, Southern Pastures Limited Partnership PC1-11070

~~The diffuse discharge of nitrogen, phosphorus, sediment and or microbial contaminants from farming onto or into land in circumstances that may result in a contaminant entering water that would otherwise contravene section 15(1) of the RMA that does not meet one or more of the conditions of Rule 3.11.5.8 is a non-complying activity.~~[109]

3.11.5.5 Controlled Activity Rule – Existing commercial vegetable production/Te Ture mō ngā Mahi ka āta Whakahaerehia – Te whakatupu hua whenua ā-arumoni o te wā nei

Rule 3.11.5.5 - Controlled Activity Rule – Existing commercial vegetable production

The use of land for commercial vegetable production and the associated diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens onto or into land in circumstances which may result in those contaminants entering water, is a permitted activity until 1 January 2020, from which date it shall be a controlled activity (requiring resource consent) subject to the following standards and terms:

a. The property is registered with the Waikato Regional Council in conformance with Schedule A; and
b. A Nitrogen Reference Point is produced for the property or enterprise in conformance with Schedule B and provided to the Waikato Regional Council at the time the resource consent application is lodged; and
c. Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C; and
d. The land use is registered to a Certified Industry Scheme; and
e. The areas of land, and their locations broken down by sub-catchments [refer to Table 3.11-2], that were used for commercial vegetable production within the property or enterprise each year in the period 1 July 2006 to 30 June 2016, together with the maximum area of land used for commercial vegetable production within that period, shall be provided to the Council; and
f. The total area of land for which consent is sought for commercial vegetable production must not exceed the maximum land area of the property or enterprise that was used for commercial vegetable production during the period 1 July 2006 to 30 June 2016; and
g. Where new land is proposed to be used for commercial vegetable production, an equivalent area of land must be removed from commercial vegetable production in order to comply with standard and term f.; and
h. A Farm Environment Plan for the property or enterprise prepared in conformance with Schedule 1 and approved by a Certified Farm Environment Planner is provided to the Waikato Regional Council at the time the resource consent application is lodged.

Matters of Control

Waikato Regional Council reserves control over the following matters:

i. The content of the Farm Environment Plan.
ii. The maximum area of land to be used for commercial vegetable production.
iii. The actions and timeframes for undertaking mitigation actions that maintain or reduce the diffuse discharge of nitrogen, phosphorus or sediment to water or to land where those contaminants may enter water, including provisions to manage the effects of land being retired from commercial vegetable production and provisions to achieve Policy 3(d).
iv. The actions and timeframes to ensure that the diffuse discharge of nitrogen does not increase beyond the Nitrogen Reference Point for the property or enterprise.
v. The term of the resource consent.
vi. The monitoring, record keeping, reporting and information provision requirements for the holder of the resource consent to demonstrate and/or monitor compliance with the Farm Environment Plan.
vii. The time frame and circumstances under which the consent conditions may be reviewed.
viii. Procedures for reviewing, amending and re-certifying the Farm Environment Plan.

Notification:

Consent applications will be considered without notification, and without the need to obtain written approval of affected persons.

Advisory note: Under section 20A(2) of the RMA a consent must be applied for within 6 months of 1 January 2020, namely by 1 July 2020.

[109] Ata Rangi PC1-11127, Southern Pastures Limited Partnership PC1-11070

Schedule A - Registration with Waikato Regional Council/Te Āpitihanga A – Te rēhita me te Kaunihera ā-Rohe o Waikato

The purpose of this schedule is to provide baseline information on land use activities in the Waikato and Waipā Catchments as they were at 22 October 2016 [PC1-11060].

Properties with an area greater than ~~2 hectares~~ 4.1 hectares[110] (excluding urban properties) must be registered with the Waikato Regional Council in the following manner:

1. Registration must occur between ~~1 September 2018~~ ~~1 May 2020~~ and ~~31 March 2019~~ by 30 November 2020.
2. Registration information set out in clause 5, and where relevant in clause 6, below must be provided.
3. Proof of registration must be provided to the Waikato Regional Council within 7 working days of a request by ~~to the~~ Waikato Regional Council being made (unless otherwise agreed in writing by Council) ~~if requested by the Council~~.[111]
4. Registration information must be updated by the new owner of a property within 30 working days of the new owner taking possession of the property, or otherwise at the request of the Waikato Regional Council.
5. All ~~property~~ owners must provide:
    a. The following information in respect of the current and any previous ~~land~~ property[112] owner as at 22 October 2016, if different, and the person responsible for using the land (if different from the ~~land~~ property owner):
        i. Full name.
        ii. Trading name (if applicable, where the owner is a company or other entity).
        iii. Full postal and email address.
        iv. Telephone contact details.
    b. Legal description ~~of the property as per the~~ and certificate(s) of title references (computer freehold registers) for all of the land in the property as at 22 October 2016.[113]
    c. Physical address of the property as at 22 October 2016.
    d. A description of the land use activity or activities undertaken on the property as at 22 October 2016, including the land area of each activity.
    e. The total land area of the property as at 22 October 2016 .
    f. Where the land is used for grazing, and no NRP is required under this Plan,[114] the annual average and maximum[115] stocking rate of animals grazed on the land as at 22 October 2016.
    g. If the property forms part of an enterprise as at 22 October 2016, the name of that enterprise.[116]
6. Properties that graze livestock as at 22 October 2016 must also provide a map showing~~:~~
~~a. The~~ the location of:
        i. Property boundaries; and
        ii. Water bodies listed in Schedule C for stock exclusion within the property boundary and fences adjacent to those water bodies; and
        iii. Livestock crossing points over those water bodies and a description of any livestock crossing structures.

[110] WRC PC1-3536
[111] WRC PC1-3536
[112] WRC PC1-3536
[113] Waipa DC PC1-3225
[114] WRC V1PC1-216
[115] J Liefting PC1-7166
[116] Waipa DC PC1-3225

Schedule B - Nitrogen Reference Point/Te Āpitihanga B – Te tohu ā-hauota

A property or enterprise with a cumulative area greater than 20 hectares (or any property or enterprise used for commercial vegetable production) must have a Nitrogen Reference Point calculated as follows:

a. The Nitrogen Reference Point must be calculated by a Certified Farm Nutrient Advisor ~~to determine~~by modelling the amount of nitrogen being leached from the property or enterprise during the relevant reference period specified in clause f), except for any land use ~~change~~ approved under Rules 3.11.5.6 or 3.11.5.7 where the Nitrogen Reference Point shall be determined through the Rule 3.11.5.6 or 3.11.5.7 consent process.

b. The Nitrogen Reference Point shall be the highest modelled annual nitrogen leaching loss that occurred during a single year (being 12 consecutive months) within the reference period specified in clause f), except for commercial vegetable production in which case the Nitrogen Reference Point shall be the average annual nitrogen leaching loss during the reference period.

c. The Nitrogen Reference Point must be calculated using the ~~current~~ most recent version of the OVERSEER® Model as the default model (~~or any~~ other models may be approved for use by the Chief Executive of the Waikato Regional Council, if justified on a case by case basis). The Nitrogen Reference Point must be updated using the initial reference data whenever a new version of the OVERSEER® Model, or any other approved model used to prepare the Nitrogen Reference Point, is released.

d. The Nitrogen Reference Point data shall comprise the data used by ~~electronic output file from~~ the OVERSEER® or other approved model to calculate the Nitrogen Reference Point, and where the OVERSEER® Model is used, it must be calculated using the OVERSEER® Best Practice Data Input Standards ~~2016~~ or replacement technical guidance that relate to the version of the OVERSEER® model being used, with the exceptions and inclusions set out in ~~Schedule B Table 1~~ a Waikato Regional Council Nitrogen Reference Point Guide. Where another approved model is used, it will conform to the data input standards as approved by the Chief Executive of the Waikato Regional Council.

e. The Nitrogen Reference Point Analysis (inputs and outputs) ~~and the Nitrogen Reference Point data~~ must be ~~provided~~ published to Waikato Regional Council within the period ~~1 September 2018~~ ~~1 May 2020~~ and ~~31 March 2019~~ by 30 November 2020.

f. The Nitrogen Reference Period ~~reference period~~ is ~~the two financial years covering~~ 1 July 2014~~/2015 and 2015/~~ to 30 June 2016, except for commercial vegetable production in which case the reference period is 1 July 2006 to 30 June 2016.

g. The following records (where relevant to the ~~land use undertaken on the property or enterprise~~ calculation and compliance auditing of the Nitrogen Reference Point) must be retained for the life of the plan and/or relevant consent, whichever is longer, and provided to Waikato Regional Council at its request:
   i. ~~Stock numbers as recorded in annual accounts together with stock sale and purchase invoices~~Records of stock numbers and stock classes, births and deaths, stock movements on and off the property, grazing records and transport records;
   ii. ~~Dairy production data~~Total annual milk solids as stated in the milk supply statement;
   iii. ~~Invoices for fertiliser applied to the land~~Records of fertiliser type and amount, including annual accounts, and any records of fertiliser application rates and placement;
   iv. Quantity and type of ~~Invoices for~~ feed supplements ~~sold or~~ purchased and used on the property;
   v. Water use records for irrigation (to be averaged over 3 years or longer) in order to determine irrigation application rates (mm/ha/month per irrigated block) and areas irrigated;
   vi. Crops grown on the ~~land~~ property (area and yield), quantities of each crop consumed on the property, and quantities sold off farm; and
   vii. Horticulture crop diaries and NZGAP records; and
   viii. The Nitrogen Reference Point Data as defined in Schedule B clause d; and
   ix. Soil test data – including anion storage capacity; and
   x. A map which shows property boundaries, block management areas, retired/non-productive areas and areas used for effluent irrigation.

Advice note: For the avoidance of doubt, financial information contained within the above records may be redacted (blacked out) prior to it being provided to Waikato Regional Council.

~~Table 1: Data input methodology for ensuring consistency of Nitrogen Reference Point data using the OVERSEER® Model~~[117]

~~OVERSEER® Parameter~~	~~Setting that must be used~~	~~Explanatory note~~
~~Farm model~~ ~~Pastoral and horticulture~~	~~To cover the entire enterprise including riparian, retired, forestry, and yards and races.~~ ~~The model is to include non-contiguous properties that are part of~~	~~To capture the "whole farm" in one Overseer® file, where possible, to truly represent nitrogen losses from farm in the catchment area.~~

[117] Ballance PC1-6570, FANZ PC1-10642, Beef and Lamb PC1-11506, Fonterra PC1-10517

	the enterprise that are in the same sub-catchment. If the farm (for example where dairy animals are grazed or wintered) is part of another farming business such as a drystock farm, the losses from those animals will be represented in the drystock farm's Overseer model.	
Location Pastoral and horticulture	Select Waikato Region	This setting has an effect on climate settings and some animal characteristics and is required to ensure consistency.
Animal distribution – relative productivity pastoral only	Use "no differences between blocks" with the following exceptions: • Grazed pines or other woody vegetation. In this case use "Relative yield" and set the grazed pine blocks to 0.4 (40%). • Where the farm has a mixture of irrigated and non irrigated areas. In this case use "Relative yield" and set the irrigated area to 1 (100%), and the non irrigated areas to 0.75 (75%).	
Wetlands	Entered as Riparian Blocks	As per the 2016 OVERSEER® Best Practice Data Input Standards.
Stock number entry	Based on specific stock numbers only	To ensure consistency and accuracy of stock number inputs.
Animal weights	Only use OVERSEER® defaults – do not enter in weights and use the age at start setting where available (national averages).	Accurate animal weights are difficult to obtain and prove.
Block climate data	Only use the Climate Station tool For contiguous blocks use the coordinates from the location of the dairy shed or the middle of the farm area (for non-dairy). For non-contiguous blocks use individual blocks' climate station coordinates.	
Soil description	Use Soil Order – obtained from S-Map or where S-Map is unavailable from LRI 1:50,000 data or a soil map of the farm.	To ensure consistency between areas of the region that have S-Map data and those that don't.
Missing data	In the absence of Nitrogen Referencing information being provided the Waikato Regional Council will use appropriate default numbers for any necessary inputs to the OVERSEER® model (such default numbers will generally be around 75% of normal Freshwater Management Unit^ average values for those inputs).	Some farms will not be able to supply data, therefore a default must be established.

Schedule C - Stock exclusion/Te Āpitihanga C – Te aukatinga o ngā kararehe

Except as provided by Exclusions I. ~~and II.~~ and III, cattle, horses, deer and pigs ~~stock~~[118] must be excluded from the water bodies listed in 6. ~~i. to iv.~~ below as follows:

1. The water bodies ~~on~~ adjacent to land with a slope of up to X degrees[119] must be fenced to exclude cattle, horses, deer and pigs, unless those animals are prevented from entering the bed of the water body by a stock proof natural or constructed[120] barrier formed by topography or vegetation.

   Advice note: Clause 1 does not authorise the construction of fences or other barriers in the bed of a river or lake, or in a wetland.

2. New temporary, permanent or virtual[121] fences installed after 22 October 2016 must be located to ensure cattle, horses, deer and pigs will be excluded from the bed of the water body. The fences must be located at a distance of not less than ~~cannot be within one metre of the water body (excluding constructed wetlands).~~
   ~~a. 1 metre from the outer edge of the bed for land with a slope of less than 15 degrees; and~~
   ~~b. 3 metres from the outer edge of the bed for land with a slope between 15 and 25 degrees; and~~
   c. 10 metres from the outer edge of the bed ~~for~~ artificial or modified watercourses that are the full responsibility of a territorial authority or Waikato Regional Council for maintenance purposes.[122]
   d. 20m from the edge of the bed for all lakes for all stock listed above as well as sheep and goats;
   e. 10 metres from the edge of the bed for all permanent rivers and streams;
   f. 5 metres from the edge of the bed for all intermittent/ephemeral rivers and streams;
   g. 20 metres from the edge of the bed for all waterbodies where large galaxids including īnanga are known or predicted to spawn for all stock listed above as well as sheep and goats;
   h. 10m from the edge of the bed of all natural wetlands for all stock listed above as well as sheep and goats;
   i. The provision for minimum setbacks of 10m from the edge of bed of natural wetlands for the following activities:
      (a) Fertiliser application
      (b) Effluent discharge
      (c) Drain construction or enhancement.

3. ~~Livestock~~ Cattle, horses, deer and pigs[123] must not ~~be permitted to~~[124] enter onto or pass across the bed of the water body, except when using a livestock crossing structure [OPTION TO ADD or when they are being supervised and actively driven across a water body in one continuous movement provided no more than one crossing per week occurs].

   Advice note: Clause 3 does not authorise the construction of stock crossing structures in the bed of a river or lake, or in a wetland.[125]

4. For land use authorised under Rules 3.11.5.1 or 3.11.5.2, clauses 1 and 2 must be complied with:
   a. By 1 July 2023 for properties and enterprises within Priority 1 sub-catchments listed in Table 3.11-2.
   b. By 1 July 2026 for properties and enterprises within Priority 2 and Priority 3 sub-catchments listed in Table 3.11-2.
5. For land use authorised under Rules [3.11.5.3,] 3.11.5.4 or 3.11.5.5, clauses 1 and 2 must be complied with by the date and in the manner specified in the property's or enterprise's Farm Environment Plan, which shall be within 3 years following the dates by which a Farm Environment Plan must be provided to the Council, or in any case no later than 1 July 2026.
6. Water bodies from which cattle, horses, deer and pigs must be excluded:
   a. The bed of any river (including any stream and modified river or stream) or artificial watercourse that is permanently or intermittently flowing ~~[OPTION TO ADD and where the bed is predominantly unvegetated and comprises exposed fine sediment, sand, gravel, boulders or similar material or aquatic vegetation]~~; and
   b. The bed of any lake; and
   c. Any wetland, including a constructed wetland.
   ~~i. Any river that continually contains surface water.~~
   ~~ii. Any drain that continually contains surface water.~~

[118] Dairy Goat Co-Operative (N.Z) Ltd PC1-4135
[119] Beef and Lamb PC1-11507
[120] Fish and Game PC1-11022
[121] Ashby, J L and R J V1PC1-879, Beef and Lamb V1PC1-1724
[122] Cl. 16 to ensure consistency with Rule 4.2.18.1 of the WRP
[123] Dairy Goat Co-Operative (N.Z) Ltd PC1-4135, A and S Dudin PC1-4910, A and M Goddard PC1-2341
[124] Fonterra V1PC1-757, Waipa DC PC1-3249, Waitomo DC PC1-10312
[125] Beef and Lamb PC1-11507

~~iii. Any wetland, including a constructed wetland.~~
~~iv. Any lake.~~[126]

Exclusions:
The following situations are excluded from clauses 1, 2 and ~~2~~3:

I. Where the entry onto or passing across the bed of the water body is by horses that are being ridden or led.

~~II. Where the entry onto or passing across the bed of the water body is by a feral animal.~~[127]

III. Constructed ponds or constructed wetlands in which deer or pigs wallow that are located at least 10m away from the bed of a water body and which are not connected by an overland flow path to a water body.

[PC1-11055]

[126] DoC PC1-11055
[127] G Kilgour PC1-1923, A McGovern PC1-8327, Waipapa Farms Ltd and Carlyle Holdings Ltd PC1-4716

Schedule 1 - Requirements for Farm Environment Plans/Te Āpitihanga 1: Ngā Herenga i ngā Mahere Taiao ā-Pāmu

A Farm Environment Plan shall be prepared in accordance with the requirements of A below. The Farm Environment Plan shall be certified as meeting the requirements of A by a Certified Farm Environment Planner.

The outcome of any Farm Environment Plan is to manage land use activities in a way that reduces the diffuse discharge of contaminants from farming activities. To achieve this, a Farm Environment Plan shall clearly ~~shall~~ identify all sources of contaminants ~~sediment, nitrogen, phosphorus and microbial pathogens~~, and identify the risk of those discharges entering streams, rivers, lakes and wetlands, the actions necessary to addresses the identified risks, and timeframes for those actions to be completed~~, in order to reduce the diffuse discharges of these contaminants.~~

The Farm Environment Plan must clearly identify how specified minimum standards will be complied with.

The requirements set out in A apply to all Farm Environment Plans, including those prepared within a Certified Industry Scheme.

This schedule applies to all farming activities, but it is acknowledged that some provisions will not be relevant to every farming activity.

B. Farm Environment Plans shall contain as a minimum:

1. The property or enterprise details:

   (a) Full name, address and contact details (including email addresses and telephone numbers) of the person responsible for the property or enterprise.

   (b) Trading name (if applicable, where the owner is a company or other entity).

   (c) A list of land parcels which constitute the property or enterprise:

      i. the physical address and ownership of each parcel of land (if different from the person responsible for the property or enterprise) and any relevant farm identifiers such as the dairy supply number, Agribase identification number, valuation reference; and
      ii. The legal description of each parcel of land.

2. An assessment of the risk of diffuse discharge of ~~sediment, nitrogen, phosphorus and microbial pathogens~~ contaminants associated with the farming activities on the property discharging into any stream, river, lake or wetland, including both permanent and intermittent, and the priority of those identified risks, having regard to sub-catchment targets in Table 3.11-1 and the priority of lakes within the sub-catchment. As a minimum, the risk assessment shall include (where relevant to the particular land use):

   (a) A description of where and how stock shall be excluded from water bodies for stock exclusion including:

      i. the provision of fencing and livestock crossing structures to achieve compliance with Schedule C; and
      ii. for areas with a slope exceeding 25o and where stream fencing is impracticable, the provision of alternative mitigation measures.

   (b) A description of setbacks and riparian management, including:

      i. The management of water body margins including how damage to the bed and margins of water bodies, and the direct input of contaminants will be avoided, and how riparian margin settling and filtering will be provided for; and
      ii. Where practicable the provision of minimum grazing setbacks from water bodies for stock exclusion of 1 metre for land with a slope of less than 15° and 3 metres for land with a slope between 15° and 25°; and
      iii. The provision of minimum cultivation setbacks ~~of 5 metres~~as follows:
         (a) 20m from the edge of the bed for all lakes for cattle, horses, deer, pigs, sheep and goats;
         (b) 10 metres from the edge of the bed for all permanent rivers and streams
         (c) 5 metres from the edge of the bed for all intermittent/ephemeral rivers and streams
         (d) 20 metres from the edge of the bed for all waterbodies where large galaxids including īnanga are known or predicted to spawn for all lakes for cattle, horses, deer, pigs, sheep and goats;
         (e) 10m from the edge of the bed of all natural wetlands for all lakes for cattle, horses, deer, pigs, sheep and goats;

iv. The provision for minimum setbacks of 10m from the edge of bed of natural wetlands for the following activities:
   (a) Fertiliser application
   (b) Effluent discharge
   (c) Drain construction or enhancement.

(c) A description of the critical source areas from which contaminants ~~sediment, nitrogen, phosphorus and microbial pathogens~~ are lost into stream, rivers, lakes and wetlands, including:

i. the identification of intermittent waterways, overland flow paths and areas prone to flooding and ponding, and an assessment of opportunities to minimise losses from these areas through appropriate stocking policy, stock exclusion and/or measures to detain floodwaters and settle out or otherwise remove contaminants ~~sediment, nitrogen, phosphorus and microbial pathogens~~ (e.g. detention bunds, sediment traps, ~~natural~~ and constructed wetlands); and

ii. the identification of actively eroding areas, erosion prone areas, and areas of bare soil and appropriate measures for erosion and sediment control and re-vegetation; and

iii. an assessment of the risk of diffuse discharge of contaminants ~~sediment, nitrogen, phosphorus and microbial pathogens~~ from tracks and races and livestock crossing structures to waterways, and the identification of appropriate measures to minimise these discharges (e.g. cut-off drains, and shaping); and

iv. the identification of areas where effluent accumulates including yards, races, livestock crossing structures, underpasses, stock camps, and feed-out areas, and appropriate measures to minimise the risk of diffuse discharges of contaminants from these areas to groundwater or surface water; and

v. the identification of other 'hotspots' such as fertiliser, silage, compost, or effluent storage facilities, wash-water facilities, offal or refuse disposal pits, and feeding or stock holding areas, and the appropriate measures to minimise the risk of diffuse discharges of contaminants from these areas to groundwater or surface water.

(d) An assessment of appropriate land use and grazing management for specific areas on the farm in order to maintain and improve the physical and biological condition of soils and minimise the diffuse discharge of contaminants ~~sediment, nitrogen, phosphorus and microbial pathogens~~ to water bodies, including:

i. matching land use to land capability; and

ii. identifying areas not suitable for grazing; and

iii. stocking policy to maintain soil condition and pasture cover; and

iv. the appropriate location and management of winter forage crops; and

v. suitable management practices for strip grazing.

(e) A description of nutrient management practices including a nutrient budget for the farm enterprise calculated using the model OVERSEER® in accordance with the OVERSEER® use protocols, or using any other model or method approved by the Chief Executive Officer of Waikato Regional Council.

