

Officer's Reply

For Council Reply Hearing:

Plan Change 7 to the Canterbury Land and Water Regional Plan; and

Plan Change 2 to the Waimakariri River Regional Plan

Andrea Richardson
Angela Fenemor
Matthew McCallum-Clark
Lochiel McKellar
Imogen Edwards
Philip Maw
Tim Stoddart
Daniel Clark
Adele Dawson
Shirley Hayward
Duncan Gray
Jarred Arthur
Mark Megaughin
Amber Kreleger
Zeb Etheridge

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Abbreviations

Abbreviations used throughout the text of this report are:

Abbreviation	Full text
7DMALF	7-day Mean Annual Low Flow
CDWPZ	Community Drinking Water Protection Zone
CLWRP	Canterbury Land and Water Regional Plan
CRPS	Canterbury Regional Policy Statement 2013
CWMS	Canterbury Water Management Strategy
DIN	Dissolved Inorganic Nitrogen
DO	Dissolved Oxygen
DRP	Dissolved Reactive Phosphorus
DWSNZ	Drinking-water Standards for New Zealand 2005 (Revised 2018)
ECan/Environment Canterbury/Council	Canterbury Regional Council
<i>E.coli</i>	<i>Escherichia coli</i>
ESC	Erosion Sediment Control
FEP	Farm Environment Plan
FMU	Freshwater Management Unit
GAZ	Groundwater Allocation Zone
GIS	Geographic Information System
GMP	Good Management Practice
Ha	Hectare(s)
HDWP	Hinds Drains Working Party
HNCA	High Nitrogen Concentration Area
HRRPZ	High Runoff Risk Phosphorus Zone
IARC	International Association of Research on Cancer
IFSH	Indigenous Freshwater Species Habitat
IMP	Iwi Management Plan
Kg	Kilograms
Kg/ha/year	Kilograms per hectare per year
LUC	Land Use Capability
PC2	Proposed Plan Change 2 to the WRRP
PC5	Plan Change 5 to the CLWRP
PC7	Proposed Plan Change 7 to the CLWRP
m	Metre(s)
m ³	Cubic metres
MALF	Mean Annual Low Flow
MAR	Managed Aquifer Recharge
MAV	Maximum Acceptable Value
MCI	Macroinvertebrate Community Index
mg/L	Milligrams per litre
MPZ	Mātaitai Protection Zone
MRB	MacFarlane Rural Business
MRT	Mean Residence Time
N	Nitrogen
NAZ	Nutrient Allocation Zone

NES	National Environmental Standard
NESDW	Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007
NESFW	Resource Management (National Environmental Standards for Freshwater) Regulations 2020
NESPF	Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017
NNN	Nitrate-nitrite nitrogen
NOF	National Objectives Framework
NPA	Nitrate Priority Area
NPSFM 2017	National Policy Statement for Freshwater Management 2014 (amended 2017)
NPSFM 2020	National Policy Statement for Freshwater Management 2020
NPSREG	National Policy Statement for Renewable Energy Generation 2011
NZGAP	New Zealand Good Agricultural Practice
OEFRAG	Opuha Environmental Flow and Release Advisory Group
OTOP	Orari-Temuka-Opihi-Pareora
Overseer	Overseer Nutrient Budget Model
QMCI	Quantitative Macroinvertebrate Community Index
RAMA	Rock Art Management Area
RMA	Resource Management Act 1991
Section 32 Report	Section 32 Evaluation Report for Plan Change 7 (Omnibus, Orari-Temuka-Opihi-Pareora and Waimakariri) to the Canterbury Land and Water Regional Plan and Plan Change 2 to the Waimakariri River Regional Plan
Section 42A Report	Section 42A Report for Plan Change 7 to the Canterbury Land and Water Regional Plan; and Plan Change 2 to the Waimakariri River Regional Plan
Stock Exclusion Regulations	Resource Management (Stock Exclusion) Regulations 2020
SWAZ	Surface Water Allocation Zone
TLI	Trophic Level Index
TN	Total Nitrogen
TP	Total Phosphorus
TSA	Targeted Stream Augmentation
TSS	Total Suspended Solids
WCO	Water Conservation Order
WHO	World Health Organisation
WRRP	Waimakariri River Regional Plan
ZC	Zone Committee
ZIPA	Zone Implementation Programme Addendum