(f) A description of cultivation management, including:

i. The identification of slopes over 15 o and how cultivation on them will be avoided; unless contaminant discharges to water bodies from that cultivation can be avoided; and
ii. How the adverse effects of cultivation on slopes of less than 15° will be mitigated through appropriate erosion and sediment controls for each paddock that will be cultivated including by:

   (a) assessing where overland flows enters and exits the paddock in rainfall events; and
   (b) identifying appropriate measures to divert overland flows from entering the cultivated paddock; and
   (c) identifying measures to trap sediment leaving the cultivated paddock in overland flows; and
   (d) maintaining appropriate buffers between cultivated areas and water bodies (minimum 5m setback).
   (e) A description of collected animal effluent management including how the risks associated with the operation of effluent systems will be managed to minimise contaminant discharges to groundwater or surface water.

(f) A description of freshwater irrigation management including how contaminant loss arising from the irrigation system to groundwater or surface water will be minimised.

(g) The identification of any man-made drainage channels that can and will be retired and restored to their pre-excavated state.

(h) The identification of mitigation strategies and actions to reduce the amount of contaminants entering natural wetlands.

3. A spatial risk map(s) at a scale that clearly shows:

(a) The boundaries of the property; and

(b) The locations of the main land uses[128] that occur on the property; and

(c) The locations of existing and future mitigation actions to manage contaminant diffuse discharges; and

(d) Any relevant internal property boundaries that relate to risks and mitigation actions described in this plan; and

(e) The location of continually flowing rivers, streams, and drains and permanent lakes, ponds and wetlands; and

(f) The location of any emphemeral wetlands; and

(g) The location of riparian vegetation and fences adjacent to water bodies; and

(h) The location of critical source areas for contaminants, as identified in 2 (c) above.

4. A description of the actions that will be undertaken in response to the risks identified in the risk assessment in 2 above (having regard to their relative priority) as well as where the mandatory time-bound actions will be undertaken, and when and to what standard they will be completed. This should include any mitigation strategies and actions to promote the reduction of contaminants entering natural wetlands.

5. A description of the following:

(a) Actions, timeframes and other measures to ensure that the diffuse discharge of nitrogen from the property or enterprise, as measured by the five-year rolling average annual nitrogen loss as determined by the use of the current version of OVERSEER®, does not increase beyond the property or enterprise's Nitrogen Reference Point, unless other suitable mitigations are specified; or

(b) Where the Nitrogen Reference Point exceeds the 75th percentile nitrogen leaching value, actions, timeframes and other measures to ensure the diffuse discharge of nitrogen is reduced so that it does not exceed the 75th percentile nitrogen leaching value by 1 July 2026, except in the case of Rule 3.11.5.5.

Vegetable growing minimum standards

Farm environment plans required under Rule 3.11.5.5 shall, in addition to the matters set out above, ensure the following matters are addressed.

No	Contaminant	Vegetable growing minimum standards
1	Nitrogen, Phosphorus	Annual soil testing regime, fertiliser recommendations by block and by crop
2	Nitrogen, Phosphorus	Tailored fertiliser plans by block and by crop
3	Nitrogen, Phosphorus	Both (1) and (2) prepared by an appropriately qualified person
4	Nitrogen, Phosphorus	Annual calibration of fertiliser delivering systems through an approved programme such as Spreadmark/Fertspread
5	Soil/Phosphorus	As a minimum by block: an approved erosion and sediment control plan constructed in accordance with the Erosion and Sediment Control Guidelines for Vegetable Production June 2014
6	Nitrogen, Phosphorus	Documentation available for proof of fertiliser placement according to recommended instruction

[128] For dairy farms this might be the OVERSEER® blocks, for drystock farms this might be Land Use Capability blocks.

7	Nitrogen, Phosphorus	Adoption and use of improved fertiliser products proved effective and available such as formulated prills, coatings and slow release mechanisms
8	Nitrogen, Phosphorus	Evidence available to demonstrate split applications by block/crop following expert approved practice relating to: o form of fertiliser applied o rate of application o placement of fertiliser o timing of application

[PC1-10647], [PC1-12394] [PC1-11055]

Schedule 2 - Certification of ~~Industry~~ Sector Schemes/Te Āpitihanga 2 – Te whakamana i ngā tohu o ngā Kaupapa Ahumahi

The purpose of this schedule is to set out the minimum standards for Certified Sector Schemes. ~~criteria against which applications to approve an industry scheme will be assessed.~~

~~The application~~ Applications for approval as a Certified Sector Scheme shall be lodged with the Waikato Regional Council, and ~~shall~~ include information that demonstrates how the following ~~requirements~~ standards are met. The Waikato Regional Council may request further information or clarification on the application as it sees fit.

Approval will be at the discretion of the Chief Executive Officer of the Waikato Regional Council subject to the Chief Executive Officer being satisfied that the scheme will meet the standards set out in sections A to D below ~~effectively deliver on the assessment criteria~~.

~~**Assessment Criteria**~~

~~A. Certified Industry Scheme System~~

~~The application must demonstrate that the Certified Industry Scheme:~~
~~1. Is consistent with:~~
~~(a) the achievement of the water quality targets referred to in Objective 3; and~~
~~(b) the purposes of Policy 2 or 3; and~~
~~(c) the requirements of Rules 3.11.5.3 and 3.11.5.5.~~
~~2. Has an appropriate ownership structure, governance arrangements and management.~~
~~3. Has documented systems, processes, and procedures to ensure:~~
~~(a) Competent and consistent performance in Farm Environment Plan preparation and audit.~~
~~(b) Effective internal monitoring of performance.~~
~~(c) Robust data management.~~
~~(d) Timely provision of suitable quality data to Waikato Regional Council.~~
~~(e) Timely and appropriate reporting.~~
~~(f) Corrective actions will be implemented and escalated where required, including escalation to Waikato Regional Council if internal escalation is not successful.~~
~~(g) Internal quality control.~~
~~(h) The responsibilities of all parties to the Certified Industry Scheme are clearly stated.~~
~~(i) An accurate and up to date register of scheme membership is maintained.~~
~~(j) Transparency and public accountability of Certified Industry Schemes~~
~~(k) The articles of the scheme are available for public viewing.~~

~~B. People~~

~~The application must demonstrate that:~~
~~1. Those generating and auditing Farm Environment Plans are suitably qualified and experienced.~~
~~2. Auditing of Farm Environment plan requirements is independent of the Farm Environment Plan preparation and approval.~~

~~C. Farm Environment Plans~~

~~The application must demonstrate that Farm Environment Plans are prepared in conformance with Schedule 1.~~

A. Governance and management

Applications must include:

1. A description of the governance arrangements of the Scheme;
2. The contractual arrangements between the Scheme and its members;
3. A description of the process for gaining and ceasing membership;
4. A description of the Scheme area, including land uses, key environmental issues, property boundaries and ownership details of members' properties;
5. A procedure for keeping records of the matters in (4) above and advising WRC of changes;
6. A draft contractual agreement with the Waikato Regional Council that will require the Scheme, on certification, to meet and maintain the standards outlined in Section A to D below.

B. Preparation of Farm Environment Plans

Applications must include:

1. A statement of the Scheme's capability and capacity for preparing and certifying Farm Environment Plans that meet the requirements of Schedule 1, including the qualifications and experience of any personnel employed by or otherwise contracted to the Scheme to prepare or certify Farm Environment Plans;
2. An outline of timeframes for developing Farm Environment Plans for its members.

C. Implementation of Farm Environment Plans

Applications must include:

1. A statement of the Scheme's capability and capacity for monitoring and assessing the implementation of Farm Environment Plans, including the qualifications and experience of any personnel employed by or otherwise contracted to the Scheme to monitor or assess implementation of Farm Environment Plans;
2. A description of the expectations and agreements around landowner and property record-keeping;
3. A strategy for identifying and managing poor performance in implementing Farm Environment Plans.

D. Audit

Applications must include a description of an annual audit process to be conducted by an independent body, including:

1. A process for assessing performance against agreed actions in Farm Environment Plans at an individual property level;
2. A statement of how audit results will be shared with the Scheme's members and the wider community;
3. A process for assessing the performance of any personnel employed by or otherwise contracted to the Scheme to prepare, certify, and audit the implementation of Farm Environment Plans.

A summary audit report must be submitted to the Waikato Regional Council annually.[129]

[129] Fonterra PC1-10561, Ata Rangi PC1-6244, DOC PC1-10648, Southern Pastures Limited Partnership PC1-11197

3.11.1 List of Tables and Maps/Te Rārangi o ngā Ripanga me ngā Mahere

Table 3.11-1: Short term water quality limits and targets and long term numerical ~~desired~~ water quality limits and targets ~~states~~[130] ~~targets~~ for the **rivers and streams in the** Waikato and Waipa River catchments/Ngā whāinga ā-tau taupoto, tauroa hoki mō te kounga wai i te riu o ngā awa o Waikato me Waipā [Consquential amendment]

Table 3.11-2 List of sub-catchments showing Priority 1, Priority 2, and Priority 3 sub-catchments/Te rārangi o ngā riu kōawaawa e whakaatu ana i te riu kōawaawa i te Taumata 1, i te Taumata 2, me te Taumata 3

Map 3.11-1: Map of the Waikato and Waipa River catchments, showing Freshwater Management Units

Map 3.11-2: Map of the Waikato and Waipa River catchments, showing sub-catchments

Table 3.11-1: Short term water quality limits and targets and long term numerical ~~desired~~ water quality ~~states~~ limits and targets ~~targets~~ for the rivers and streams in the Waikato and Waipa River catchments/Ngā whāinga ā-tau taupoto, tauroa hoki mō te kounga wai i te riu o ngā awa o Waikato me Waipā [Consquential amendment]

Within the rivers and streams in the Waikato and Waipa River catchments, excluding those rivers and streams within Lake FMU catchments, these limits and targets ~~and desired water quality states~~ are used in decision-making processes guided by the objectives in Chapter 3.11 and for future monitoring of changes in the state of water quality within the catchments. With regard to consent applications for diffuse discharges or point source discharges of contaminants ~~sediment, nitrogen, phosphorus and microbial pathogens~~, it is not intended, nor is it in the nature of water quality targets and the desired water quality states[131], that they be used directly as receiving water compliance limits/standards. Reference should also be made to Method 3.2.4.1. [Consquential amendment]

~~**Explanatory note to Table 3.11-1**~~

~~The tables set out the concentrations (all attributes except clarity) or visibility distance (clarity attribute) to be maintained or achieved by actions taken in the short term and at over 80 years for rivers and tributaries, and at 80 years for lakes FMUs. Where water quality is currently high (based on 2010-2014 monitoring data), the short term targets and 80 year desired water quality states targets will be the same as the current state and there is to be no decline in quality (that is, no increase in attribute concentration or decrease in clarity). Where water quality needs to improve, the water quality states values to be achieved at a site indicate a short term and long term reduction in concentration or increase in clarity compared to the current state.~~

~~For example, at Otamakokore Stream, Upper Waikato River FMU:~~

- ~~the current state value for median nitrate is 0.740 mgNO3-N/L. The short term targets and 80 year desired water quality states targets are set at 0.740 mgNO3-N/Lto reflect that there is to be no decline in water quality~~
- ~~the current state value for E.coli is 696 E.coli/100ml. The 80 year desired water quality state target is set at 540 E.coli/100ml and the short term target is set at 10% of the difference between the current state value and the 80 year desired water quality state target[132].~~

~~The achievement of the attribute targets in Table 3.11-1 will be determined through analysis of 5-yearly monitoring data. The variability in water quality (such as due to seasonal and climatic events) and the variable response times of the system to implementation of mitigations may mean that the targets are not observed for every attribute at all sites in the short term.~~

~~The effect of some contaminants (particularly nitrogen) discharged from land has not yet been seen in the water. This means that in addition to reducing discharges from current use and activities, further reductions will be required to address the load to come that will contribute to nitrogen loads in the water. There are time lags between contaminants discharged from land uses and the effect in the water. For nitrogen in the Upper Waikato River particularly, this is because of the time taken for nitrogen to travel through the soil profile into groundwater and then eventually into the rivers. This means that there is some nitrogen leached from land use change that occurred decades ago that has entered groundwater, but has not yet entered the Waikato River. In some places, water quality (in terms of nitrogen) will deteriorate before it gets better. Phosphorus, sediment and microbial pathogens and diffuse discharges from land have shorter lag times, as they reach water from overland flow. However, there will be some time lags for actions taken to address these contaminants to be effective (for example tree planting for erosion control).~~ [Consquential amendment]

[130] GBC Winstone PC1-3627
[131] GBC Winstone PC1-3627
[132] All recommended amendments to the Explanatory Note: GBC Winstone PC1-3627

Table 3.11-1: Upper Waikato River Freshwater Management Unit [V1PC1-1006]																					
			Attributes																		
Catchment number	Protection priority (P) or fish (F) ranking	Site	Annual Median Chlorophyll a (mg/m^3)		Annual Maximum Chlorophyll a (mg/m^3)		Annual Median Total Nitrogen (mg/m^3)		Annual Median Total Phosphorus (mg/m^3)		Annual Median Nitrate (mg NO_3-N/L)		Annual 95th percentile Nitrate (mg NO_3-N/L)		Annual Median Ammonia[1] (mg NH_4-N/L)		Annual Maximum Ammonia[1] (mg NH_4-N/L)		~~95th percentile~~ *E. coli* (*E. coli*/100mL) NOF Band		Clarity (m)[2]	
			short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
73		Waikato River Ohaaki Br	1.5	1.5	13	13	134	134	10	10	0.039	0.039	0.062	0.062	0.002	0.002	0.013	0.013	~~70~~ C	~~70~~ B	3.8	3.8
66		Waikato River Ohakuri Tailrace Br	3.2	3.2	11	11	206	160	17	17	0.084	0.084	0.172	0.172	0.003	0.003	0.017	0.017	~~15~~ C	~~15~~ B	3.4	3.4
67		Waikato River Whakamaru Tailrace		5		25	260	160	20	20	0.101	0.101	0.230	0.230	0.003	0.003	0.010	0.010	~~60~~ C	~~60~~ B	2.0	3.0
64		Waikato River Waipapa Tailrace	4.1	4.1	25	25	318	160	25	20	0.164	0.164	0.320	0.320	0.007	0.007	0.017	0.017	~~162~~ C	~~162~~ B	2.0	3.0
74		Pueto Stm Broadlands Rd Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.450	0.450	0.530	0.530	0.003	0.003	0.009	0.009	~~92~~ C	~~92~~ B	1.8	3.0

72		Torepatutahi Stm Vaile Rd Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.500	0.500	0.800	0.800	0.002	0.002	0.011	0.011	216C	216B	1.0	1.6
65		Waiotapu Stm Homestead Rd Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.257	1.0	1.563	1.5	0.112	0.03	0.176	0.05	281C	281B	1.0	1.6
69		Mangakara Stm (Reporoa) SH5	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.270	1.0	1.590	1.5	0.008	0.008	0.062	0.05	1584C	540B	0.9	1.0
62		Kawaunui Stm SH5 Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	2.580	2.4	2.850	1.5	0.006	0.006	0.079	0.05	2335C	540B	1.4	1.6
58		Waiotapu Stm Campbell Rd Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.915	0.915	1.100	1.100	0.291	0.24	0.315	0.05	18C	18B	1.2	1.6
59		Otamakokore Stm Hossack Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.740	0.740	1.190	1.190	0.006	0.006	0.024	0.024	680C	540B	1.2	1.6
56		Whirinaki Stm Corbett Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.770	0.770	0.870	0.870	0.002	0.002	0.012	0.012	98C	98B	2.7	3.0
54		Tahunaatara Stm Ohakuri Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.555	0.555	0.830	0.830	0.003	0.003	0.015	0.015	783C	540B	1.3	1.6
57		Mangaharakeke Stm SH30 (Off Jct SH1)	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.525	0.525	0.750	0.750	0.003	0.003	0.015	0.015	684C	540B	1.1	1.6
70		Waipapa Stm (Mokai) Tirohanga Rd Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.189	1.0	1.500	1.5	0.003	0.003	0.005	0.005	1147C	540B	1.2	1.6
71	P	Mangakino Stm Sandel Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.650	0.650	0.860	0.860	0.003	0.003	0.012	0.012	251C	251B	1.8	3.0

49		**Whakauru Stm SH1 Br**	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.260	0.260	0.450	0.450	0.003	0.003	0.033	0.033	~~2106~~ C	~~540~~ B	0.8	1.0
48		**Mangamingi Stm Paraonui Rd Br**	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	2.760	2.4	3.12	1.5	0.091	0.03	0.296	0.05	~~2151~~ C	~~540~~ B	0.8	1.0
45		**Pokaiwhenua Stm Arapuni - Putaruru Rd**	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.680	1.0	2.040	1.5	0.002	0.002	0.020	0.020	~~1363~~ C	~~540~~ B	1.3	1.6
44		**Little Waipa Stm Arapuni - Putaruru Rd**	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.522	1.0	2.040	1.5	0.002	0.002	0.085	0.05	~~1377~~ C	~~540~~ B	1.5	1.6

[1] The annual median and annual maximum ammonia have been adjusted for pH

[2] Median black disc horizontal sighting range under baseflow conditions

[3] Attribute is not applicable to the sub-catchment

Table 3.11-1: Middle Waikato River Freshwater Management Unit [V1PC1-1006]

Catchment number	Protection priority (P) or fish (F) ranking	Site	Attributes																			
			Annual Median Chlorophyll a (mg/m³)		Annual Maximum Chlorophyll a (mg/m³)		Annual Median Total Nitrogen (mg/m³)		Annual Median Total Phosphorus (mg/m³)		Annual Median Nitrate (mg NO_3-N/L)		Annual 95th percentile Nitrate (mg NO_3-N/L)		Annual Median Ammonia[1] (mg NH_4-N/L)		Annual Maximum Ammonia[1] (mg NH_4-N/L)		~~95th percentile~~ *E. coli* (*E. coli*/100mL) NOF Band		Clarity (m)[2]	
			short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
33	P	Waikato River Narrows Boat Ramp	5.5	5	23	23	404	350	28	20	0.235	0.235	0.500	0.500	0.009	0.009	0.018	0.018	~~340~~ C	~~260~~ B	1.7	1.7
25	P	Waikato River Horotiu Br	6.1	5	23	23	432	350	34	20	0.260	0.260	0.530	0.530	0.007	0.007	0.029	0.029	~~774~~ C	~~540~~ B	1.4	1.6
32		Karapiro Stm Hickey Rd Bridge	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.520	0.520	1.689	1.5	0.008	0.008	0.031	0.031	~~4518~~ C	~~540~~ B	0.9	1.0
35		Mangawhero Stm Cambridge-Ohaupo Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.990	1.0	2.490	1.5	0.041	0.03	0.072	0.05	~~2920~~ C	~~540~~ B	0.3	1.0
29		Mangaonua Stm Hoeka Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.455	1.0	1.878	1.5	0.036	0.03	0.051	0.05	~~6372~~ C	~~540~~ B	1.0	1.0
31		Mangaone Stm Annebrooke Rd Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	2.580	2.4	2.940	1.5	0.009	0.009	0.02	0.02	~~2052~~ C	~~540~~ B	0.9	1.0
30	P	Mangakotukutuku Stm Peacockes Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.800	0.800	1.788	1.5	0.077	0.03	0.132	0.05	~~11394~~ C	~~540~~ B	0.5	1.0

			Attributes																			
Catchment number	Protection priority (P) or fish (F) ranking	Site	Annual Median Chlorophyll a (mg/m³)		Annual Maximum Chlorophyll a (mg/m³)		Annual Median Total Nitrogen (mg/m³)		Annual Median Total Phosphorus (mg/m³)		Annual Median Nitrate (mg NO_3-N/L)		Annual 95th percentile Nitrate (mg NO_3-N/L)		Annual Median Ammonia[1] (mg NH_4-N/L)		Annual Maximum Ammonia[1] (mg NH_4-N/L)		~~95th percentile~~ *E. coli* (*E.coli*/100mL) NOF Band		Clarity (m) [2]	
			short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
28	P	Waitawhiriwhiri Stm Edgecumbe Street	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.880	0.880	1.240	1.24	~~0.256~~ 0.24	~~0.24~~ 0.03	0.318	0.05	~~5922~~ C	~~540~~ B	~~0.4~~ 0.5	1.0
23	P & F	Kirikiriroa Stm Tauhara Dr	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.815	0.815	1.572	1.5	0.096	0.03	0.183	0.05	~~2124~~ C	~~540~~ B	0.5	1.0

[1] The annual median and annual maximum ammonia have been adjusted for pH.
[2] Median black disc horizontal sighting range under baseflow conditions
[3] Attribute is not applicable to the sub-catchment

Table 3.11-1: Lower Waikato River Freshwater Management Unit [V1PC1-1006]

			Attributes																			
Catchment number	Protection priority (P) or fish (F) ranking	Site	Annual Median Chlorophyll a (mg/m^3)		Annual Maximum Chlorophyll a (mg/m^3)		Annual Median Total Nitrogen (mg/m^3)		Annual Median Total Phosphorus (mg/m^3)		Annual Median Nitrate (mg NO_3-N/L)		Annual 95th percentile Nitrate (mg NO_3-N/L)		Annual Median Ammonia[1] (mg NH_4-N/L)		Annual Maximum Ammonia[1] (mg NH_4-N/L)		~~95th percentile~~ *E. coli* (*E.coli*/100mL) NOF Band		Clarity (m)[2]	
			short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
20	P	Waikato River Huntly-Tainui Br	5.9	5	19	19	562	350	43	20	0.365	0.365	0.900	0.900	0.005	0.005	0.015	0.015	~~1944~~ C ~~1494~~ C	~~540~~ B ~~540~~ B	0.9	1.0
9	P & F	Waikato River Mercer Br	10.0	5	30	25	631	350	49	20	0.365	0.365	0.870	0.870	0.003	0.003	0.010	0.010	~~1584~~ C ~~3474~~ C	~~540~~ B ~~540~~ B	0.9	1.0
4		Waikato River Tuakau Br	11.3	5	37	25	571	350	50	20	0.325	0.325	0.880	0.880	0.003	0.003	0.008	0.008	~~4955~~ C ~~1944~~ C	~~540~~ B ~~540~~ B	0.7	1.0
22	P & F	Komakorau Stm Henry Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.279	1.0	~~4.40~~ 3.5	~~3.5~~ 1.5	~~0.25~~ 0.24	0.24 0.03	~~0.419~~ 0.40	~~0.40~~ 0.05	~~3474~~ C	~~540~~ B	~~0.3~~ 0.5	1.0
17	P & F	Mangawara Stm Rutherford Rd Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.765	0.765	2.760	1.5	0.103	0.03	0.172	0.05	~~3474~~ C	~~540~~ B	~~0.3~~ 0.5	1.0

			Attributes																			
Catchment number	Protection priority (P) or fish (F) ranking	Site	Annual Median Chlorophyll a (mg/m³)		Annual Maximum Chlorophyll a (mg/m³)		Annual Median Total Nitrogen (mg/m³)		Annual Median Total Phosphorus (mg/m³)		Annual Median Nitrate (mg NO_3-N/L)		Annual 95th percentile Nitrate (mg NO_3-N/L)		Annual Median Ammonia[1] (mg NH_4-N/L)		Annual Maximum Ammonia[1] (mg NH_4-N/L)		~~95th percentile~~ *E. coli* (*E.coli*/100ml) ~~NOF Band~~		Clarity (m)[2]	
			short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
19	P & F	Awaroa Stm (Rotowaro) Sansons Br @ Rotowaro-Huntly Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.700	0.700	1.190	1.190	0.021	0.021	0.089	0.05	~~1800~~ C	~~540~~ B	0.8	1.0
14	P & F	Matahuru Stm Waiterimu Road Below Confluence	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.715	0.715	1.689	1.5	0.016	0.016	0.059	0.05	~~6147~~ C	~~540~~ B	~~0.4~~ 0.5	1.0
16	P	Whangape Stm Rangiriri-Glen Murray Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.004	0.004	0.690	0.690	0.006	0.006	0.134	0.05	~~584~~ C	~~540~~ B	~~0.3~~ 0.5	1.0
12		Waerenga Stm ~~SH2~~ Maramarua Taniwha Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.820	0.820	1.410	1.410	0.005	0.005	0.022	0.022	~~5098~~ C	~~540~~ B	0.9	1.0
8		Whangamarino River Jefferies Rd Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.625	0.625	1.842	1.5	0.012	0.012	0.147	0.05	~~4712~~ C	~~540~~ B	0.6	1.0
2	P	Mangatangi River SH2 Maramarua	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.110	0.110	1.120	1.120	0.005	0.005	0.038	0.038	~~5567~~ C	~~540~~ B	0.5	1.0

1	P	Mangatawhiri River Lyons Rd Buckingham Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.013	0.013	0.370	0.370	0.003	0.003	0.011	0.011	~~5108~~ C	~~540~~ B	1.6	1.6
10	P	Whangamarino River Island Block Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.075	0.075	0.700	0.700	0.011	0.011	0.054	0.05	~~655~~ C	~~540~~ B	~~0.3~~ 0.6	1.0
3		Whakapipi Stm SH22 Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	3.390	2.4	5.120	3.5	0.006	0.006	0.081	0.05	~~1773~~ C	~~540~~ B	1.1	1.1
7		Ohaeroa Stm SH22 Br	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.473	1.0	1.806	1.5	0.003	0.003	0.015	0.015	~~4667~~ C	~~540~~ B	0.8	1.0
11		Opuatia Stm Ponganui Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	0.740	0.740	1.060	1.060	0.005	0.005	0.016	0.016	~~2898~~ C	~~540~~ B	0.6	1.0
5		Awaroa River (Waiuku) Otaua Rd Br Moseley Rd	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	NA[3]	1.369	1.0	2.310	1.5	0.021	0.021	0.135	0.05	~~1017~~ C	~~540~~ B	~~0.4~~ 0.5	1.0
NEW		Pungarehu Canal/Stream at Waerenga Rd or Farm Bridge																			04.-0.6	

[1] The annual median and annual maximum ammonia have been adjusted for pH

[2] Median black disc horizontal sighting range under baseflow conditions

[3] Attribute is not applicable to the sub-catchment

Table 3.11-1: Waipa River Freshwater Management Unit [V1PC1-1006]

			Attributes											
Catchment number	**Protection priority (P) or fish (F) ranking**	**Site**	**Annual Median Nitrate (mg NO_3-N/L)**		**Annual 95th percentile Nitrate (mg NO_3-N/L)**		**Annual Median Ammonia[1] (mg NH_4-N/L)**		**Annual Maximum Ammonia[1] (mg NH_4-N/L)**		**95th percentile *E. coli* (*E.coli*/100mL)**		**Clarity (m)[2]**	
			short term	**80 year**	**short term**	**80 year**	**short term**	**80 year**	**short term**	**80 year**	**short term**	**80 year**	**short term**	**80 year**
68		Waipa River Mangaokewa Rd	0.380	0.380	0.600	0.600	0.003	0.003	0.017	0.017	~~2417~~ C	~~540~~ B	1.5	1.6
60		Waipa River Otewa	0.228	0.228	0.502	0.502	0.003	0.003	0.008	0.008	~~2036~~ C	~~540~~ B	2.1	2.1
51	F	Waipa River SH3 Otorohanga	0.370	0.370	1.050	1.050	0.004	0.004	0.020	0.020	~~3289~~ C	~~540~~ B	1.2	1.6
43		Waipa River Pirongia-Ngutunui Rd Br	0.565	0.565	1.270	1.270	0.008	0.008	0.023	0.023	~~4441~~ C	~~540~~ B	0.7	1.0
34	P	Waipa River Whatawhata Bridge	0.673	0.673	1.319	1.319	0.009	0.009	0.026	0.026	~~3657~~ C	~~540~~ B	0.6	1.0
26	F	Ohote Stm Whatawhata/Horotiu Rd	0.495	0.495	1.370	1.370	0.023	0.023	0.052	0.05	~~2142~~ C	~~540~~ B	0.6	1.0
36	P	Kaniwhaniwha Stm Wright Rd	0.350	0.350	0.890	0.890	0.007	0.007	0.022	0.022	~~1917~~ C	~~540~~ B	0.9	1.0
38		Mangapiko Bowman Rd Stm	1.369	1.0	2.490	1.5	0.022	0.022	0.076	0.03	~~7074~~ C	~~540~~ B	0.6	1.0
39		Mangaohoi Stm South Branch Maru Rd	0.230	0.230	0.390	0.390	0.003	0.003	0.008	0.008	~~943~~ C	~~540~~ B	1.6	1.6
37	P	Mangauika Stm Te Awamutu Borough W/S Intake	0.210	0.210	0.280	0.280	0.002	0.002	0.003	0.003	~~1008~~ C	~~540~~ B	3.3	3.3

40		Puniu River Bartons Corner Rd Br	0.650	0.650	1.280	1.280	0.007	0.007	0.029	0.029	~~2790~~ C	~~540~~ B	0.9	1.0
47		Mangatutu Stm Walker Rd Br	0.380	0.380	0.880	0.880	0.003	0.003	0.012	0.012	~~738~~ C	~~540~~ B	1.5	1.6
46		Waitomo Stm SH31 Otorohanga	0.520	0.520	0.830	0.830	0.008	0.008	0.025	0.025	~~1453~~ C	~~540~~ B	0.6	1.0
53		Mangapu River Otorohanga	0.860	0.860	1.360	1.360	0.015	0.015	0.057	0.05	~~4284~~ C	~~540~~ B	0.7	1.0
52	F	Waitomo Stm Tumutumu Rd	0.630	0.630	0.800	0.800	0.004	0.004	0.013	0.013	~~2241~~ C	~~540~~ B	1.1	1.6
63		Mangaokewa Stm Lawrence Street Br	0.530	0.530	0.980	0.980	0.004	0.004	0.013	0.013	~~6224~~ C	~~540~~ B	1.4	1.6

[1] The annual median and annual maximum ammonia have been adjusted for pH.
[2] Median black disc horizontal sighting range under baseflow conditions
[3] Attribute is not applicable to the sub-catchment

NEW Table 3.11-1a Additional water quality short term and 80 year targets for sub-catchments in the Waikato-Waipā Rivers to account for hard-bottomed stream types, and provide for conservation protection priorities (P), indigenous fish (F), ecosystem health and recreation and mahinga kai values. *N.B. where the current attribute state for a sub-catchment or waterbody reflects better water quality than the short term or 80 year targets, water quality shall be maintained in the current state and shall not be allowed to degrade towards the target.* [V1PC1-1006]

Upper Waikato River Freshwater Management Unit

Protection priority or fish rank : P/F		Periphyton biomass (NOF band)[1]		Periphyton %WCC[2]		DIN (mg/L)[3]		DRP (mg/L)[3]		Cyano-bacteria (NOF band/ % benthic)[4]		Fine deposited sediment % cover[5]		Dissolved oxygen (NOF band)[6]		Temperature max.[7]		pH range[7]		Toxicants / metals % species protection[8]		MCI[9]	
Hard-bottomed stream type: HB		short term	80 year	short term	80 year	Short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
Waikato River Ohaaki Br						0.8	0.4	0.015	0.01	B	B			B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waikato River Ohakuri Tailrace Br						0.8	0.4	0.015	0.01	B	B			B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waikato River Whakamaru Tailrace						0.8	0.4	0.015	0.01	B	B			B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waikato River Waipapa Tailrace						0.8	0.4	0.015	0.01	B	B			B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Pueto Stm Broadlands Rd Br						0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Torepatutahi Stm Vaile Rd Br						0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waiotapu Stm Homestead Rd Br	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100

Protection priority or fish rank: P/F		Periphyton biomass (NOF band)[1]		Periphyton %WCC[2]		DIN (mg/L)[3]		DRP (mg/L)[3]		Cyano-bacteria (NOF band/ % benthic)[4]		Fine deposited sediment % cover[5]		Dissolved oxygen (NOF band)[6]		Temperature max.[7]		pH range[7]		Toxicants / metals % species protection[8]		MCI[9]	
Hard-bottomed stream type: HB		short term	80 year	short term	80 year	Short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
Mangakara Stm (Reporoa) SH5						0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Kawaunui Stm SH5 Br	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waiotapu Stm Campbell Rd Br						0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Otamakokore Stm Hossack Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Whirinaki Stm Corbett Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Tahunaatara Stm Ohakuri Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangaharakeke Stm SH30 (Off Jct SH1)						0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waipapa Stm (Mokai) Tirohanga Rd Br						0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangakino Stm Sandel Rd	HB P	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100

Protection priority or fish rank: P/F		Periphyton biomass (NOF band)[1]		Periphyton %WCC[2]		DIN (mg/L)[3]		DRP (mg/L)[3]		Cyano-bacteria (NOF band/ % benthic)[4]		Fine deposited sediment % cover[5]		Dissolved oxygen (NOF band)[6]		Temperature max.[7]		pH range[7]		Toxicants / metals % species protection[8]		MCI[9]	
Hard-bottomed stream type: HB		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	Short term	80 year
Whakauru Stm SH1 Br	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangamingi Stm Paraonui Rd Br						0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Pokaiwhenua Stm Arapuni - Putaruru Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Little Waipa Stm Arapuni - Putaruru Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100

Table 3.11-1a Middle Waikato River FMU [V1PC1-1006]

Protection priority or fish rank: P/F		Periphyton biomass (NOF band)[1]		Periphyton %WCC[2]		DIN (mg/L)[3]		DRP (mg/L)[3]		Cyano-bacteria (NOF band/ % benthic)[4]		Fine deposited sediment % cover[5]		Dissolved oxygen (NOF band)[6]		Temperature max.[7]		pH range[7]		Toxicants / metals % species protection[8]		MCI[9]	
Hard-bottomed stream type: HB		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	Short term	80 year
Waikato River Narrows Boat Ramp	P					0.8	0.4	0.015	0.01	B	B			B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waikato River Horotiu Br	P					0.8	0.4	0.015	0.01	B	B			B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Karapiro Stm Hickey Rd Bridge						0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangawhero Stm Cambridge-Ohaupo Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangaonua Stm Hoeka Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangaone Stm Annebrooke Rd Br						0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangakotukutuku Stm Peacockes Rd	P	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waitawhiriwhiri Stm Edgecumbe Street	P					0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Kirikiriroa Stm Tauhara Dr	P & F					0.8	0.4	0.015	0.01					B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100

Tbale 3.11-1a Lower Waikato River Freshwater Management Unit [V1PC1-1006]

Protection priority or fish rank: P/F		Periphyton biomass (NOF band)[1]		Periphyton %WCC[2]		DIN (mg/L)[3]		DRP (mg/L)[3]		Cyano-bacteria (NOF band/ % benthic)[4]		Fine deposited sediment % cover[5]		Dissolved oxygen (NOF band)[6]		Temperature max·[7]		pH range[7]		Toxicants / metals % species protection[8]		MCI[9]	
Hard-bottomed stream type: HB		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	Short term	80 year
Waikato River Huntly-Tainui Br	P	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	B	B	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waikato River Mercer Br	P & F	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	B	B	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waikato River Tuakau Br		N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	B	B	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Komakorau Stm Henry Rd	P & F	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangawara Stm Rutherford Rd Br	P & F	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Awaroa Stm (Rotowaro) Sansons Br @ Rotowaro-Huntly Rd	P & F	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Matahuru Stm Waiterimu Road Below Confluence	P & F	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Whangape Stm Rangiriri-Glen Murray Rd	P	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waerenga Stm SH2 Maramarua		N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100

Protection priority or fish rank: P/F		Periphyton biomass (NOF band)[1]		Periphyton %WCC[2]		DIN (mg/L)[3]		DRP (mg/L)[3]		Cyano-bacteria (NOF band/ % benthic)[4]		Fine deposited sediment % cover[5]		Dissolved oxygen (NOF band)[6]		Temperature max.[7]		pH range[7]		Toxicants / metals % species protection[8]		MCI[9]	
Hard-bottomed stream type: HB		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	Short term	80 year
Whangamarino River Jefferies Rd Br		N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangatangi River SH2 Maramarua	P HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangatawhiri River Lyons Rd Buckingham Br	P HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Whangamarino River Island Block Rd	P	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Whakapipi Stm SH22 Br	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Ohaeroa Stm SH22 Br		N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Opuatia Stm Ponganui Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Awaroa River (Waiuku) Otaua Rd Br Moseley Rd	P & F	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100

Table 3.11-1a Waipā River Freshwater Management Unit [V1PC1-1006]

Protection priority or fish rank: P/F		Periphyton biomass (NOF band)[1]		Periphyton %WCC[2]		DIN (mg/L)[3]		DRP (mg/L)[3]		Cyano-bacteria (NOF band/ % benthic)[4]		Fine deposited sediment % cover[5]		Dissolved oxygen (NOF band)[6]		Temperature max.[7]		pH range[7]		Toxicants / metals % species protection[8]		MCI[9]	
Hard-bottomed stream type: HB		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
Waipa River Mangaokewa Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waipa River Otewa	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waipa River SH3 Otorohanga	HB F	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waipa River Pirongia-Ngutunui Rd Br		N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waipa River Whatawhata Bridge	P	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Ohote Stm Whatawhata/Horotiu Rd	F	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Kaniwhaniwha Stm Wright Rd	P	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangapiko Bowman Rd Stm		N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangaohoi Stm South Branch Maru Rd	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangauika Stm Te Awamutu Borough W/S Intake	HB P	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100

Protection priority or fish rank: P/F		Periphyton biomass (NOF band)[1]		Periphyton %WCC[2]		DIN (mg/L)[3]		DRP (mg/L)[3]		Cyano-bacteria (NOF band/ % benthic)[4]		Fine deposited sediment % cover[5]		Dissolved oxygen (NOF band)[6]		Temperature max.[7]		pH range[7]		Toxicants / metals % species protection[8]		MCI[9]	
Hard-bottomed stream type: HB		short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year	short term	80 year
Puniu River Bartons Corner Rd Br		N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangatutu Stm Walker Rd Br	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Waitomo Stm SH31 Otorohanga		N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	80	100
Mangapu River Otorohanga		N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	100	100
Waitomo Stm Tumutumu Rd	F	N/A	N/A	N/A	N/A	0.8	0.4	0.015	0.01	N/A	N/A	N/A	N/A	B	B	24	20	6 - 9	6.5 - 8.5	95	95	100	100
Mangaokewa Stm Lawrence Street Br	HB	B	B	40	30	0.8	0.4	0.015	0.01	20%	20%	25	20	B	B	24	20	6 - 9	6.5 - 8.5	95	95	100	100

[1] Trophic state for rivers (periphyton biomass) is a compulsory attribute uder the NPS-FM and must apply whereever there are hard-bottomed streams in the Waikato-Waipā catchments, to manage for ecosystem health values. Many hard-bottomed streams are identified by sub-catchment in Table 1, some streams have become heavily sedimented over time due to pastoral development with encroachment of grasses and weeds (Davies-Colley 1997), and a lack of riparian vegetation. Some of these catchments may be restored to a more hard-bottomed state over time if sediment, riparian margins and nutrients are managed appropriately. Periphyton can also grow on sand, plant and wood substrates within streams where nutrient and flow conditions are suitable.

[2] Periphyton cover is relevant for hard-bottomed streams. Numeric cover values are from the weighted composite cover (WCC) percent thresholds from Matheson et al. (2012) for ecological condition (40% as the bottom of the 'good' band as a short term target). The 80 year attribute state is set at the recreation threshold of 30%WCC.

[3] Dissolved inorganic nitrogen (DIN) and dissolved reactive phosphorus (DRP) targets were based on collation of multiple, similar, nutrient thresholds considered appropriate to manage the risk of periphyton exceeding the NOF biomass attribute or the %WCC attributes recommended from Matheson et al. (2012). Similar dissolved nutrient limits are recommended by Dr Canning in evidence for Fish and Game to provide for ecosystem health values and have been implemented in Regional Plans including: Plan Change 6: Tukituki catchment, Hawkes Bay; Plan change 6a: Otago Region; and the One Plan Schedule E targets, Manawatū-Whanganui Region. The limits/targets are the best approximation of nutrient concentrations appropriate to control periphyton biomass/cover and to lessen the dissolved nutrient contribution to growth of nuisance aquatic macrophytes in soft-bottomed streams.

[4] Cyanobacteria is a risk to people and animals and can proliferate on the bed of hard-bottomed streams as benthic growth, potentially becoming toxic. Thresholds from the MoH/MfE (2009) guidelines are recommended to safe-guard recreational and mahinga kai values in benthic systems. Systems susceptible to planktonic cyanobacteria have the NOF B band (green) applied.

[5] Deposited fine sediment is a critical attribute for ecosystem health in hard-bottomed streams. Short term targets are for recreational and aesthetic values, with 80 year targets set to provide for biodiversity and fish spawningaspects for ecosystem health.

[6] Dissolved oxygen is a critical attribute for all freshwater life and ecosystem health values. The NOF requires dissolved oxygen as an attribute below point sources, however, this is inadequate to provide for ecosystem health or aquatic life in all freshwater systems and the dissolved oxygen attribute should apply to all waterbodies.

[7] Based on Davies-Colley et al. (2012) recommended temperature, pH and dissolved oxygen attributes for the NOF. Temperature thresholds is the summer-period measurement of the Cox-Rutherford Index (CRI), averaged over the five (5) hottest days (from inspection of a continuous temperature record). pH range does not apply to naturally acid or humic stained streams.

[8] Excludes nitrate and ammonia toxicity and applies to relevant metal and toxicant concentrations associated with the species protection levels as derived from the ANZECC (2000) guidelines or any updates to those guidelines. Particularly important to support ecosystem health in waterbodies affected by urban or industrial contaminants (point-sourced or diffuse).

[9] Based on Collier et al. (2014) macroinvertebrate attribute for the NOF and in response to the 2017 amendments to the NPS-FM requiring methods to address MCI <80 or sites showing a degrading trend.

Table 3.11-1: Dune, Riverine, Volcanic and Peat Lakes Freshwater Management Units

	Attributes								
Lake FMU	**Annual Median Chlorophyll a (mg/m^3)**	**Annual Maximum Chlorophyll a (mg/m^3)**	**Annual Median Ammonia[1] (mg NH_4-N/L)**	**Annual Maximum Ammonia[1] (mg NH_4-N/L)**	**Annual Median Total Nitrogen (mg/m^3)**	**Annual Median total Phosphorus (mg/m^3)**	**95th percentile *E. coli* (*E. coli*/100mL)**	**80th percentile cyanobacteria (biovolume mm^3/L)**	**Clarity (m)**
	80 year*	**80 year***	**80 year***	**80 year***	**80 year***	**80 year***	**80 year***	**80 year***	**80 year***
Dune	12	60	0.24	0.40	750	50	540	1.8+	1
Riverine	12	60	0.24	0.40	800	50	540	1.8+	1
Volcanic Zone	12	60	0.24	0.40	750	50	540	1.8+	1
Peat	12	60	0.24	0.40[133]	750	50	540	1.8+	1

*unless a lake is already of better water quality, in which case the water quality is to not decline

+1.8mm^3/L biovolume equivalent of potentially toxic cyanobacteria or 10mm^3/L total biovolume of all cyanobacteria

[1] The annual median and annual maximum ammonia have been adjusted for pH

[2] Median black disc horizontal sighting range under baseflow conditions

[133] WRC PC1-3635

Table 3.11-2: List of sub-catchments showing Priority 1, Priority 2, and Priority 3 sub-catchments/Te rārangi o ngā riu kōawaawa e whakaatu ana i te riu kōawaawa i te Taumata 1, i te Taumata 2, me te Taumata 3

If more than fifty percent of a farm enterprise is in a particular sub-catchment, then the dates for compliance for that sub-catchment apply.

Sub-catchment identifier	Sub-catchment number	Priority
Mangatangi	2	1
Whakapipi	3	1
Whangamarino at Jefferies Rd Br	8	1
Whangamarino at Island Block Rd	10	1
Opuatia	11	1
Waerenga	12	1
Waikare	13	1
Matahuru	14	1
Whangape	16	1
Mangawara	17	1
Awaroa (Rotowaro) at Harris/Te Ohaki Br	18	1
Waikato at Huntly-Tainui Br	20	1
Kirikiriroa	23	1
Waikato at Horotiu Br	25	1
Waikato at Bridge St Br	27	1
Waitawhiriwhiri	28	1
Mangakotukutuku	30	1
Mangawhero	35	1
Moakurarua	42	1
Little Waipa	44	1
Pokaiwhenua	45	1
Mangamingi	48	1
Waipa at Otorohanga	51	1
Waitomo at Tumutumu Rd	52	1
Mangapu	53	1
Mangarapa	55	1
Mangaharakeke	57	1
Mangarama	61	1
Mangaokewa	63	1
Waikato at Waipapa	64	1
Waiotapu at Homestead	65	1

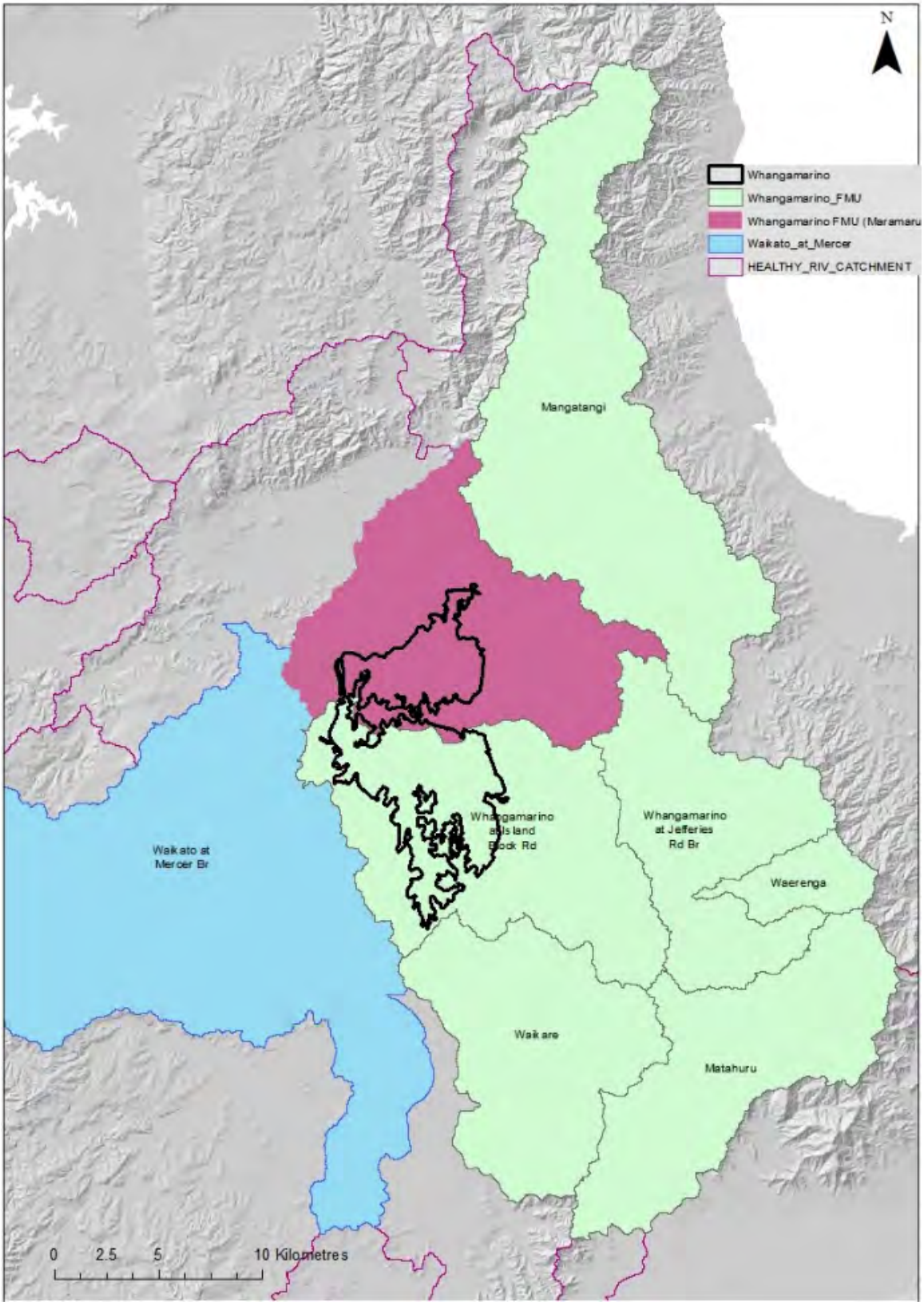
Waipa at Mangaokewa Rd	68	1
Waipapa	70	1
Torepatutahi	72	1
Waikato at Tuakau Br	4	2
Waikato at Port Waikato	6	~~2~~ 1
Waikato at Rangiriri	15	~~2~~ 1
Awaroa (Rotowaro) at Sansons Br	19	~~2~~ 1
Firewood	21	2
Komakorau	22	2
Waipa at Waingaro Rd Br	24	2
Mangaone	31	2
Waipa at SH23 Br Whatawhata	34	~~2~~ 1
Kaniwhaniwha	36	2
Mangapiko	38	2
Puniu at Bartons Corner Rd Br	40	2
Waipa at Pirongia-Ngutunui Rd Br	43	2
Waitomo at SH31 Otorohanga	46	2
Whakauru	49	2
Tahunaatara	54	2
Otamakokore	59	2
Waipa at Otewa	60	2
Kawaunui	62	2
Waikato at Whakamaru	67	2
Mangakara	69	2
Mangakino	71	2
Mangatawhiri	1	3
Awaroa (Waiuku)	5	3
Ohaeroa	7	3
Waikato at Mercer Br	9	3
Ohote	26	3
Mangaonua	29	3
Karapiro	32	3
Waikato at Narrows	33	~~3~~ 1
Mangauika	37	3
Mangaohoi	39	3
Waikato at Karapiro	41	3

Mangatutu	47	3
Puniu at Wharepapa	50	3
Whirinaki	56	3
Waiotapu at Campbell	58	~~3~~ 1
Waikato at Ohakuri	66	3
Waikato at Ohaaki	73	~~3~~ 1[134]
Pueto	74	3
Pungarehu Canal at Waerenga Rd or Farm Bridge [V1PC1-1006]	NEW	1

Table 3.11-2: List of sub-catchments showing Priority 1, Priority 2, and Priority 3 sub-catchments

~~* part sub-catchment~~

[134] DoC PC1-11067



Map 3.11-1a Whangamarino Wetland Freshwater Management Unit [PC1-10504]

Note – all green and pink polygons make up the proposed FMU

Table 3.11-3 Primary Wetland attributes for Ecosystem Health (Water Quality) [PC1-10536]

Wetland type	Wetland type description	Attribute relating to water quality (narrative target)			
		TP	TN	Sedimentation	Hydrological regime
Bog	Bog wetlands are nutrient poor, poorly drained and aerated and usually acid. The water table is often close to or just above the ground surface, with rainwater the only source of water. These wetlands are dominated by indigenous vegetation that is representative of bogs in the Waikato, including peat forming plant species.	Nutrient status (TP) is within healthy range for the specific wetland type	Nutrient status (TN) is within healthy range for the specific wetland type	Inputs of external sediment are within healthy range for the specific wetland type	Hydrological regime, if altered, does not exacerbate water quality impacts
Fen	Fen wetlands are of low to moderate acidity and fertility and the water table is usually close to or just below the surface. These wetlands are dominated by indigenous vegetation that is representative of fens in the Waikato, including species adapted to low nutrient environments, such as sedges.				
Swamp	Swamp wetlands are generally of high fertility, receiving nutrients and sediment from surface run-off and ground water. These wetlands are dominated by indigenous vegetation that is representative of swamps in the Waikato, including vegetation cover that is often intermingled.				
Marsh	Marsh wetlands are mineral wetlands with good to moderate drainage that are mainly groundwater or surface water fed and characterised by fluctuation in the water table. Marsh wetlands can be differentiated from swamp wetlands by having better drainage, generally a lower water table and usually more mineral substrate and higher pH.				

Table 3.11-4 Whangamarino Wetland FMU Attributes and Targets [PC1-1139]

In addition to the primary attributes for all wetlands, the following attributes are sought for the Whangamarino FMU specifically:

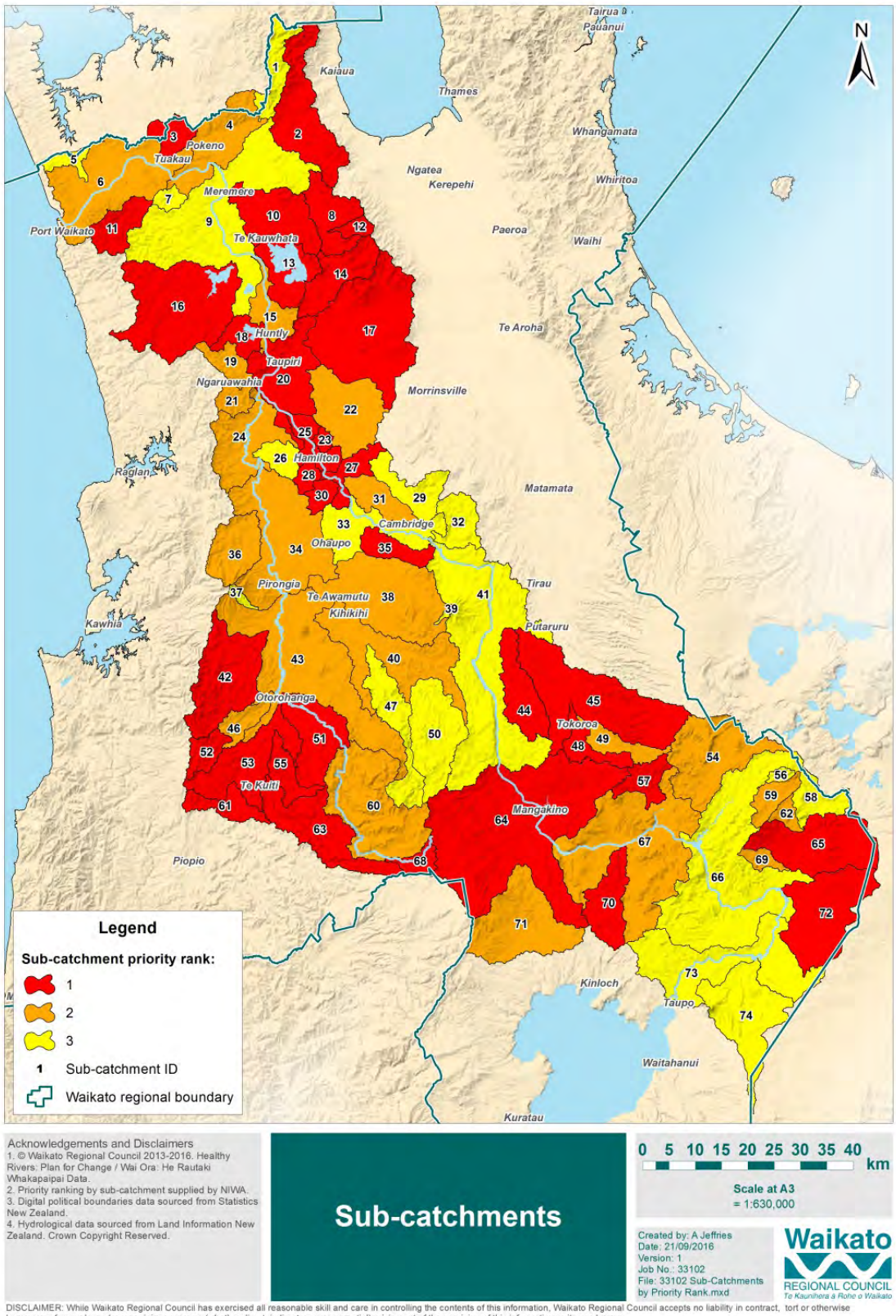
- Total Phosphorus – Median TP Concentration – applied to all monitoring sites in FMU
- Total Nitrogen – Median TN Concentration – applied to all monitoring sites in FMU
- Sediment – Mean Annual TSS Load – applied to the Pungarehu Canal/Stream monitoring site

The existing attributes in Table 3-11.1 will also apply.

The 80 year targets for the additional primary attributes for the Whangamarino FMU are:

The additional primary attributes for the Whangamarino FMU are:	**80 Year Targets[135]**	**Rationale**
TP Median Conc (mg/m3)	50 mg/m3[136]	The Whangamarino FMU is adversely affected by high phosphorus levels. The 80-year target of 50 mg/m3 aims to reduce TP overtime.
TN Median Conc (mg/m3)	750 mg/m3[137]	The Whangamarino FMU is adversely affected by high nitrogen levels. The 80-year target of 750 mg/m3 aims to reduce TN overtime.
TSS Annual Load (T/yr)	>30% reduction (10% reduction by 2030)	Water quality in the Pungarehu Canal is driven by the concentration of sediment, as well as the discharge volume regulated by a control gate. Achieving only the water clarity target for this site will not achieve the ecosystem health outcome.

[135] In addition to the 80 year targets, short-term targets of 10% reduction over 10 years, and 20% reduction over 20 years are required
[136] If site is in a better water quality state, 80 year target is to maintain
[137] If site is in a better water quality state, 80 year target is to maintain



Map 3.11-2: Map of the Waikato and Waipa River Catchments, showing sub-catchments

Updated map showing corrected regional boundaries, priority colours and lake colours to be inserted.

~~PART B~~

~~Insert the following Condition to section 5.1.5 of the Waikato Regional Plan after 5.1.5(p)iii. and before the Advisory Note.~~

5.1.5 Conditions for Permitted Activity Rule 5.1.4.11 and Standards and Terms for Controlled Activity Rules/Ngā āhuatanga o te Ture 5.1.4.11 mō ngā Mahi e Whakaaetia ana, me ngā Paerewa me ngā Herenga mō ngā Ture mō ngā Mahi ka āta Whakahaerehia

q) In the Waikato and Waipa Catchment the Waikato Regional Council shall be notified in writing at least 20 working days prior to commencing harvest operations in a forest. The written notice must include a harvest plan unless otherwise agreed with Waikato Regional Council.

Harvest Plan

For the purposes of 5.1.5 (q) a forest harvest plan means a documented plan, including a harvest plan map, which clearly identifies the area to be harvested and the method to be followed to ensure identified risks to water bodies arising from the harvesting operation are managed.

The harvest plan should include:

a. A harvest plan map to a scale of up to 1:10,000 showing:

   i. Title, date, north arrow and harvest area boundary.

   ii. The locations of all existing and proposed roads, tracks, landings, fire breaks and stream crossings.

   iii. The locations of all water bodies, streams and wetlands.

   iv. The location of any protected riparian vegetation including significant natural areas.

   v. The proposed harvest methodology including cable and ground based harvest areas and the proposed direction of extraction.

   vi. Proposed slash disposal areas.

b. Associated text specifying the controls on the harvest operations to manage the identified risks to water bodies in the block from the harvesting operations including:

   i. Measures to control sediment discharges to water.

   ii. Management of slash.

   iii. Operations restrictions around water bodies.

   iv. Areas of existing riparian vegetation to be protected.

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PART C

Insert the following terms into the Glossary in alphabetical order.

Additions to Glossary of Terms/Ngā Āpitihanga ki te Rārangi Kupu

~~**Definition - 75th percentile nitrogen leaching value**~~

75th percentile nitrogen leaching value: The 75th percentile value (units of kg N/ha/year) of all of the Nitrogen Reference Point values for dairy farming properties ~~and enterprises~~ within each river (including properties within any lake Freshwater Management Unit within the relevant river Freshwater Management Unit)[138] Freshwater Management Unit^ and which ~~are~~ is determined by the Chief Executive of the Waikato Regional Council and published on the Waikato Regional Council website and can be based on aggregated data supplied to the Waikato Regional Council and individual farm data[139] received by the Waikato Regional Council by 30 November 2020YYY.[140]

~~**Definition - Arable cropping**~~

Arable cropping: means the following arable crops:
i. grain cereal, legume, and pulse grain crops
ii. herbage seed crops
oilseeds
iii. crops grown for seed multiplication for use in New Zealand or overseas
iv. hybrid and open pollinated vegetable and flower seeds
and includes maize grain, maize silage, cereal silage, and mangels.

~~**Definition - Best management practice/s**~~

Best management practice/s: For the purposes of Chapter 3.11, means maximum feasible mitigation to reduce the diffuse discharge of nitrogen, phosphorus, sediment or microbial pathogens from land use activities given current technology.

~~**Definition - Certified Farm Environment Planner**~~

Certified Farm Environment Planner: is a person or entity certified by the Chief Executive Officer of Waikato Regional Council and listed on the Waikato Regional Council website as a Certified Farm Environment Planner and has as a minimum the following qualifications and experience:
a. five years' experience in the management of pastoral, horticulture or arable farm systems; and
b. completed advanced training or a tertiary qualification in sustainable nutrient management (nitrogen and phosphorus); and
c. experience in soil conservation and sediment management.

~~**Definition - Certified Farm Nutrient Advisor**~~

Certified Farm Nutrient Advisor: is a person or entity certified by the Chief Executive Officer of Waikato Regional Council ~~and listed on the Waikato Regional Council website as a certified farm nutrient advisor~~ and has the following qualifications and experience as meeting the following criteria:
a. Is a certified as a Nutrient Management Adviser under the Nutrient Management Adviser Certification Programme Ltd; or[141] ~~Has completed nutrient management training to at least intermediate~~ level, and
b. Has completed nutrient management training to at least an advanced level[142], and h~~H~~as at least two years experience in nutrient management planning;[143]

[138] Federated Farmers V1PC1-790
[139] DairyNZ PC1-10253
[140] N and C Prendergast PC1-1779, R Hathaway PC1-5399
[141] Ballance PC1-7090, FANZ PC1-10663, Ravensdown PC1-10199
[142] DairyNZ PC1-10251, Genetic Technologies Ltd PC1-3290, S.J. Williams PC1-5959
[143] Genetic Technologies Ltd PC1-3290, NZIPIM PC1-8446

and agrees to follow the procedures and guidelines set out by Waikato Regional Council and audits of the Certified Farm Nutrient Advisor's work by Waikato Regional Council show that that the Advisor is preparing robust and reliable nutrient loss reports.[144]

Note: Certified Farm Nutrient Advisors will be listed on the Waikato Regional Council's website.[145]

~~**Definition - Certified Industry Scheme/s**~~

Certified ~~Industry~~ Sector[146] **Scheme/s**: is a ~~scheme~~ group or organisation responsible for preparing and assisting with the implementation of Farm Environment Plans[147] that has been certified by the Chief Executive Officer of Waikato Regional Council and listed on the Waikato Regional Council website as meeting the standards[148] ~~assessment criteria and requirements~~ set out in Schedule 2 of Chapter 3.11.

~~**Definition - Commercial vegetable production**~~

Commercial vegetable production: means the following vegetables grown in New Zealand for commercial purposes:

i. artichokes, Asian vegetables, beans, beetroot, boxthorn, broccoflower, broccoli, broccolini, Brussels sprouts, burdock, cabbage, capsicums, carrots, cauliflower, celeriac, celery, chilli peppers, chokos, courgettes, cucumbers, eggplant, Florence fennel, garland chrysanthemum, garlic, gherkins, herbs, Indian vegetables, kohlrabi, kumara, leeks, lettuces, marrows, melons, okra, parsnips, peas, puha, pumpkin, purslane, radishes, rakkyo, rhubarb, salad leaves, salsify, scallopini, scorzonera, shallots, silverbeet, spinach, spring onions, sprouted beans and seeds, squash, swedes, sweetcorn, taro, turnips, ulluco, watercress, witloof, yakon, yams, zucchinis, potatoes, tomatoes, asparagus, onions; and
ii. the hybrids of the vegetables listed in subparagraph i.

~~**Definition - Cultivation**~~

Cultivation: For the purposes of Chapter 3.11, means preparing land for growing pasture or a crop and the planting, tending and harvesting of that pasture or crop, but excludes:

a. direct drilling of seed.
b. no-tillage practices.
c. recontouring land.
d. forestry.

~~**Definition - Dairy Farming**~~

Dairy Farming: means farming of dairy cows on a **milking platform** ~~for milk production~~[149].

~~**Definition - Diffuse discharge/s**~~

Diffuse discharge/s: For the purposes of Chapter 3.11, means the discharge of contaminants that results from land use activities including cropping and the grazing of livestock and includes non-point source discharges**.**

~~**Definition - Drain**~~

Drain: For the purposes of Chapter 3.11, means an artificially created open[150] channel designed to lower the water table and/or reduce surface flood risk but does not include any modified (e.g. straightened) natural watercourse.

~~**Definition - Drystock Farming**~~

[144] Forest and Bird PC1-8494
[145] A McGovern PC1-8292
[146] Mercury PC1-9684
[147] Maniapoto Maori Trust Board PC1-9338
[148] Fonterra PC1-10583
[149] Forest and Bird PC1-8292
[150] Fert NZ PC1-10668

Drystock Farming[151]: means pasture grazing beef cattle, dairy animals grazed off a **milking platform**, sheep, and deer for meat, wool, or velvet production.

~~**Definition - Edge of field mitigation/s**~~

Edge of field mitigation/s: mitigation actions or technologies to reduce loss of contaminants from farm land by intervening at edge of field either on or off-farm, and includes constructed wetlands, sedimentation ponds and detention bunds.

~~**Definition - Enterprise/s**~~

Enterprise/s: means one or more parcels of land held in single or multiple ownership to support the principle land use or land which the principle land use is reliant upon, and constitutes a single operating unit for the purposes of management. An enterprise is considered to be within a sub-catchment if more than 50% of that enterprise is within the sub-catchment.

Definition - Escherichia coli (E. coli)

***Escherichia coli* (*E. coli*)[152]:** is a bacterium used as an indicator that faecal contamination of the water has almost certainly occurred, so pathogens may be present in the water (Pathogen: an organism capable of causing an illness in humans).

~~**Definition - Farm Environment Plan/s**~~

Farm Environment Plan/s: For the purposes of Chapter 3.11, means a plan developed in accordance with Schedule 1.

~~**Definition - Farming activities**~~

Farming ~~activities~~: For the purposes of Chapter 3.11, the grazing of animals or the growing of produce, including crops, commercial vegetable production and orchard produce but not does not include:

a. planted production forest; or
b. the growing of crops on land irrigated by consented municipal wastewater discharges; or
c. production or growing of produce undertaken entirely within a building; or[153]
d. production or growing produce for consumption by the occupier of the property or their family.[154]

~~**Definition - Five-year rolling average**~~

Five-year rolling average[155]: means the average of modelled nitrogen leaching losses predicted by OVERSEER®from the most recent 5 years.

~~**Definition - Forage crop**~~

Winter[156] **Forage crop:** means crops, annual or biennial, but excluding pasture species,[157] which are grown to be utilised by grazing or harvesting as a whole crop between 1 May and 30 September of each year.[158]

~~**Definition - Good Management Practice/s**~~

[151] *adapted from NIWA 2016. https://www.niwa.co.nz/our-science/freshwater/tools/kaitiaki_tools/land-use/agriculture/dry-stock*
[152] *Ministry of Health Drinking-water Standards for New Zealand 2005 (Revised 2008) definition pg 146*
[153] Gourmet Mokai Ltd PC1-7250, Tuaropaki Trust PC1-3009
[154] H Clarke PC1-8466
[155] *Adapted from Freeman, M.; (ed). (2016). Using Overseer- Establishing national guidance for the appropriate and consistent use of Overseer by regional councils in setting and managing water quality limits Consultation Draft Overseer Guidance Project, Overseer Management Services Ltd. Wellington, New Zealand*
[156] New Zealand Grain and Seed Trade Association PC1-1680
[157] Genetic Technologies Ltd PC1-3341, A McGovern PC1-8295
[158] New Zealand Grain and Seed Trade Association PC1-1680

Good ~~Management~~ Farming[159] **Practice/s:** For the purposes of Chapter 3.11, means industry agreed and approved practices and actions undertaken on a property or enterprise that reduce or minimise the risk of contaminants entering a water body.

~~**Definition - Livestock crossing structure**~~

Livestock crossing structure: means a lawfully established structure ~~installed to allow~~ that enables[160] livestock to cross a water body such that the livestock do not enter or have access to the bed of the water body[161].

~~**Definition - Mahinga kai**~~

Mahinga kai: the customary and contemporary gathering and use of naturally occurring and cultivated foods (also known as Hauanga kai).

~~**Definition - Microbial pathogen/s**~~

Microbial pathogen/s[162]: A microorganism capable of inducing illness in humans.

~~**Definition - Milking platform**~~

Milking platform: means that area devoted to feeding cows on a daily basis and includes land used for the growing of feed for the cows within the same property ~~during the milking season~~[163].

~~**Definition - Nitrogen Reference Point**~~

Nitrogen Reference Point: ~~The nitrogen loss number (units of kg N/ha/year) that is derived from an OVERSEER® use protocol compliant OVERSEER® file that describes the **property** or farm **enterprise** and farm practices in an agreed year or years developed by a **Certified Farm Nutrient Advisor**, using the current version of the OVERSEER® model (or another model approved by the Council) for the **property** or **enterprise** at the "reference" point in time.~~
The nitrogen discharge benchmark established for a farm, when the farm system in place during the reference period is modelled using the most recent version of the Overseer model (or an alternative model approved by the Chief Executive Officer of the Waikato Regional Council) as described in Schedule B.[164]

~~**Definition - Offset/s**~~

Offset/s: For the purposes of Chapter 3.11 means for a specific contaminant/s an action that reduces residual adverse effects of that contaminant on water quality.

~~**Definition - Point source discharge/s**~~

Point source discharge: A stationary or fixed facility from which contaminants are discharged or emitted. For the purposes of Chapter 3.11~~, means discharges from a stationary or fixed facility, including~~ includes the irrigation onto land from consented industrial and municipal wastewater systems.[165]

Regionally significant industry: means an economic activity based on the use of natural and physical resources in the region, which is demonstrated to have benefits that are significant at a regional or national scale. These may include social, economic or cultural benefits.[166]

Regionally significant infrastructure: includes:

[159] Ballance PC1-6862, FANZ PC1-9712
[160] WRC PC1-3672
[161] Fish and Game PC1-11017
[162] *Adapted from Ministry of Health. 2008. Drinking-water Standards for New Zealand 2005 (Revised 2008). Wellington*
[163] Pamu PC1-5938
[164] Fonterra PC1-10580, Pamu PC1-5932
[165] Fonterra PC1-10593
[166] Trustees of Highfield Deer Park PC1-3978

a. pipelines for the distribution or transmission of natural or manufactured gas or petroleum;
b. infrastructure required to permit telecommunication as defined in the Telecommunications Act 2001;
c. radio apparatus as defined in section 2(1) of the Radio Communications Act 1989;
d. the national electricity grid, as defined by the Electricity Industry Act 2010;
e. a network (as defined in the Electricity Industry Act 2010);
f. infrastructure for the generation and/ or conveyance of electricity that is fed into the national grid or a network (as defined in the Electricity Industry Act 2010);
g. significant transport corridors as defined in Map 6.1 and 6.1A;
h. lifeline utilities, as defined in the Civil Defence and Emergency Management Act 2002, and their associated essential infrastructure and services;
i. municipal wastewater treatment plants, water supply treatment plants and bulk water supply, wastewater conveyance and storage systems, municipal supply dams (including Mangatangi and Mangatawhiri water supply dams) and ancillary infrastructure;
j. flood and drainage infrastructure managed by Waikato Regional Council;
k. Hamilton City bus terminal and Hamilton Railway Station terminus; and
l. Hamilton International Airport.[167]

~~**Definition – Restoration**~~

~~**Restoration:** is the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. It is an intentional activity that initiates or accelerates an ecological pathway, or trajectory through time, towards a reference state consistent with Objective 1.~~[168]

~~**Definition - Setback**~~

Setback: means the distance from the bed of a river or lake, or margin of a wetland.

~~**Definition - Stock unit**~~

Stock unit: means an animal that eats 6,000 megajoules of metabolisable energy per year, and for the stock listed, is determined by ~~and is illustrated in~~[169] the following stocking rate table[170]:

Stock class	**Number of Stock Units per animal**	**Animal performance definition**
Dairy bull	6.1	620kg Friesian breeding bull
Dairy cow	10.4	450kg F8J8 dairy cow producing 400kg MS
Dairy heifer 1-2 years age	5.1	F8J8 199 – 419kg Jul to Apr
Dairy heifer calf (weaned)	1.6	F8J8 110 – 199kg Dec to Jun
Beef bull	6	620kg Beef cross MA breeding bull
Beef cow	7.5	480kg MA Beef cross breeding cow calving at 96%
Bull 1-2 years age	6.8	Friesian bull 209kg to 535kg slaughter weight
Steer 1-2 years age	5.8	WF steer 203kg to 478kg slaughter weight
Heifer 1-2 years age	5.7	WF heifer 208kg to 420kg slaughter weight
Steer calf < 1 year (weaned)	2.7	WF steer 100kg to 203kg Dec to Jun
Bull calf < 1 year (weaned)		Fresian 100kg to 209kg bull Dec to Jun

[167] Trustees of Highfield Deer Park PC1-3978
[168] Federated Farmers V1PC1-807
[169] WRC V1PC1-1535
[170] *Table adapted from Perrin Ag Consultants Ltd 2016. Bay of Plenty Regional Council: Methodology for creation of NDA reference files and stocking rate table; version 2. Table 1: Stocking rate table pg. 18.*

Heifer calf < 1 year (weaned)	1.6	WF heifer 90kg to 208kg Dec to Jun
Ram	1	73kg Romney ram, 4.5kg wool
Adult ewe	1.01	63kg Romney MA ewe lambing at 126%, 4.5kg wool
Sheep 1-2 years of age	0.9	Romney hogget 46kg to 66kg, 4kg wool
Sheep <1 years of age (weaned)	0.5	Romney 26kg to 46kg from Dec to June, 2kg wool
Bucks & does < 1 year (weaned)	0.5	OVERSEER®default
Angora does	1.1	OVERSEER®default
Feral does	0.9	OVERSEER®default
Feral bucks & wethers	0.5	OVERSEER®default
Stag	2.4	Red stag 200kg, 4kg velvet
Breeding hind	2.5	Red hind 110kg, 86% fawning
Hind 1-2 years age	1.2	Red hind 53kg – 75kg
Hind fawn (weaned)	1	Red hind 37kg – 53kg over 4 months, annualised to 12 months
Stag 1-2 years age	2.3	Red stag 55kg – 159kg over 12 months, 2kg velvet
Stag fawn (weaned)	1.1	Red stag 42kg – 55kg over 4 months, annualised to 12 months
Alpaca	0.8	OVERSEER®default
Llama	1.6	OVERSEER®default
Pony	6	OVERSEER®default
Pony brood mare w/foal	8	OVERSEER®default
Small hack	8	OVERSEER®default
Small hack broodmare w/foal	10	OVERSEER®default
Large hack	12	OVERSEER®default
Thoroughbred	12	OVERSEER®default
Large hack broodmare w/foal	14	OVERSEER®default
Milking ewe	0.9	70kg ewe producing 50kg MS
Milking goat	1.8	80kg nanny producing 140kg MS

~~**Definition - Sub-catchment**~~

Sub-catchment: For the purposes of Chapter 3.11, means an area of land within the Waikato River catchment representing the contributing area draining to one of ~~69~~74[171] locations in the stream and river network, and used as the basic spatial unit for analysis and modelling.

~~**Definition - Tangata whenua ancestral lands**~~

[171] *Refer to Map 3.11-2.*

Tangata whenua ancestral lands: means land that has been returned through settlement processes between the Crown and tangata whenua ~~of the catchment~~[172], or is, as at the date of notification (22 October 2016), Māori freehold land under the jurisdiction of Te Ture Whenua Maori Act 1993.

~~**Definition - Woody vegetation**~~

Woody vegetation: means indigenous vegetation, planted production forest, and any other non-pastoral vegetation (excluding weed species).

[172] Iwi of Hauraki V1PC1-455

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PART D

Consequential amendments to Waikato Regional Plan/Ngā whakatikahanga ka hua ake mō roto i te Mahere ā-Rohe a Waikato

Formatting used:

- Note that for the following text the new wording underlined and deleted wording has ~~strikethrough~~
- Blue "filling" marks different chapters/sections of the WRP and is inserted for ease of reference only
- Italics are for information only and are not matters to be submitted on

Operative Plan Provision	*Proposed Change*
Readers Guide	
Introduction	*Add to end second para*: Plan Change No.1 - Waikato and Waipa River Catchments (made operative on [*date*])
Abbreviations and Symbols	*Add the following alphabetically:* NPS FM National Policy Statement Freshwater Management FEP Farm Environment Plan Ha hectare FMU Freshwater Management Unit N Nitrogen P Phosphorus *E.coli Escherichia coli*

2. Matters of Significance to Maori	
2.1.1 General	*Add a new section at the end of 2.1.1:* Legislation passed in 2010 and 2012* introduced a new era of co-management for the Waikato and Waipa River catchments. Co-management provides ways for iwi to manage the rivers together with central and local government. Waikato and Waipa River iwi – Ngati Maniapoto, Raukawa, Ngati Tuwharetoa, Te Arawa River Iwi and Waikato-Tainui – and Waikato Regional Council have been partners in developing the *Healthy Rivers: Plan for Change/ Wai Ora: He Rautaki Whakapaipai* project. This project was set up to assist in achieving the *Vision and Strategy for the Waikato River/ Te Ture Whaimana o Te Awa o Waikato*. This Vision and Strategy is the primary direction-setting document for the Waikato and Waipa Rivers and focuses on restoring and protecting the health and well-being of the rivers for current and future generations.

	Chapter 3.11 has arisen from the above co-management project together with the Government's National Policy Statement for Freshwater Management 2014, and specifically addresses the Waikato and Waipa River catchments. * 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.
3.1 Water Resources	
3.1 Background and Explanation	*Add to end of para 4:* Chapter 3.11 sets out more stringent provisions within the Waipa and Waikato River catchments to address the trend of degrading water quality.
	Add new sentence as second para in section "Tangata Whenua": The Waikato and Waipa River catchments are co-managed by the Waikato and Waipa River iwi – Ngati Maniapoto, Raukawa, Ngati Tuwharetoa, Te Arawa River Iwi and Waikato-Tainui – and Waikato Regional Council. The *Vision and Strategy for the Waikato River/ Te Ture Whaimana o Te Awa o Waikato* is the primary direction-setting document for the Waikato and Waipa Rivers and focuses on restoring and protecting the health and well-being of the rivers for current and future generations. (Refer also to CH 3.11)
	Amend last sentence under "Issue and Objective": ….the objectives are found in Chapter 3.2 – ~~3.9~~3.11 of this Plan…..
3.2 Management of Water Resources	
3.2 Water Management Classes	*Add as a new last paragraph:* **Freshwater Management Units** In Chapter 3.11, Fresh Water Management Units and associated water quality targets have been established for the Waikato and Waipa River catchments. Within the Waikato and Waipa River catchments, these targets are used in decision-making processes guided by the objectives in Chapter 3.11 and for future monitoring of changes in the state of water quality within the catchments. With regard to consent applications for diffuse discharges or point source discharges of nitrogen, phosphorus, sediment and microbial pathogens it is not intended, nor is it in the nature of water quality targets, that they be used directly as receiving water compliance limits/standards.
3.2.4.1 Water Management Classes	*Amend 3.2.4.1(e):* …. apply to a water body as well as policies in Section 3.11.3 for waterbodies in the Waikato and Waipa River catchments, when making decisions …. the same issue and are inconsistent particular regard….
3.3.3 Water Takes - *Policies*	
Policy 1 (c)	*Amend Policy 1(c):*

(Establish Allocation and Minimum Flows for Surface Water)	….in accordance with the policies in Chapters 3.2 and 3.11 of this Plan.
Policy 4 (f) (Establish Sustainable Yields from Groundwater)	*Amend Policy 4(f):* ….in accordance with the policies in Chapters 3.2 and 3.11 of this Plan.
Standard 3.3.4.28 (How riparian planting and stock exclusion fencing shall apply)	*Add a new advisory note:* In the Waikato and Waipa River catchments, refer also to Chapter 3.11.

3.4.5 Implementation methods – The Use of Water	
Rule 3.4.5.6 Permitted Activity Rule - Use of Water for Crop and Pasture Irrigation	*Add a new advisory note:* Subject to compliance with any specified requirements, reporting through a Farm Environment Plan is a valid means of supplying data under this rule.
Rule 3.4.5.7 Controlled Activity Rule - Use of Water for Crop and Pasture Irrigation	*Add a new advisory note:* Subject to compliance with any specified requirements, reporting through a Farm Environment Plan is a valid means of supplying data under this rule.

3.5 Discharges	
Background and Explanation	*Insert new section at end of the Background and Explanation section:* **Discharges associated with Farming Land Use** Chapter 3.11 addresses the use of land for farming in the Waikato and Waipa River catchments including associated diffuse.
Objective 3.5.2	*Amend Objective 3.5.2 by adding a new clause c) as follows (and consequential renumbering):* c) does not have adverse effects that are inconsistent with the objectives for the Waikato and Waipa River catchments in Section 3.11.2.

Principal Reasons for adopting the Objective	*Amend Principal Reasons for adopting the Objective:* …outlined in Sections 3.1.2, 3.11.2 and 5.2.5 of this Plan…..
3.5.3 Policy 2(a) *Managing Discharges to Water with More than Minor Adverse Effects)*	*Amend 3.5.3 Policy 2(a):* … with the policies in Sections 3.2.3 and 3.11.3 of this Plan….
3.5.3 Policy 4 Discharges to Land: Advisory Note	*Add a new advisory note:* In the Waikato and Waipa River catchments, refer also to Chapter 3.11.
3.5.3 Policy 5(b) *Ground Water*	*Amend 3.5.3 Policy 5(b):* … with the policies in Sections 3.2.3 and 3.11.3 of this Plan ….
Explanation and Principal Reasons for Adopting the Policies	*Add at the end of Policy 2 para:* The cross reference to Section 3.11.3 recognises the specific water quality objectives sought to be achieved for the Waikato and Waipa River catchments through Chapter 3.11. *Add at the end of Policy 6 para.:* Chapter 3.11 addresses how water quality aspects of the Vision and Strategy will be given effect to in the Waikato and Waipa River catchments.
Rule 3.5.5.1 *Permitted Activity Rule - Discharge of Farm Animal Effluent onto Land*	*Amend opening of rule:* The point-source discharge of contaminants onto land …
Advisory Notes to Rule 3.5.5.1 Permitted Activity Rule - Discharge of Farm Animal Effluent onto Land	*Add new bullet point:* Diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens associated with use of land for farming in the Waikato and Waipa River catchments are addressed in Chapter 3.11.
Rule 3.5.5.2 *Permitted Activity Rule - Discharge of Feed Pad and Stand-Off Pad Effluent onto Land*	*Amend opening of rule:* The point-source discharge of feed pad …

Advisory Notes to Rule 3.5.5.2 *Permitted Activity Rule - Discharge of Feed Pad and Stand-Off Pad Effluent onto Land*	*Add new bullet point:* Diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens associated with use of land for farming in the Waikato and Waipa River catchments are addressed in Chapter 3.11.
Rule 3.5.5.3 *Controlled Activity Rule - Existing Discharge(s) of Effluent from Pig Farms onto Land*	*Amend opening of rule:* The point-source discharge of contaminants …
Advisory Notes to Rule 3.5.5.3 *Controlled Activity Rule - Existing Discharge(s) of Effluent from Pig Farms onto Land*	*Add new bullet point:* *Diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens associated with use of land for farming in the Waikato and Waipa River catchments are addressed in Chapter 3.11.*
Rule 3.5.5.4 Discretionary Activity Rule - Discharge of Effluent onto Land	*Amend opening of rule:* The point-source discharge of farm …
Advisory Notes to Rule 3.5.5.4 Discretionary Activity Rule - Discharge of Effluent onto Land	*Add new bullet point:* Diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens associated with use of land for farming in the Waikato and Waipa River catchments are addressed in Chapter 3.11.
Rule 3.5.5.5 Discretionary Activity Rule - Discharge of Treated Effluent to Water	*Amend opening of rule:* Except as provided for by Rule 3.5.4.6, the point-source discharge of treated…

Advisory Notes to Rule 3.5.5.5 Discretionary Activity Rule - Discharge of Treated Effluent to Water	*Add new bullet point:* Diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens associated with use of land for farming in the Waikato and Waipa River catchments are addressed in Chapter 3.11.
Rule 3.5.5.6 Prohibited Activity Rule - Discharge of Untreated Animal Effluent	*Amend opening of rule:* The point-source discharge of untreated …
Explanation and Principal reasons for adopting methods 3.5.5.1 to 3.5.5.6	*Add a new sentence at the end of first para:* Additional methods are provided in Chapter 3.11 to manage diffuse discharge of nitrogen, phosphorus, sediment and microbial pathogens associated with farming land uses within the Waikato and Waipa River catchments.
Rule 3.5.10.2 *Controlled Activity Rule - Take, Diversion and Discharge of Water Pumped from Existing Drainage and Flood Control Schemes*	*Add new clause (v) to Rule 3.5.10.2:* (v) In the case of the Waikato and Waipa River catchments, measures that recognise and provide for the objectives in Chapter 3.11.

3.6 Damming & Diverting	
Objective 3.6.2 (a)	*Amend Objective 3.6.2:* (a)….in Sections 3.1.2 and 3.11.2
Principal Reasons for Adopting the Objectives	*Amend first sentence:* … in Sections 3.1.2 and 3.11.2 and for….

3.7 Wetlands	
Objective 3.7.2	*Amend the wording:* Refer to Objectives 3.1.2 and 3.11.2 Objective 6.

Policies 3.7.3 Explanation and Principal Reasons	*Add a sentence at end of Explanation and Principal Reasons:* For Whangamarino Wetland refer also to Section 3.11.2 Objective 6 and Section 3.11.3 Policy 15.
Rule 3.7.4.6 *Advisory note* *Discretionary Activity Rule - Creation of New Drains and Deepening of Drain Invert Levels*	*Amend advisory note first bullet:* ….Policy 1 of Section 3.7.3 and for Whangamarino Wetland, Section 3.11.2 Objective 6 and Section 3.11.3 Policy 15.
Rule 3.7.4.7 Discretionary Activity Rule – *Drainage of Wetlands*	*Amend advisory note first bullet:* *…Policy 1 of Section 3.7.3 and for Whangamarino Wetland, Section 3.11.2 Objective 6 and Section 3.11.3 Policy 15.*
Explanation and Principal Reasons for Adopting Methods 3.7.4.1 to 3.7.4.7	*Amend first para:* *…to achieve Objectives 3.1.2 and 3.11.2 Objective 6…..Other methods in Chapters 3.4, 3.5, 3.6, 3.11…..*
3.8 Drilling	
3.8.2 Objective	*Amend Objective 3.8.2 (a):* a) … in sections 3.1.2 and 3.11.2
3.9 Non-Point Source Discharges	
New section proposed	*Add a new para after the Background and Explanation section:* **The Relationship between Chapter 3.9 and Chapter 3.11** With regard to the Waikato and Waipa River catchments, the objectives, policies, methods (including rules) in this chapter should be read in conjunction with the provisions of Chapter 3.11. Where there is any inconsistency between this Chapter and Chapter 3.11, the provisions of Chapter 3.11 prevail.
Objective 3.9.2	*Amend Objective 3.9.2:* *….Objectives 3.1.2 and 3.11.2*

Explanation and Principal Reasons for Adopting the Policies	*Amend last sentence of last para under Policy 2:* *… Lake Taupo and Waikato/Waipa River catchments….as detailed in Sections 3.10 and 3.11 respectively.* *[Add a last sentence at end of para on Policy 3:* *In the Waikato and Waipa River catchments, Rule 3.11.5.3 applies.]*
Rule 3.9.4.11 *Permitted Activity Rule - Fertiliser Application*	*Add opening words:* *Except as otherwise provided for, or restricted by an approved Farm Environment Plan, in accordance with the provisions and requirements of Chapter 3.11, (which applies in the Waikato and Waipa River catchments) ~~T~~the discharge of fertiliser…*
Explanation and Principal Reasons for Adopting Methods	*Add to end of first para:* *For rules and methods relating to the Waikato and Waipa River catchments – refer also to provisions in Chapter 3.11.* *Add to end of Method 3.9.4.7:* *Refer to Chapter 3.11 for stock exclusion rules that apply in the Waikato and Waipa River catchments.* *Add to middle of Method 3.9.4.10:* *Apart from within the Lake Taupo Catchment and Waikato and Waipa River catchments, Waikato Regional ……*

4.2 River and Lake bed structures	
4.2.2 Objective	*Amend Objective 4.2.2 (b):* ….Objectives 3.1.2 and 3.11.2.
Principal Reasons for Adopting the Objective	*Amend the para relating Part b):* …and Objectives 3.1.2 and 3.11.2 in the Water module.
4.2.3 Policy 2 (Management of Structures)	*Amend 4.2.3 Policy 2 (b):* …in Sections 3.2.3 and 3.11.3…
Rule 4.2.8.2 *Controlled Activity Rule - Bridges*	*Amend Rule 4.2.8.2 matter (vii):* …Water Management Class in this Plan and in the case of the Waikato and Waipa River catchments, the relevant water quality objectives in Chapter 3.11.
Rule 4.2.8.3 *Restricted Discretionary Activity Rule - Bridges*	*Amend Rule 4.2.8.3 matter (xi*): …Water Management Class in this Plan and in the case of the Waikato and Waipa River catchments, the relevant water quality objectives in Chapter 3.11.

Rule 4.2.9.3 *Controlled Activity Rule - Culverts for Catchment Areas Not Exceeding 500 Hectares*	*Amend Rule 4.2.9.3 matter (xii):* *…Water Management Class in this Plan and in the case of the Waikato and Waipa River catchments, the relevant water quality objectives in Chapter 3.11.*
Rule 4.2.10.1 *Permitted Activity Rule - Discharge and Intake structures*	*Amend Rule 4.2.10.1 condition (n):* *…Water Management Classes in Section 3.2.4 of this Plan and in the case of the Waikato and Waipa River catchments, the relevant water quality objectives in Chapter 3.11.*
Rule 4.2.11.2 *Restricted Discretionary Activity Rule - Fords*	*Amend Rule 4.2.11.2 matter xi):* *…Water Management Classes in this Plan and in the case of the Waikato and Waipa River catchments, the relevant water quality objectives in Chapter 3.11.*
Rule 4.2.16.1 *Controlled Activity Rule - Channel Training Structures*	*Amend Rule 4.2.16.1 matter (xi):* *…Water Management Classes and in the case of the Waikato and Waipa River catchments, the relevant water quality objectives in Chapter 3.11.*
Rule 4.2.20.3 *Controlled Activity Rule - Removal or Demolition of Structures*	*Amend Rule 4.2.20.3 matter (x):* *…Water Management Classes in Section 3.2.4 of this Plan and in the case of the Waikato and Waipa River catchments, the relevant water quality objectives in Chapter 3.11.*

4.3 River and Lake Bed Disturbances	
4.3.1 Issue 4	*Amend 4.3.1 Issue 4 (c):* ….inconsistent with Chapters 3.1 and 3.11
4.3.2 Objective	*Amend Objective 4.3.2 (b):* …with objectives in Chapters 3.1 and 3.11 *Amend Objective 4.3.2 (l):* …with objectives in Chapters 3.1 and 3.11

Principal Reasons for Adopting the Objective	*Amend para relating to Part b):* … objectives in Chapters 3.1 and 3.11 of this Plan *Amend para relating to Part l):* … in Chapters 3.1 and 3.11
4.3.3. Policy 1 (Bed and Bank Alterations and Extraction of Sand, Gravel and Other Bed Material)	*Amend 4.3.3. Policy 1 (b):* …in Section 3.2.3 and the objectives in Section 3.11.2, or….
4.3.3 Policy 3 (Clearance of Vegetation)	*Amend 4.3.3 Policy 3 (a):* …in Chapters 3.2 and 3.11
Explanation and Principal Reasons for Adopting the Policies	*Add to the end of the paragraph relating to Policy 4:* For the Waikato and Waipa River catchments, regulatory provisions are set out in Chapter 3.11.
Method 4.3.5.3 *Livestock access*	*Add a new first sentence:* The Waikato and Waipa River catchments are excluded from this method and are addressed in Chapter 3.11.
Rule 4.3.5.4 *Permitted Activity Rule - Livestock on the Beds and Banks of Priority One Water Bodies*	*Amend opening words of Rule 4.3.5.4:* …any water body within the Waikato and Waipa River catchments or any water body mapped in the …..
Rule 4.3.5.4 *Advisory Note*	*Add a new first bullet point:* ● Controls on livestock in the Waikato and Waipa River catchments are set out in Chapter 3.11.
Rule 4.3.5.5 *Discretionary Activity Rule - Livestock on the Beds and Banks of Priority One water Bodies*	*Amend opening words to rule 4.3.5.5:* … Livestock Exclusion Area where that Livestock Exclusion Area is outside the Waikato and Waipa River catchments:
Rule 4.3.5.5	*Add a new first bullet point:*

Advisory Note	• Controls on livestock access to water bodies in the Waikato and Waipa River catchments are set out in Chapter 3.11.
4.3.5.6 *Non-Complying Activity - Livestock on the Beds and Banks of Rivers and Lakes*	*Amend opening words to Rule 4.3.5.6:* Except as provided for in Rules 4.3.5.4 and 4.3.5.5 or within the Waikato and Waipa River catchments, the rules set out in Chapter 3.11, …
Rule 4.3.5.6 Advisory Note	*Add a new first bullet point:* • Controls on livestock in the Waikato and Waipa River catchments are set out in Chapter 3.11.
Explanation and Principal Reasons for Adopting Methods	*Add a new first sentence:* The access of stock to waterbodies in the Waikato and Waipa River catchments are addressed in Chapter 3.11.
Rule 4.3.6.2 *Controlled Activity Rule - Extraction of Bed Material and Disturbance of River and Lake Beds associated with Lawfully Established Structures*	*Amend 4.3.6.2 matter xiii):* … Water Management Classes in this Plan and in the case of the Waikato and Waipa River catchments, the water quality objectives in Chapter 3.11.

5.1 Accelerated Erosion	
Background and Explanation	*Add a new paragraph after the paragraph entitled Background and Explanation:* **Relationship between Chapter 5.1 and Chapter 3.11**. Within the Waikato and Waipa River catchments, the diffuse discharge of sediment to water as a result of the use of land for farming is regulated by Chapter 3.11. Those requirements are separate to and distinct from the matters regulated in Chapter 5.1. The requirements of Chapter 5.1 and 3.11 must, therefore, be read together.
5.1.2 Objective	*Amend 5.1.2(b):* …Objectives 3.1.2 and 3.11.2
Principal Reasons for Adopting the Objective	*Amend 4th para:* ….Objectives 3.1.2 and 3.11.2 establishes ……..in Chapters 3.2 and 3.11 of this Plan.

5.1.4.11 *Permitted Activity Rule - Soil Disturbance, Roading and Tracking and Vegetation Clearance*	*Add new advisory note:* With regard to the clearance of vegetation or planted production forest in the Waikato and Waipa River catchments, note that subsequent land use may be regulated by Rule 3.11.5.7.
5.1.4.12 *Permitted Activity Rule - Soil Cultivation Adjacent to water Bodies*	*Amend opening statement:* Except as controlled by rules 7.2.6.1 and 7.2.6.2, or in the Waikato and Waipa River catchments, as required by rule 3.11.5.2, or by an approved Farm Environment Plan developed under Rules [3.11.5.3 or] 3.11.5.4 or 3.11.5.5, soil cultivation not less than…
5.1.4.13 *Discretionary Activity Rule - Soil Disturbance, Roading and Tracking and Vegetation Clearance*	*Add to the beginning of Clause 2:* Except as allowed by an approved Farm Environment Plan developed under Rules [3.11.5.3 or] 3.11.5.4 or 3.11.5.5, ~~s~~soil cultivation… *Add new advisory note:* With regard to the clearance of vegetation or planted production forest in the Waikato and Waipa River catchments, note that subsequent land use may be regulated by Rule 3.11.5.7.
5.1.4.14 *Controlled Activity Rule - Soil Disturbance, Roading and Tracking and Vegetation Clearance, Riparian Vegetation Clearance in High Risk Erosion Areas*	*Add an advisory note:* *With regard to the clearance of vegetation or planted production forest in the Waikato and Waipa River catchments, note that subsequent land use may be regulated by Rule 3.11.5.7.*
5.1.4.15 *Discretionary Activity Rule - Soil Disturbance, Roading and Tracking and Vegetation Clearance, Riparian Vegetation Clearance in High Risk Erosion Areas*	*Add an advisory note:* *With regard to the clearance of vegetation or planted production forest in the Waikato and Waipa River catchments, note that subsequent land use may be regulated by Rule 3.11.5.7.*

Explanation and Principal Reasons for Adopting Methods	*Add to end of para that deals with Method 5.1.4.5:* *Within the Waikato and Waipa River catchments, there are policy and regulatory provisions that require the development of Farm Environment Plans for some land uses (refer Chapter 3.11).* *Add to end of para that deals with Method 5.1.4.9:* *A regulatory approach has been introduced for the Waikato and Waipa River catchments in Chapter 3.11.*

5.2 Discharges onto or into land	
Integration with Water and Air Management	*Add to para 3:* …discussed in Chapters 3.5 and 3.11.
5.2.2 Objective	*Amend clause b):* …in Section 3.1.2 or the objectives for the Waikato and Waipa River catchments in Section 3.11.2.
5.2.3 Policy 2 Other Discharges Onto or Into Land	*Amend 5.2.3 Policy 2(b):* *…in Sections 5.1.3 and 3.11.3* *Amend 5.2.3 Policy 2(c):* *… in Section 3.2.3 3 or in the Waikato and Waipa River catchments, the water quality objectives in Section 3.11.2*
Explanation and Principal Reasons for adopting Methods 5.2.5.1 to 5.2.5.8	*Add as a last sentence to the opening paragraph:* *For activities in the Waikato and Waipa River catchments, refer also to the objectives and policies in Chapter 3.11.*

5.3 Contaminated Land	
Objective 5.3.2	*Amend clause b):* …in Sections 3.1.2 and 3.11.2
Principal Reasons for adopting the Objective	*Amend 3rd para:* ….in Chapters 3.1, 3.11 and 6.1.

Glossary of Terms	

property	*Amend definition of "property":* For the purposes of Chapters 3.3~~,and~~ 3.4 and 3.11 means one or more allotments contained in single certificate of title, and also includes all adjacent land that is in the same ownership but contained in separate certificates of title. For the purpose of Rule[s 3.11.5.3 and] 3.11.5.4, a property is considered to be within a sub-catchment if more than 50% of that property is within the sub-catchment.

APPENDIX 2 – LIVESTOCK ACCESS – INTERNAL TECHNICAL GUIDANCE FOR DOC STAFF

Livestock access: 101

Technical guidance for DOC input to collaborative processes for regional freshwater plan development

The purpose of this guidance document is to provide DOC staff with information about the current government position on stock exclusion, and an introduction to the adverse effects of livestock access to freshwater and estuarine ecosystems. It sets out why, when and where livestock access to freshwater and estuarine ecosystems are of concern to DOC, and how the effects of livestock access can be avoided or managed.

The summary on page 2 summarises the key impacts of livestock on freshwater ecosystems and outlines key points to advocate for. Companion documents about the impacts of nutrients, sediment, and removal of riparian vegetation, on water quality, ecosystem health and associated values have also been prepared. Contact the Freshwater Team for more information if needed.

Contents

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Summary

The current policy and regulations around stock exclusion are as follows:

- The Government (through the Clean Water 2017 package[1]) has developed regulations (believed to come into effect in May 2018) to exclude stock from waterways on land used for dairy and dairy support, beef cattle, pigs and deer by July 2022.
- The stock exclusion regulations propose to exclude dairy cattle and pigs from most lakes, rivers and streams from 1st July 2017[2], with compulsory stock exclusion to follow on a staggered basis until 2030, extending to include beef and deer. The rules vary depending on the slope of the land, with stock (dairy and beef cattle, pigs and deer) to eventually be excluded from all waterways, lakes and wetlands on flat land (0–3°), and waterways over 1 metre wide, lakes and wetlands on rolling (>3–15°) and steeper (<15°) land. Specific details of the regulations are set out in section 1.1.
- Sheep and goats are not covered by the proposed stock exclusion regulations.
- Councils will have the ability to apply more stringent stock exclusion rules where they see this as necessary or desirable.
- A number of councils already have stock exclusion rules that generally relate to intensively farmed stock or are targeted to priority water bodies.
- DOC processes grazing licences on Public Conservation Land (PCL). These approvals are governed by the General Policy and local Conservation Management Strategies. Standard conditions are attached to grazing licences that prohibit stock access to waterways. However, improving compliance with these conditions is a work in progress.

The key adverse effects of livestock access to freshwater ecosystems are:

- Consumption of plant matter.
- Trampling of riparian plants and fish habitat, and subsequent compaction of soil (pugging).
- Nutrient inputs and microbial contamination from urine and faeces.
- Stream bank erosion from vegetation removal and trampling.

DOC staff should advocate for councils to be more stringent than the national regulations in the following ways:

- Excluding stock from all waterways, including small permanently flowing rivers and streams, on rolling and steep land. Small streams (<1 m) are currently excluded from the regulations, yet small headwater streams have important biodiversity and hydrological values.
    - Where exclusion from all waterways regardless of size is deemed practically impossible, stock should at least be excluded from waterways that are significant for threatened fish species. GIS tools and databases can be used to help identify which catchments are most significant for threatened fish species.
    - Another compromise option that may be more stringent than the national regulations and provide greater protection for significant freshwater values, would be to seek that stock are excluded from certain places at certain times of the year (if not possible year-round). This is particularly important for protecting spawning habitat.
- Sheep and goats are not included in the national regulations on the basis that they are generally not attracted to waterways. However, there may be situations when excluding these species is important to safeguard habitat.
- Councils should be encouraged to exclude all stock from outstanding waterbodies.
- The national regulations will require stock exclusion, without dictating how stock are going to be excluded (e.g., no requirement for permanent fencing). They also do not stipulate any setback distance, or have a requirement to include any riparian management. Vegetated buffers, even containing only grass, will perform valuable riparian functions such as filtering overland flow of

[1] http://www.mfe.govt.nz/publications/fresh-water/clean-water-90-of-rivers-and-lakes-swimmable-2040

[2] Note that as these initial dates set in the consultation document have passed, new dates will likely be set when the regulations come into effect.

sediment and nutrients. Many councils already have a programme for encouraging riparian planting, but recognising this through their statutory plans may ultimately lead to achievement of improved riparian restoration.

1. Government policies relating to stock exclusion

1.1 Proposed national regulations for stock exclusion

The Government is proposing to exclude cattle, pigs and deer from waterbodies by 2030. A draft national regulation has been developed, and is believed to come into effect around May 2018. It would exclude dairy cattle (on milking platforms[3]) and pigs from lakes, wetlands and waterways over 1 metre wide by 1 July 2017[4], and other stock types at later dates.

The waterbodies included will be:

- Permanently flowing waterways (rivers, streams and drains) of any size on the 'plains' (land with a slope of 0–3°).
- Permanently flowing waterways (rivers, streams and drains) with an active channel that is over 1 metre wide at any point on land greater than 3° in slope.
- Lakes, as per the Resource Management Act 1991 definition (bodies of fresh water which are entirely or nearly surrounded by land).
- Natural wetlands, as per the Resource Management Act definition (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), but not including wet pasture, or places where water temporarily ponds after rain or pasture containing patches of rushes.

The stock exclusion proposal was set out in the Clean Water 2017 discussion document (MfE 2017), and is summarised in Table 1 below. Submissions were called for, and summarised in recommendations to Government, however, as yet there have been no changes proposed to the stock exclusion regulations from those that were consulted on.

The 2017 amendments to the Resource Management Act included new sections[5]—360(1)(hn) that will enable these regulations to be made; 360(1)(ho) that provides for related infringement offences; and 360(1)(bb) that allows the regulations to set infringement fees of up to $100 per animal (up to a maximum of $2000), rather than the maximum $1000 that applies to other infringement notices under the RMA.

Any district or regional plan rules that are more stringent than requirements set in section 360(hn) will prevail over the regulations. The regulations may require a council to withdraw or amend plan rules that are inconsistent without using an RMA Schedule 1 process.

[3] 'Milking platforms' is the term used to describe the farms where cows are being milked, compared to 'dairy support' farms which graze cows when they have been dried off for winter. The proposed regulations would apply equally to all dairy cattle, but over different timeframes.

[4] Note that as these initial dates set in the consultation document have passed, new dates will likely be set when the regulations come into effect.

[5] http://www.legislation.govt.nz/act/public/1991/0069/latest/DLM239372.html?search=ts_act%40bill%40regulation%40deemedreg_resource_resel_25_a&p=1

Table 1: The Clean Water Package proposes the following national stock exclusion rules:

	Pigs	Dairy cows (on milking platforms)	Dairy support	Deer	Beef Cattle
Steeper land (>15°)	By 1 July 2017 Pigs must be excluded from waterways over 1 metre wide, lakes and wetlands.	By 1 July 2017 Dairy cattle on milking platforms must be excluded from waterways over 1 metre wide, lakes and wetlands.	By 1 July 2022 Dairy support cattle that are break feeding[6] must be excluded from waterways over 1 metre wide, lakes and wetlands.	By 1 July 2022 Deer that are break feeding must be excluded from waterways over 1 metre wide, lakes and wetlands.	By 1 July 2022 Beef cattle that are break feeding must be excluded from waterways over 1 metre wide, lakes and wetlands.
Rolling land (>3-15°)	By 1 July 2017 Pigs must be excluded from waterways over 1 metre wide, lakes and wetlands.	By 1 July 2017 Dairy cattle on milking platforms must be excluded from waterways over 1 metre wide, lakes and wetlands.	By 1 July 2022 Dairy support cattle must be excluded from waterways over 1 metre wide, lakes and wetlands.	By 1 July 2022 Deer that are break feeding must be excluded from waterways over 1 metre wide, lakes and wetlands. 1 July 2030 This then applies to all deer.	By 1 July 2022 Beef cattle that are break feeding must be excluded from waterways over 1 metre wide, lakes and wetlands. 1 July 2030 This then applies to all beef cattle.
Plains (0-3°)	By 1 July 2017 Pigs must be excluded from waterways over 1 metre wide, lakes and wetlands. 1 July 2020 This then applies to all waterways.	By 1 July 2017 Dairy cattle on milking platforms must be excluded from waterways over 1 metre wide, lakes and wetlands. 1 July 2020 This then applies to all waterways.	By 1 July 2022 Dairy support cattle must be excluded from all waterways, lakes and wetlands.	By 1 July 2022 Deer that are break feeding must be excluded from all waterways, lakes and wetlands. 1 July 2025 This then applies to all deer.	By 1 July 2022 Beef cattle that are break feeding must be excluded from all waterways, lakes and wetlands. 1 July 2025 This then applies to all beef cattle.

During the submission phase for the regulations, the NZ Freshwater Sciences Society and the Land and Water Forum) raised the following issues that are useful to keep in mind when considering the regulations or seeking that councils include more stringent measures (discussed further in section 3).

Issues raised by the NZ Freshwater Sciences Society:

- Excluding break feeding stock from waterways is particularly important since this practice has significant deleterious effects on water quality and stream and bank habitat. Given this, and the fact that break feeding is usually practiced with temporary fencing, the deadline for stock to be excluded during break feeding could be brought forward considerably.
- The exclusion of pigs and dairy cattle from all waterways on flat land should be immediate rather than by 2020.

[6] Break feeding is where stock are kept behind a temporary fence which is moved regularly to allow access to sections of the paddock at a time.

- Provisions excluding break feeding or general exclusions from waterways <1 metre wide should be tightened up. Smaller waterways and headwater streams serve important ecological functions and deserve protection from stock trampling of habitat. In addition, contamination of headwaters from sediment and stock defecation should be avoided.
- Small streams and wetlands provide important biodiversity and ecosystem services, so stock should be excluded from waterways of any size [more of this later in this guidance].
- Stock should be excluded from gravel margins and beaches of larger rivers—i.e., this is not clear in the current regulations, so councils may need to clarify the extent of the edge of a river for rules they create under these regulations.
- Setback distances from waterways are needed to ensure ecosystem health/habitat aspects of waterways are protected from stock trampling and water quality benefits are maximised. Setbacks should take account of slope and soil type. Setbacks also protect farmers from loss of fencing materials from regular flooding.
- Dairy support cattle should be treated in the same manner as milking dairy cattle. Although they have lower nutrient outputs than milking cattle, non-milking dairy cows have the same trampling impacts on habitats as milking dairy cattle.

Issues raised by the Land and Water Forum:

- Stock exclusion rules need to avoid impractical requirements like short intermittent stretches of fencing (e.g., five metres of fencing here, no fencing here, five metres of fencing here, etc.) on land with variable slopes.
- The use of 'exceptions' or 'alternative option' should be strictly limited. LAWF's fourth report recommended that: 'Exceptions from national and regional stock exclusion requirements should be provided in limited situations where large costs and significant impracticalities relative to the environmental benefits can be demonstrated...'

1.2 Regional council approaches to livestock access

Table 2 sets out the current state of stock exclusion rules in different regions. This highlights that there is a variable approach to stock exclusion. Monitoring and enforcement efforts are also variable. This table is included so that DOC staff can see what approach neighbouring regions have adopted; however, it was copied from the MfE draft regulatory impact statement prepared at the end of 2016 (MfE 2016), so please check the current plan provisions for any regions you may be interested in.

Table 2: Summary of current stock exclusion rules in regions as at December 2016. Source: MfE draft regulatory impact statement (MfE 2016).

Council	Summary of where and when stock exclusion rules apply	Status
Councils WITH current, proposed or draft region-wide stock exclusion rules		
Waikato	Priority waterbodies (in force)	Current
Bay of Plenty	Priority waterbodies (in force)	Current
Canterbury	Intensively farmed stock and priority areas (in force)	Current
Horizons	New intensive farming or existing intensive farming in priority areas (in force)	Current
Southland	Current rules: winter intensive grazing and priority waterbodies (in force) Proposed rules: where slope is less than 16 degrees; deer by 2020, other stock (except sheep) by 2018	Current Proposed
Marlborough	Intensively farmed stock, by 2022	Proposed
Gisborne	Winter intensive grazing by 2017 (riparian setbacks also required)	Proposed

Auckland	Intensive stock to be excluded by 2021 for lakes, wetlands and permanently flowing rivers/streams, and 2026 for intermittent rivers/streams	Proposed
Wellington	Similar to proposed national rules[7]	Proposed
Northland	Similar to proposed national rules[8]	Draft
Taranaki	Intensively farmed stock by 2020 (riparian planting also required)	Draft
Councils WITHOUT region-side stock exclusion rules		
West Coast	Stock access is a permitted activity (except for Lake Brunner catchment)	Current
Hawke's Bay	Stock access is a permitted activity (except for Tukituki catchment)	Current
Tasman	Stock access is a permitted activity (except at Te Waikoropupu Springs)	Current
Nelson	Stock access is a permitted activity	Current
Otago	Stock access is a permitted activity	Current

1.3 Stock exclusion on grazing concessions on public conservation land.

DOC currently authorises grazing to take place on public conservation lands within proximity of waterways, including marginal strips (via vegetation management agreements). Guidance regarding this activity is principally found within DOC's Conservation General Policy, as well as the General Policy for National Parks (and within the context of various Conservation Management Strategies and Conservation Management Plans). While the Conservation General Policy does not specifically call for reductions in grazing on PCL, it does note that criteria are to be considered before the granting of a grazing concession—these include existing use, adverse effects on waterways, erosion, and ensuring continued public access (Conservation General Policy, section 11.2). Conversely, many Conservation Management Strategies and national park management plans discuss proactively retiring grazing land. Nothing within current DOC policies limit internal decision makers from retiring expiring grazing concessions.

There are currently 672 active grazing concessions and 45 vegetation management agreements[9] registered within the permissions database. Overall, the number of active grazing concessions on PCL has declined since 2006 (Table 3). Reductions may be explained by 'phasing out' decisions derived from relevant policies, as well as treaty settlements, land transfers and disposals.

Table 3: Grazing licenses on public conservation land. Source: DOC website for information for financial years 2006–2014; Permissions database for calendar year 2017. Data currently unavailable for 2015–16.

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2017
Active grazing concessions	754	774	761	769	766	757	718	708	672

Permissions has developed an application process to meet the legal requirements of the Conservation Act (including requiring the completion of an impact statement where effects of the concession are unknown). DOC's standard grazing agreements contain specific guidance concerning fencing requirements to exclude

[7] DOC submitted, and presented evidence on the stock exclusion rules of Greater Wellington Regional Council's proposed Natural Resources Plan. Refer to freshwater technical evidence, water quality evidence, and legal submissions.

[8] http://www.nrc.govt.nz/contentassets/2fbd03768d21478cae1d87527806e172/regional-plan-fact-sheet---livestock-access-to-water-bodies---version-2.pdf

[9] Additional vegetation management agreements may exist that have not been captured in the Permissions Database—see DOC-2797686.

livestock from waterways, and a requirement that an adequate ungrazed vegetation strip is to be maintained along all watercourses. Other conditions include:

- the use of electric fencing at a designated distance from waterways,
- low stock rates,
- adherence to regional water plans, and
- replanting of riparian areas.

There is nothing limiting decision makers from including *additional* restrictions and/or contractual requirements on grazing permissions holders on a case-by-case basis.

However, compliance is the most challenged, and challenging aspect of DOC's management of grazing adjacent to waterways. Collaborative work between compliance and permissions is currently underway (including revamped reporting and notification protocols). Enforcement improvements should remain a key focus for DOC in relation to this issue.

In summary, DOC's approach to stock exclusion on grazed public conservation land is through the following components:

1. Sound licensing agreements with permissions holders which includes restrictive covenants, conditions and indemnification clauses (current).
2. An on-going, robust compliance strategy to include development of forms, training, systematic enforcement and cataloguing of compliance (ongoing).
3. Re-evaluation of DOC policies as necessary to ensure that DOC's grazing positions are correct in light of Conservation Management Strategies, national park management plans and the proposed national stock exclusion rules (recommended, yet to be implemented).
4. Work to improve the capture of compliance data within the Permissions Database (recommended).
5. Coordinated communication with the public and permissions holders to redress concerns about grazing on PCL (on-going).
6. A willingness by DOC to retire or restrict current grazing activities on PCL as necessary (recommended).

2. What are the impacts of livestock access on freshwater and estuarine ecosystems?

2.1 What are the direct effects of livestock access to water?

Livestock access to stream beds and riparian margins can have significant adverse effects on freshwater fish habitat. Effects include: disturbance to the stream bed and banks (e.g., compaction and pugging of soil), collapse of stream banks, grazing and trampling of riparian vegetation, destruction of fish spawning habitat, and increased sediment and nutrient inputs to the waterway (e.g., Hickford & Schiel 2014, Williamson et al. 1992).

Compaction and pugging of soil

Livestock can affect soil structure in two ways: compaction and pugging. Pugging occurs when soils are very wet, usually close to saturation level, and the animals' hooves penetrate the surface soil—this squashes and buries plants and prevents water draining through the soil surface layer. Compaction occurs when soils are moist, but not saturated. The soil surface generally stays intact, so while animal hooves don't penetrate the soil, compaction still decreases the water storage capacity of the soil. Both of these effects increase surface water runoff (pugging more so than compaction) and can have long lasting effects on the soil if pastures do not recover sufficiently before being re-grazed.

Destruction of fish spawning habitat

Mitchell (1991, in Reeves & Champion 2004) investigated the effects of cattle grazing on whitebait spawning grounds in a riparian wetland next to the Kaituna River in the Bay of Plenty. He found that inanga (*Galaxias maculatus)* preferred to lay their eggs within the area that stock were excluded from, and also that survival rates were significantly higher where cattle had been excluded. It is likely that poor survival of eggs in grazed pasture is due to the direct effects of trampling and consumption, and indirectly as the result of plant removal, leading to desiccation and greater temperature fluctuations. The common practice of intense rotational grazing of cattle on riverbanks has been noted as having a greater impact than most other forms of grazing (Reeves & Champion 2004).

Other species of fish (e.g., a number of the non-migratory galaxias species) spawn on emergent instream vegetation which could be trampled on or grazed by stock in the stream.

Nutrient leaching

The main sources of nutrients to waterways in grazed pasture are animal dung and urine, industrial fertilisers, and soil particles suspended in water. Urine, which contains high nitrogen (N) in the form of ammonia (NH_3), is an easily leachable source due to its chemical properties in the soil (Monaghan et al. 2007), while dung contains a range of pathogens (e.g., *E. coli*) and organic material, including N, phosphorus (P) and potassium (K).

Sediment loss

Sediment particles carry a number of associated nutrients, but particularly phosphorus, which binds to soil, and contributes to increased algae growth. Sediment runoff occurs when soil particles are suspended in surface waters that drain into waterways. Sediment tends to settle on the bottom substrate and can smother aquatic life. Sediment can enter waterbodies from pugging and trampling of the steam banks which causes erosion, vegetation loss and soil loss. Sediment released from trampled beds and banks can clog the sensitive gill structures of macroinvertebrates and fish and reduce sight feeding opportunities for fish and bird species (McArthur 2017).

Sheep farming usually has a higher rate of sediment loss to waterways than dairy farming, but still lower than mixed stock and deer (McDowell & Wilcock 2008).

In summary, the key direct effects of livestock grazing adjacent to waterways are:

- Consumption of plant matter and consequent loss of shade.
- Trampling of riparian plants and fish habitat, and subsequent compaction of soil (pugging).
- Nutrient inputs.
- Microbial contamination from urine and faeces.
- Stream bank erosion from vegetation removal and trampling.

2.2 What are the indirect effects of livestock access to water?

A number of indirect effects also result from livestock access. These include smothering of fish and aquatic life through sedimentation (see the sediment guidance, DOC-2767706, for further information on the effects of sediment), nutrient toxicity from runoff (see the nutrients guidance, DOC-1556048, for further information), and the likely loss of marginal vegetation that provides shade (causing increased water temperatures, light penetration and aquatic plant and algal growth).

The indirect effects are summarised well by Hickford & Schiel (2014):

> 'Intense livestock grazing can impact growth of riparian vegetation through compacting soil and increasing run-off, removing foliage, and damaging vegetation through trampling and browsing. This, in turn, modifies the riparian microclimate by increasing ground-level temperatures and evaporation.

Cattle and sheep preferentially graze riparian vegetation because of the better quality and variety of forage, shorter distance to water, and microclimatic features.'

2.3 How do different types of livestock affect waterways?

Dairy farming is the most intensive and high impact type of livestock grazing because pastures are more often irrigated, the animals are heavier, and they require a more varied diet than sheep or deer. Sheep typically have less impact on soil structure, hydrology and water nutrient inputs (the main factors affecting waterway health) than dairy, beef and deer.

Sheep tend to compact soils to a lesser extent than dairy cattle, as they weigh less, do not penetrate the soil so readily, and are mostly grazed on non-irrigated land (which is less likely to be highly saturated and compactable). Sheep are also generally less likely to enter waterways. Sheep produce smaller urine patches than cattle (and probably deer), but these can still be a problematic source of nutrients in areas of high runoff, such as steep hill country and water saturated soils (this is highly dependent on the porosity of the soil, stocking rates and local rainfall). Similarly, sheep farming typically requires lower and less frequent doses of industrial fertilisers so is usually less prone to nutrient leaching. The average nitrogen lost from the soil on NZ dairy farms, between 2006 and 2007, was 39 kilograms per hectare per year, compared with 12 kilograms for deer farms and 8 kilograms for sheep and beef farms (MAF 2008).

There may be some need for excluding sheep from waterways during winter crop grazing, as this practice typically causes greater surface runoff than usual pasture gazing (McDowell & Houlbrooke 2009). This would be particularly relevant during high rainfall events when soils are water saturated; although cattle still have a greater impact than sheep in this respect. Similarly, all livestock should be restricted from grazing newly cultivated or recently sown or tilled paddocks, as they easily absorb water and become more unstable and less resilient to treading by livestock. This may be addressed by the requirements in the proposed regulations to exclude stock from waterways during break feeding.

Deer are large animals capable of damaging water bodies. Some species of deer wallow, and these wallows can be major sources of sediment and pathogens when connected to other water bodies (MfE 2016).

Pigs can wallow in streams and wetlands in a similar way to deer, and are included in the proposed stock exclusion regulations. MfE's regulatory impact statement notes, however, that pigs are generally housed and therefore don't generally have access to waterways.

2.4 How are the effects of stock in waterways cumulative?

There are cumulative effects from stock accessing waterways. The inputs from grazing and access to waterways on one small lifestyle block may seem negligible on its own, but many small lifestyle blocks within one catchment can have concentrated effects further downstream, particularly if there are sensitive receiving environments, such as lakes or estuaries, downstream.

Increased winter flows can reduce the residence time of nutrients and sediment close to the source, but may be just transferring the impact to downstream ecosystems, such as lakes, wetlands and estuaries. Likewise, there can be cumulative effects of different types of stressors on waterways. For example, if there is a sheep farm with low nitrogen but moderate sediment (and therefore phosphorus, which binds readily to sediment) inputs upstream of a dairy farm, then the high nitrogen inputs from the dairy farm, additional to sediment/phosphorus inputs from the sheep farm, may cause the waterway to reach a tipping point.

2.5 How does land slope alter the effects of livestock access?

Slope is a key factor affecting the severity of impacts on waterways, primarily through increased rates of nutrient runoff and increased erodibility. These effects are also amplified by heavy rainfall and/or frequency of heavy rain fall events.

2.6 What are the impacts of livestock grazing in wetlands?

In addition to the general effects of livestock grazing on freshwater ecosystems discussed above, Reeves & Champion (2004) summarised the impacts of stock on wetlands as follows:

- Livestock grazing on plants in wetlands have been found to ultimately affect the structure and function of wetland vegetation. While the impacts of grazing do vary, and some plants seem to do well (even increasing their biomass and reproduction) when grazed, overall effects can greatly alter a wetland. Grazing can open up patches to invasion by weedy species, or favour species that do well under grazing over those that don't, changing the composition of vegetation in the wetland. When combined with other stressors, grazing can have significant adverse effects on some wetland plants. The effects of grazing also differ between different types of stock—all stock do impact wetlands to some degree, but the scale of the impacts is variable and dependent on the type of stock.
- Grazing in wetlands can affect wetland fauna as well, including birds (e.g., fernbird, crake, bittern), invertebrates (e.g., dragonflies) and fish (e.g., mudfish). Effects range from damage to nests, burrows, spawning sites, mating perches, etc. and loss of suitable sites for reproduction, to a reduction in available habitat (resulting from decreased diversity of wetland vegetation and/or increase of weedy species, meaning on overall lower diversity of habitat).
- There is limited information on the effects that livestock grazing has on water and soil quality in wetlands, however, studies have found that: nitrate-nitrogen increased in heavily grazed fens; water quality is poorer in grazed wetlands (particularly those with higher intensity grazing); and trampling can alter soil structure and stability (especially when grazed during 'drier' times), reducing the ability for water to filter through the soil.

Managing grazing in wetlands

The effects of grazing are variable across different wetland types, and in some instances grazing has been found to have negligible effects, raising a question about whether some wetland types might be more resilient to livestock grazing, or whether there are some cases where conservation values could be managed through specific grazing regimes. For example, in some cases low densities of grazing sheep or cattle have been found to reduce woody, weedy species, and maintain a short turf, increasing the diversity of native vegetation. However, any potential benefits would only occur under low stocking rates, and should be assessed on a site-specific basis, taking into account the conservation objectives of each site and factors such as palatability, growth form and vigour of the native wetland species, as well as the general level of disturbance likely to result from stock type and stocking rate, to determine whether any level of grazing is appropriate.

Further investigation into the effects of grazing on wetlands should be conducted before grazing is considered as a potential management tool, as there are many associated detrimental effects that result from grazing. As grazing can also frequently result in an increase in weedy vegetation, rather than desired species, and wetlands where positive benefits from grazing have been found are those that have been grazed for a long period of time, it is questionable whether the grazing actually provides any long-term benefit. Other control options, such as targeted use of herbicides (which control weedy species without affecting native vegetation), are likely to result in better outcomes.

2.7 What are the impact of livestock grazing in estuaries?

Livestock trampling in estuaries has been found to have similar effects to those listed above for wetlands. Studies have found grazing causing impacts, although not always detrimental, to vegetation composition—e.g., some grazing opened up space for threatened species (Reeves & Champion 2004 and references therein). One NZ study found grazing resulted in a change to mangrove substrate, with macroinvertebrate densities in the aerobic mud layer appearing to be lower, and surface algae and seagrass absent in trampled areas (Bellingham & Davis 2008).

2.8 What are the effects of livestock access on recreational, aesthetic and cultural values?

From a recreational, aesthetic and cultural perspective, the biggest benefit of excluding stock from waterways is the removal of the direct contamination from faeces and urine. Disease causing organisms and sediment are two types of contaminants that can enter waterbodies from stock access, and that impact on recreational, aesthetic and cultural values.

3. When and where should council rules be more stringent than the regulations?

The exclusion of all stock from waterways is recognised as best practice. The national regulations recognise this, but also recognise the need to phase in the requirement for stock exclusion for certain land types to enable landowners to plan for the resourcing of this change in their land management. The regulations exclude certain types of waterways on the basis that the cost:benefit analysis does not warrant their inclusion. Councils have the ability to be more stringent than the national regulations, and this may provide DOC with an opportunity to advocate for more stringent provisions, particularly around the application of rules to more waterways in order to protect conservation values

3.1 Small streams on rolling and steep land

The proposed stock exclusion regulations apply only to permanently flowing rivers and streams over one metre wide on rolling and steep land, and all permanently flowing rivers and streams, regardless of size, on flat land with a slope of 0–3°. Streams smaller than one metre wide form the headwaters of larger rivers and can often have very high biodiversity values, often greater than those in larger streams. As they form the headwaters of all larger waterways, they have an impact on water quality in the rest of the catchment—what happens in these smaller waterways can have impacts further down the catchment.

However, the costs of including small streams has been deemed potentially high for some farms, and with practical difficulties in terms of farm management. Therefore, small streams on rolling or steep land have been excluded from the proposed national regulations.

Small streams less than one metre in width (e.g., headwater and tributary streams) provide important habitat for many species, often containing more variable, and greater amounts of the habitat preferred by native fish species than larger streams or mainstem rivers. For example, small streams can be more easily shaded by riparian vegetation, and (depending on the quality of the riparian vegetation) can have vegetation overhanging into the water, providing instream cover. Larger streams have higher flows and so cannot readily retain habitat features such as instream debris, shading, and steep, stable banks (e.g., Jowett et al. 2009; Meyer et al. 2007). Effects on stream habitat are also often more significant on small streams than large ones—for example, riparian vegetation may provide shading over the entire width of a small stream, but only a portion of a large one, so removal of riparian vegetation from a small stream results in a sudden change to habitat (e.g., Meyer et al. 2007).

Small streams, or headwater streams have the following hydrological and biodiversity values (TRC 2010):

- They provide natural flood control.
- They have the greatest surface area:soil ratio, so contribute the most to recharging groundwater and downstream systems.
- They are the most varied of running water ecosystems, providing a wide variety of different types of habitat.
- They support diverse, and often unique, invertebrate, fish and bird biodiversity.
- They provide crucial links between aquatic and terrestrial ecosystems.

- The hyporheic zone (the area below the surface of the stream) is where stream cleansing and nutrient processing occurs, and across the whole small stream network is proportionally greater than the area below larger streams.

Recent research has found that smaller streams contribute 77% of the national contaminant load (total N and dissolved reactive P) (McDowall et al, 2017).

Because of this, it is recommended that DOC advocate for the exclusion of stock from streams smaller than one metre on rolling or steep land, though being mindful that a targeted approach to prioritise catchments is more likely to be successful than a blanket regional approach. Sections 3.2 and 3.3 provide more detail on ways that exclusion of stock from small waterways, or of livestock other than cattle, pigs and deer, can be targeted to protect significant habitats, where seeking to exclude stock from all waterways across a region is deemed impractical.

3.2 Habitat for threatened species

Given that there are often practical difficulties in fencing all waterways, then, as a minimum, DOC should advocate to protect indigenous freshwater biodiversity and habitat for threatened fish species:

- Threatened species—stock should specifically be excluded from waterways containing populations of 'Threatened' and 'At Risk'[10] indigenous fish species. Some councils may identify these within regional plans, and these can also be checked or a list relatively easily compiled based on the New Zealand Freshwater Fish Database (NZFFD) records of threatened and at risk species. These waterways would ideally be updated as new survey records are found.
- Species Management Units (SMUs) identify DOC's sites for species management to achieve species persistence. SMUs for non-migratory fish species have been confirmed, and can be found in the Business Plan or in NATIS (if you use ArcGIS), or ask the Freshwater Team. Polygons for migratory fish species have been identified by the Freshwater Team, but have not yet been confirmed as SMUs, but could be provided by the Freshwater Team. While they do not identify the locations of all threatened species populations, SMUs and species polygons could be used to identify priority catchments for threatened species.
- Spawning habitats of the five migratory *Galaxias* species—inanga, kōaro, giant kōkopu, shortjaw kōkopu and banded kōkopu (i.e., the 'whitebait' species) all spawn in riparian habitats (e.g., Figure 1) during times of elevated flows, or during spring tides. The survival of eggs, and their spawning success, relies on the riparian vegetation providing a humid environment, shading from the sun, and regulating temperature. This means that their spawning habitats are particularly vulnerable to stock trampling and grazing. The juveniles of these five species also make up the whitebait catch, so are of recreational, as well as conservation, importance.
    - Inanga—the spawning habitats of inanga can be relatively easily identified, as spawning occurs in tidally-influenced reaches of lowland waterways, near the salt wedge (the interface between saltwater and freshwater). Eggs are spawned within understorey riparian vegetation that is only inundated during spring tides. The proposed national stock exclusion regulations should see the exclusion of stock from lowland rivers, however, some smaller streams (less than one metre in width) that provide spawning habitats for inanga may not be

Figure 1: Exposed inanga eggs in amongst moss and blades of tall fescue grass and herb plants. Photo: Pete Ravenscroft.

[10] As per the New Zealand Threat Classification lists, and inclu Nationally Endangered and Nationally Vulnerable, or At Risk—Declining, Recovering, Relict and Naturally Uncommon. Goodman et al. (2014) contains the current conservation statuses for freshwater fish.

captured if they are not on land classified as flat (0–3° slope), or if affected by livestock other than cattle, deer or pigs. Depending on the type of livestock, exclusion rules may not come into effect for several years (up to 2025), which means that critical habitat for inanga may continue to be impacted for an extended period of time, unless more stringent rules are applied. Spawning habitat can be degraded relatively quickly (e.g., stock damaging riparian vegetation and collapsing banks through grazing and trampling of soil), however, restoration of degraded habitats can take many years. Inanga spawning habitats could be protected in all streams by excluding stock from the discrete sections of waterway around the salt wedge where spawning occurs, and the timing of exclusion rules brought forward for these areas.

- Giant kōkopu, shortjaw kōkopu, kōaro and banded kōkopu—there is only limited research regarding the location of spawning habitats for these species, which means that, unlike inanga, pin-pointing precise sections of waterways to target for stock exclusion would have some inaccuracy. Therefore, stock should ideally be excluded from the entire waterway where each of these species are present. However, where impractical to exclude stock from the entire waterway, GIS could be used to predict where spawning is likely to occur in waterways that contain these species, based on what is known about their spawning habitats, NZFFD records, and predicted fish distributions. Appendix II provides an illustrative example of how this method could be applied, however, it would involve a large amount of time and effort, and would only be a very coarse estimation with a high level of uncertainty (e.g., places where it was indicated spawning may occur may have no spawning, etc.).

3.3 At certain critical times of the year

Year-round stock exclusion from waterways is the ideal situation (a lot of damage to habitat can be caused outside of key times, such as spawning season—pugging of banks, destruction of habitat, increased sediment and nutrient inputs to the waterway, etc.), however, if this is deemed not possible, then excluding stock from waterways and riparian areas during spawning and migration times may at least result in better spawning success, egg survival and recruitment.

- During spawning—as noted above, the migratory *Galaxias* species (i.e., whitebait species) spawn in the riparian area during times of high flows or spring tides. Eggs are deposited amongst vegetation or detritus while it is temporarily inundated with water, then develop out of water (protected by the damp and humid conditions provided by the vegetation or detritus). Larvae hatch and are carried to the sea when the eggs are re-submerged on a following high flow or spring tide. Spawning success is very dependent on the nature and composition of available riparian vegetation and substrate, and survival of eggs after spawning is dependent on factors associated with the height and density of vegetation, especially ground-level temperature and humidity.

  To be effective, stock would need to be excluded for at least two months prior to the start of peak spawning season, to allow for vegetation to recover and re-establish spawning habitat. However, studies have found that it can take several years for vegetation to recover fully (i.e., not only increasing in height, but also the density of tillers, depth of aerial root wad and reduction in bare space—factors that are all critical for reducing temperature and increasing relative humidity, which are key to egg survival), improving the microclimate amongst the vegetation and resulting in greatly increased egg deposition and survival. Excluding stock from whitebait spawning habitats during only part of the year would therefore provide some protection for these species, but would not be as effective as year-round exclusion. Figure 2 shows the main spawning season, including peak spawning months, for the five whitebait species—though note that spawning can occur year-round.

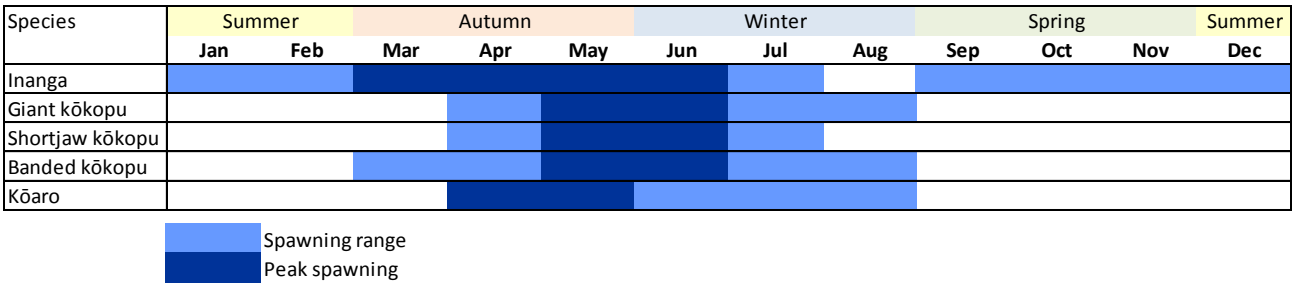

Figure 2: Spawning timing for the five migratory *Galaxias* species. Source for spawning times: Smith (2014).

Exclusion of stock from spawning habitats also relies on accurate identification of spawning locations for each species—providing suitable habitat in the wrong place will not increase or improve spawning success. For inanga, spawning sites are well defined, occurring in tidally-influenced reaches of lowland waterways, near the salt wedge (the interface between saltwater and freshwater), and peak spawning usually occurs immediately after autumn spring tides. The other four species tend to spawn in flooded riparian vegetation or amongst detritus alongside adult habitat, however, spawning habitat requirements are less documented, and these species may live throughout a waterway (not just in defined reaches, or where recorded).

- During peak migration—exclusion of livestock from waterways during peak migration times is another important consideration, especially in waterways with high value or diverse native fish communities, as pugging etc. caused by stock in streams and on banks can cause large amounts of sediment (increasing turbidity in water which may impact fish ability to migrate) and/or destroying resting habitats utilised by these juvenile fish on their way upstream.
- Further information on critical habitats for threatened freshwater fish, timings of migration and spawning and regional timings identified in regional plans, can be found in DOCDM-1240041.

3.4 Riparian management or a setback buffer

The stock exclusion regulations do not mention the need for fences to be set back sufficiently from a waterbody in order to enable the establishment of a vegetated riparian buffer. This is another area where councils could apply more stringency than the regulations, and an area that DOC should advocate for. At a minimum, simply allowing the establishment of a thick sward of grass can be beneficial in terms of filtering sediment and nutrients. Native riparian planting is also desirable to stabilise banks and provide habitat for fish (e.g., shading, input of wood and detritus). Ideally, riparian margins should consist of continuous vegetation strips, rather than patchy areas of vegetation, as this provides greater bank stability and consistent stream shade, and excludes stock from directly defecating in waterways or tramping fish habitat.

There are a number of well recognised benefits in having a setback buffer zone, in addition to excluding stock from direct access to the waterway. Further detail on the importance of riparian margins is outlined in Appendix I. Benefits include:

- Filtration of overland flows, reducing inputs of sediment and contaminants (dense grass growth can achieve this).
- Uptake of excess nutrients from surface and sub-surface flows.
- Additional protection of stream banks compared to fencing alone, reducing erosion.
- Prevention of trampling and pugging near the river, thus further reducing soil loss and sediment inputs compared to fencing alone.
- Fences are less likely to be damaged by flooding.
- Increased organic matter to streams that provides food and habitat for aquatic life.
- Vegetation in a planted riparian buffer provides shade, keeping water temperatures more stable, and providing a more suitable environment for aquatic species including fish and invertebrates.
- Shade reduces the grown of algae in waterbodies.
- Stable vegetated banks provide a greater range and quantity of habitats for aquatic life.

However, despite these benefits, the requirement to set fences back sufficiently from the waterbody has not been included in the national regulations—largely because of regional variation and costs of riparian planting and maintenance—although this was the subject of some submissions. From a conservation perspective, excluding stock from waterbodies is only the start of addressing restoring ecological health, an appropriate riparian buffer, ideally planted, is also essential.

It is telling to note that the Land and Water Forum submitted on the proposed stock exclusion regulations highlighting that they were concerned about the lack of reference to riparian management. Recommendations 31 and 39 and 41 of the Forum's fourth report[11] stated that:

> 'The national stock exclusion regulation should include a requirement that when permanent fences are erected to exclude stock, they should be placed the appropriate distance back from the waterway. The appropriate setback distance will vary at different points along the waterway and will be determined by an on-farm assessment required as part of GMP, as per recommendation 39 of this report.'

and

> 'Riparian setbacks and management strategies should be included in GMP requirements, either as part of industry GMP schemes or council GMP rules, where they are an appropriate mitigation...'

and

> 'Councils should impose riparian setback and management rules over and above GMP requirements in catchments with specific water quality issues, where this is an effective way of managing a particular issue. Councils should also consider catchment-specific riparian management rules for critical source areas and areas of specific ecological, social or cultural value.'

Given that the Forum's reports were the product of consensus amongst a wide range of stakeholders, it would be helpful to draw attention to this if subsequent discussions mean those same stakeholders start to withdraw their support from the consensus developed through the forum.

3.5 Outstanding waterbodies and regionally significant wetlands

The proposed regulations are anticipated to apply to wetlands, lakes and large permanently flowing rivers and streams over one metre on rolling and steep land, and all permanently flowing rivers and streams, regardless of size (MfE 2016). Regionally significant wetlands should therefore be captured. However, an issue remains regarding the date at which stock are required to be excluded from these waterbodies.

Therefore, DOC should advocate for bringing forward the dates for which stock are excluded from regionally significant wetlands. These wetlands should be under active management with respect to stock access, fencing and management of pests. Allowing sheep into regionally significant wetlands should be determined on a case by case basis, rather than permitted, in order to provide for the significant values of the wetland in question (McArthur 2017).

As the proposed regulations currently stand, smaller streams on rolling and steep country that feed into outstanding waterbodies will not be included. As outlined in section 3.1, DOC should also advocate for the exclusion of stock from streams less than one metre in width in rolling and steep country, particularly those that flow into outstanding waterbodies.

3.6 Additional stock

Sheep and goats are not mentioned in the proposed national regulations on the basis that they are smaller and prefer not to enter waterbodies. As noted above, the impact of sheep grazing adjacent to waterways are less than cattle. Therefore, they do not necessarily need to be permanently excluded from waterways, however, DOC should advocate that temporary fencing at the least is desirable when grazed on steep hill country that receives high rainfall (frequently and/or intensely), and also when grazing winter forage crops.

[11] http://www.landandwater.org.nz/

Further Reading

Agricultural Good Management Practice GMPs and mitigation strategies:

- Assessment of strategies to mitigate the impact or loss of contaminants from agricultural land to fresh waters. R.W. McDowell, B. Wilcock, D.P. Hamilton, 2013. Report prepared for MfE. https://www.mfe.govt.nz/sites/default/files/assessment-strategies-mitigate-impact-loss-contaminants-agricultural-land-freshwater_0.pdf
- Industry-agreed Good Management Practices relating to water quality. FAR, NZ Pork, DairyNZ, Beef and Lamb, HorticultureNZ, Deer Industry New Zealand, 2015. Prepared for Environment Canterbury. http://www.ecan.govt.nz/publications/General/Industry_Agreed_GMPs_A5_Version2_Sept2015_FINAL.pdf
- Practices to improve water quality for dairy, cropping, and drystock farms. http://www.waikatoregion.govt.nz/menus/

Managing waterways on farms

- Managing waterways on farms: A guide to sustainable water and riparian management in rural New Zealand. http://www.mfe.govt.nz/publications/fresh-water-land/managing-waterways-farms-guide-sustainable-water-and-riparian
- Stocktake of diffuse pollution attenuation tools for New Zealand pastoral farming systems. L.A. McKergow, C. Tanner, R.M. Monaghan, G. Anderson, 2007. NIWA client report HAM2007-161, prepared for Pastoral 21 Research Consortium. https://www.niwa.co.nz/sites/niwa.co.nz/files/import/attachments/stocktake-v10.pdf

Factsheets for farmers on fencing:

- Dairy NZ guide on fencing waterways: https://www.dairynz.co.nz/media/2071976/fencing-waterway-technote.pdf and https://www.dairynz.co.nz/environment/waterways/fencing-waterways/
- A guide to managing stock access to waterways in the Wellington Region http://www.gw.govt.nz/assets/Our-Environment/Land%20and%20soil/WGNDOCS-962755-v1-ManagingStockAccesstoWaterwaysintheWellingtonregion-FINAL.PDF

Review of impacts of agriculture on freshwaters:

- Review of the environmental effects of agriculture on freshwaters. S. Parkyn, F. Matheson, J. Cooke, J. Quinn, 2002. NIWA client report FGC02206, prepared for Fish and Game NZ. http://docs.niwa.co.nz/library/public/FGC02206.pdf

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[12] Document links provided are current as at 29 September 2017.

McArthur, K. 2017: Statement of Evidence on behalf of the Minister of Conservation—Hearing 2 of the Greater Wellington Proposed Natural Resources Plan. LINK

McDowell, R.W.; Wilcock, R.J. 2008: Water quality and the effects of different pastoral animals. *New Zealand Veterinary Journal 56*: 289–296. LINK

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Reeves, P.N.; Champion, P.D. 2004: Effects of livestock grazing on wetlands: literature review. Environment Waikato Technical Report 2004/16, prepared by NIWA. 27 p. LINK

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TRC (Taranaki Regional Council). 2010: Small stream modification in Taranaki—an assessment of the ecological and hydrological values of small streams, the cumulative extent and ecological effects of modification, and implications for policy and practice. Taranaki Regional Council, Stratford. 88 p. LINK

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Appendix I: Benefits and principles around riparian restoration

Extract from information gathered by Philippe Gerbeaux for the Living Water Project.

Why riparian restoration?

Riparian restoration has been occurring in New Zealand for over 30 years, with the main objective being to buffer the aquatic systems from surrounding land use (Quinn et al. 1993).

The riparian zone is identified as the vegetated strip of land extending along the banks of rivers, streams, lakes and wetlands (Parkyn et al. 2000). It is the link between the stream environment and the terrestrial catchment, with a disproportionately large influence on community structure and water quality relative to its proportion of catchment area (Harding et al. 2009; Kauffman & Krueger 1984; Osborne & Kovacic 1993).

Functions performed by the riparian zone include bank stabilisation, flood control, reductions in peak flow during floods, stream temperature regulation, stock exclusion (reducing bank trampling, defaecation in-stream, stock losses and waterborne illness), filtration of surface runoff reducing in-stream sedimentation and nutrification, provision of organic matter in-stream as a food source, and provision of habitat for fish spawning and adult phases of aquatic invertebrates (Collier et al. 1995; Fennessy & Cronk 1997; Jorgensen et al. 2000; Kauffman & Krueger 1984; Lowrance et al. 1984; Osborne & Kovacic 1993; Parkyn et al. 2000, 2003).

Riparian zones planted with native species add to indigenous biodiversity. They can also play an important role as ecological corridors or linkages between other areas of established native planting. These corridors are ecologically important in providing links for dispersal, migration and genetic exchange, nutrient transport and energy flow (Davis & Meurk 2001). The effectiveness of fenced and planted riparian areas in fulfilling these functions is now widely accepted (Wood & Howard-Williams 2004).

Riparian management and restoration principles

The close relationship of the riparian zone with the in-stream system makes it a particularly important area for mitigation strategy focus (Quinn et al. 1993). Because of the functions listed above, stream restoration efforts in New Zealand (as well as around the world, including Australia, Japan, Europe and the United States), are focussing on riparian management to buffer the impact of land use on the aquatic environment (Harding et al. 2009; Parkyn et al. 2000; Quinn 2009).

The width, plant composition and plant density are important factors that should be considered when establishing a vegetated buffer (Parkyn et al. 2000). The width of riparian zone that is required to sustain terrestrial and in-stream habitat depends on a number of factors. Between projects, the aims of the planting, channel width, bank slope, vegetation type, position in the stream continuum and hydrological type will vary (Collier et al. 1995; Quinn et al. 2001; Reeves et al. 2004). These variations mean that a 'one size fits all' approach to planting rarely exists, and sites should be considered on a case by case basis (Quinn et al. 2001).

Indigenous plants initially may not be as vigorous as poplars or willows in stabilising stream banks, however they are better for long term stability and sustainability, because exotic species frequently require ongoing management (Parkyn et al. 2000). Ideally, a planted buffer strip would be self-sustaining and of minimal maintenance; protecting water quality and aquatic habitats, suppressing weed growth and forming a seed bank to allow natural regeneration (Parkyn et al. 2000).

Studies comparing multiple widths of planted buffers at the same location have showed that increasing buffer width results in increasing sediment and phosphate removal (Parkyn 2005).

A width of more than 10 metres on either side of the waterway has been recommended as the minimum necessary width for terrestrial biodiversity outcomes and to achieve a self-sustaining strip. Riparian zones with a width of less than five metres on each side of the waterway are unlikely to support self-sustaining

vegetation, and weed growth can be a problem (Parkyn et al. 2000). Davis and Meurk (2001) suggest that a buffer between 15 and 20 metres wide on either side of the waterway is most likely to support self-sustaining plant populations with minimal maintenance while meeting most aquatic functions.

There is little known about the minimum length of buffer required for stream recovery, however, this will greatly depend on the size of the stream and the variable targeted for reduction (Scarsbrook & Halliday 1998). In spite of the benefits, restoration from the headwaters through to the river mouth is often unrealistic due to the significant cost and private land ownership. Discontinuous restoration is the next best thing, and is likely to mitigate some impacts of land use (Scarsbrook & Halliday 1998).

Establishing a closed canopy is also recognised as being important, though this will not happen immediately after planting occurs (Parkyn et al. 2000; Wood & Howard-Williams 2004). Canopy closure is important because it provides shading to the channel, thus moderating water temperature and reducing light levels, minimising water weed establishment and growth (Davis & Meurk 2001). To help achieve a closed canopy in a reasonably short time frame, and provide ground shading to reduce competition from weed species it is generally recommended that seedlings are planted at a distance of 0.75–1.1 metres apart (Parkyn et al. 2000).

In-stream conditions observed at a site are reflective of land use and management practices occurring upstream (Collier et al. 1995; Parkyn & Wilcock 2004). When attempting to influence a river through planting in the riparian zone, consideration needs to be given to conditions and management practices upstream. Riparian planting should be considered as a secondary restorative measure after controlling the addition of pollutants at their sources (Barling & Moore 1994).

Timescales are another important consideration in riparian planting (Collier et al. 1995). Riparian management is a long-term task, which requires ongoing maintenance and investment. The beneficial results provided by a riparian zone are not immediate, and may take many years to become apparent. Some studies have indicated that stream conditions may worsen before improvements are seen. This is particularly the case where channel widening occurs following shading (Davies-Colley 1997). Because of this, there is a need to keep expectations realistic to avoid disappointment (Davies-Colley 1997). It is also important that realistic targets are set, as it is probably impossible to restore the riparian area and water quality to conditions before land modifications began (Collier et al. 1995).

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For further information about riparian restoration:

The Waikato River Care website contains a link to a useful 'how to' guide on riparian restoration best practice in the lower Waikato River. While some of the information, and the suggested plant species listed, are relevant only for the Waikato, the principles in this guide are useful and applicable for all riparian restoration works. LINK

Environment Canterbury Regional Council. 2011. Riparian zones – a guide to the protection of Canterbury's rivers, streams and wetlands. Pamphlet E04/70. 7p.

Trees that count – guides for restoration in different regions.
https://www.treesthatcount.co.nz/resources/regional-guides-for-planting-natives/

Appendix II: Illustrative example of targeting sensitive waterways for threatened species

The following maps and method provide an illustrative example of how sensitive habitats for threatened species could be identified, based on identification of possible spawning locations for four of the migratory *Galaxias* species—giant kōkopu, kōaro, banded kōkopu and shortjaw kōkopu. The maps have been developed for one catchment only (Waitohu Stream in Wellington Region), and only aim to provide an example of how it might be possible to target only parts of the waterway for full livestock exclusion. They do not represent DOC's views on specific locations that livestock should be excluded from in that catchment.

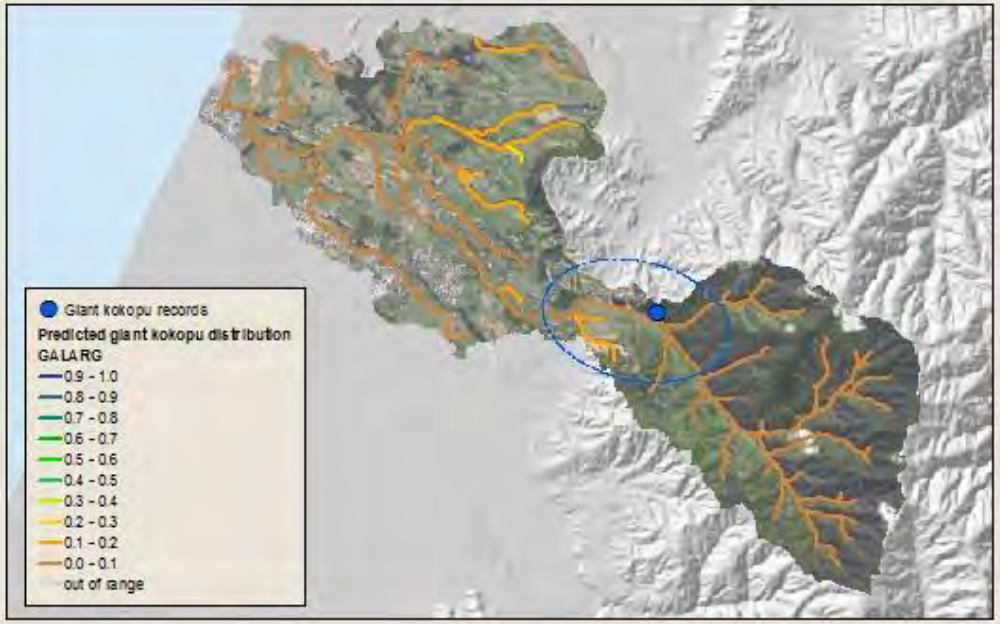
All five *Galaxias* species (including inanga) are present in this catchment, so for this particular example, it would be ideal if stock were excluded from much of the catchment, if not all—as if fish are present in the places shown, then they're likely to be throughout the rest of the catchment as well. An interesting picture might be shown in larger catchments, or those with only one or two galaxiid species in them.

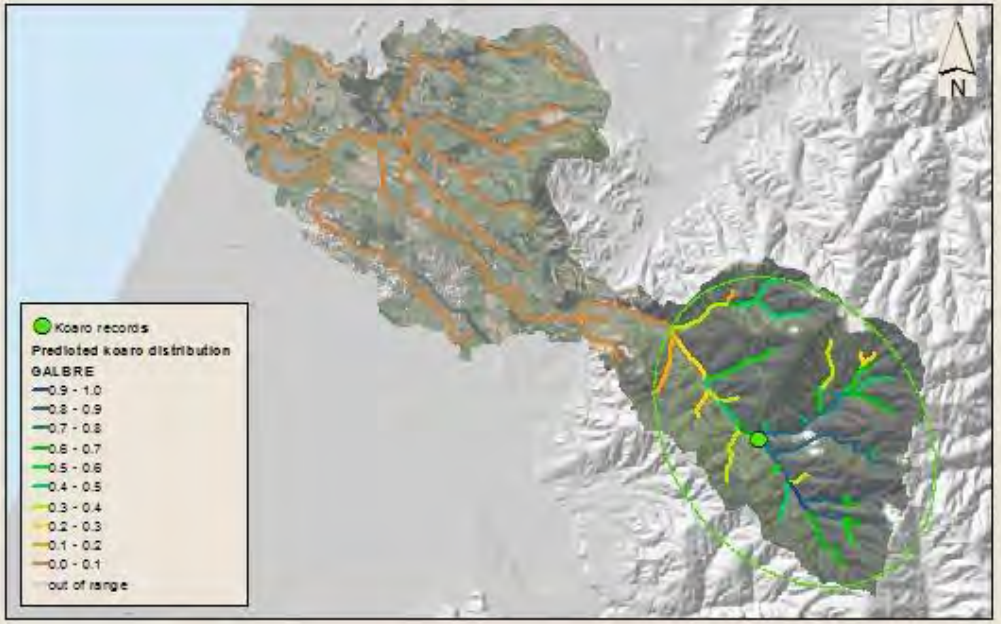
Estimates of likely sensitive habitats for spawning are based on what is known about the spawning habits and habitat requirements of each species, records of where fish have been found (from New Zealand Freshwater Fish Database (NZFFD) records), and predictive models of fish distribution (note that predictive models have only been used to complement actual survey records, especially as only a few records exist for each species; actual presence of fish from survey records takes precedence over low predictions for a species). This is, however, only a very coarse representation, with inherent inaccuracy due to:

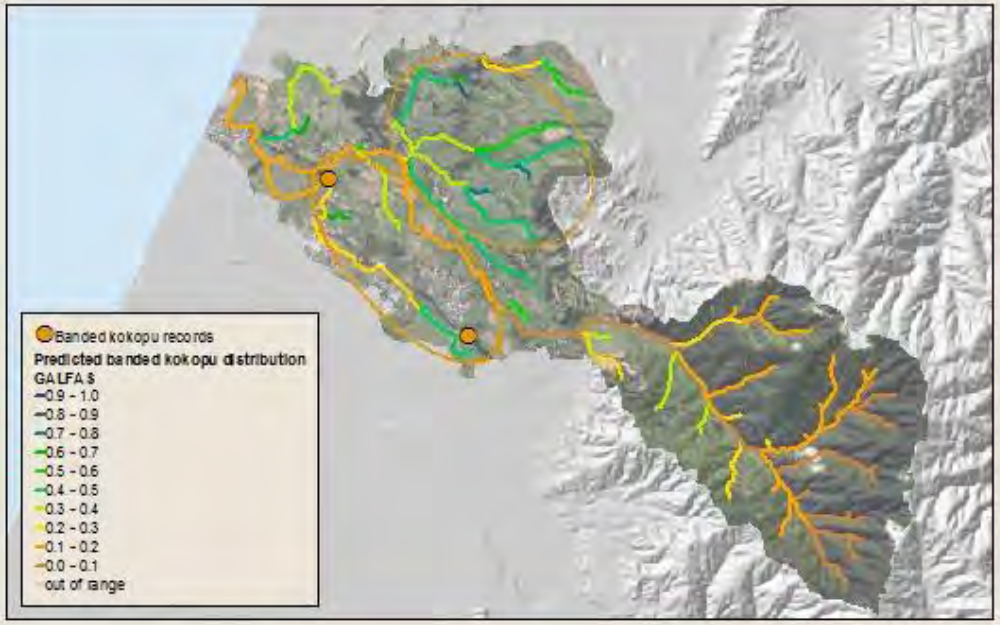
- Inaccuracies of the fish predictive model (while good in certain areas, no predictive model can be correct 100% of the time).
- The limited amount of knowledge about spawning habitats and locations for kōaro, giant kōkopu, shortjaw kōkopu and banded kōkopu.
- Survey records from the NZFFD that are old/not recently surveyed, so may not accurately represent what is present in the waterway now.
- Gaps in survey records—absence of fish records from a site is not necessarily a reflection of absence of fish from that site or stream, but usually a result of bias of where sampling has been undertaken.
- If records show a species to be present in one part of the catchment, then there is a likelihood that they are distributed throughout the catchment (particularly true for catchments that only have a small number of survey records).

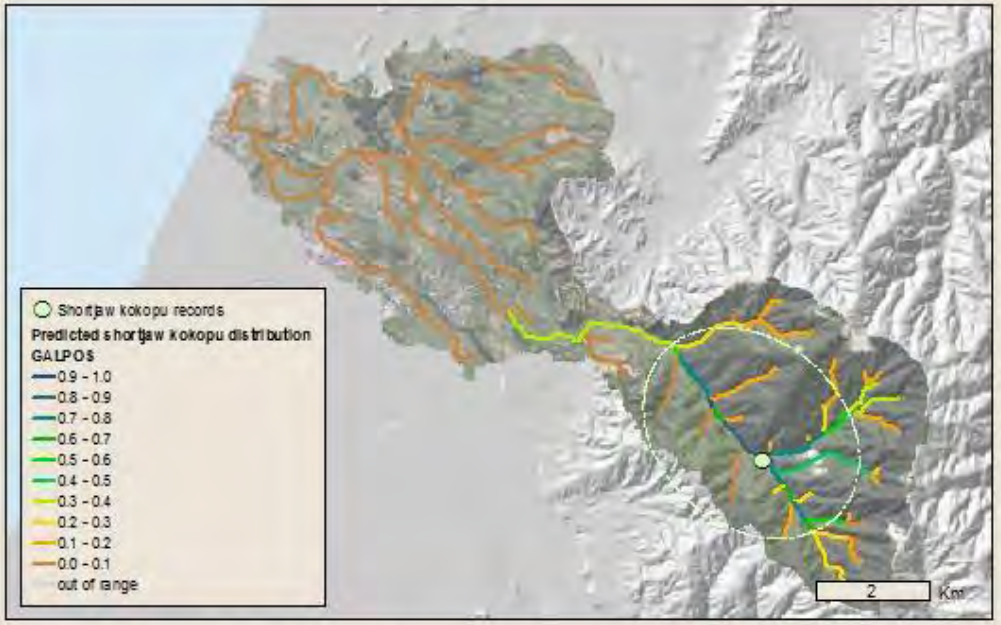
Notes to help with interpretation of the maps:

- **Giant kōkopu**—predictive models all have very low predictions of giant kōkopu within the catchment, so aren't much use for predicting where spawning might occur; however, there is one NZFFD record for giant kōkopu in the catchment, so they are obviously present (despite low predictions). So, given that giant kōkopu spawn alongside reaches where the adults live, likely spawning habitat could be expected to be in the area around the survey record.
- **Kōaro**—the NZFFD contains a record for kōaro in this catchment, and fish prediction models also indicate that kōaro are likely to be present in habitat in the upper reaches of the catchment. Although in this instance this area appears to be in forest cover, if there was farming here, this would be the area that livestock should ideally be excluded from.
- **Banded kōkopu**—there are two records for banded kōkopu, both in the same tributary of the lower Waitohu Stream. Spawning habitat could therefore be expected to be along this entire reach (even though predictions are low in the middle of the reach); as well as in parts of the northern tributaries, where banded kōkopu predictions are high.
- **Shortjaw kōkopu**—as with kōaro, predictions for shortjaw kōkopu are reasonably high in the upper reaches of the catchment, and there is also a shortjaw kōkopu record in these upper reaches, so spawning would be expected here.









NZGD 2000 New Zealand Transverse Mercator
Not for publication nor navigation
1:125,000

Produced by: npetrove on 29/09/2017

Map of likely spawning locations for giant kokopu, koaro, banded kokopu and shortjaw kokopu (Waitohu Stream) - illustrative example for internal use only

Department of Conservation
Te Papa Atawhai
New Zealand Government