Abbreviations of submitter names used in this report are:

Abbreviated Name	Submitter
AMWG	Adaptive Management Working Group
Arowhenua and Te Rūnanga	Te Rūnanga o Arowhenua and Te Rūnanga o Ngāi Tahu (PC7-424)
As One Inc.	As One Incorporated
Beef + Lamb	Beef and Lamb New Zealand Limited
CCC	Christchurch City Council
CDHB	Canterbury District Health Board
DairyNZ	DairyNZ Limited
DHL	Dairy Holdings Limited
DOC	Director General of Conservation
ESAI	Ellesmere Sustainable Agriculture Incorporated
Federated Farmers	Combined Canterbury Provinces, Federated Farmers of New Zealand
Fish & Game	North Canterbury and Central South Island Fish and Game Councils with respect to Parts 1, 2 and 3 of this Report, Central South Island Fish and Game Council with respect to Part 4 and North Canterbury Fish and Game Council with respect to Part 5
Fonterra	Fonterra Co-operative Group Limited
Forest & Bird	Royal Forest and Bird Protection Society of New Zealand
Genesis	Genesis Energy Limited
HNZPT	Heritage New Zealand Pouhere Taonga
HortNZ	Horticulture New Zealand
Meridian	Meridian Energy Limited
MGUS	McCain Growers Unincorporated Society
Ngā Rūnanga	Te Rūnanga o Ngāi Tahu and Te Rūnanga o Kaikōura, Te Hapū o Ngāti Wheke, Te Rūnanga o Koukourārata, Ōnuku Rūnanga, Wairewa Rūnanga, Te Taumutu Rūnanga, Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki (PC7-423)
OWL	Opuha Water Limited
Potatoes NZ	Potatoes New Zealand
RSIL	Rangitata South Irrigation Limited
Selwyn DC	Selwyn District Council
Synlait	Synlait Milk Limited
TCG	Temuka Catchment Group Incorporated
Timaru DC	Timaru District Council
Waimakariri DC	Waimakariri District Council
Waimakariri NGF	Waimakariri Next Generation Farmers Trust
WIL	Waimakariri Irrigation Limited
WWHT	The Water and Wildlife Habitat Trust

Part 1: Introduction and Planning Context

1. Introduction

- 1.1. Proposed Plan Change 7 to the Canterbury Land and Water Regional Plan (CLWRP) proposes to amend the region-wide sections 1, 2, 4, 5 and 16, and sub-region sections 7, 8, 11, 12, 13, 14 and 15 of the CLWRP, in three separate packages, being:
- Part A of PC7 - Omnibus: Amendments to the region-wide sections 1, 2, 4, 5 and 16, and sub-regions sections 11, 13 and 15 of the CLWRP. The CLWRP Planning Maps are also amended;
 - Part B of PC7 - Orari-Temuka-Opihi-Pareora (OTOP) sub-region: Amendments to Section 14 and Section 16 (Schedules 7 and 7A) of the CLWRP. The CLWRP Planning Maps are also amended; and
 - Part C of PC7 - Waimakariri sub-region: Amendments to Section 8 and consequential amendments to Section 7 (Hurunui-Waiiau), Section 12 (Central Canterbury Alpine Rivers), and Section 16 (Schedules 7, 7A and 14) of the CLWRP. The CLWRP Planning Maps are also amended.
- 1.2. Proposed Plan Change 2 to the Waimakariri River Regional Plan (WRRP) proposes to remove the area from the WRRP that is within the Waimakariri sub-region as defined in Section 8 of the CLWRP. The WRRP continues to apply to the mainstem of the Waimakariri River, the upper catchment area and the tributaries to the south of the Waimakariri River. A consequence of PC2 is that a single regional plan, the CLWRP, would apply to the Waimakariri sub-region¹.
- 1.3. Plan Change 7 to the CLWRP and PC2 to the WRRP were publicly notified on 20 July 2019, with the submission period ending on 13 September 2019. Within this period, 560 submissions were received on PC7 and 28 submissions were received on PC2. Five hearing weeks have been completed, with two of those weeks in Timaru and three in Christchurch. Due to the Covid-19 restrictions, the Chair of the Hearing Panel attended and conducted the hearings via video conference. To further enable participation, the hearing was recorded to video and uploaded to YouTube on a daily basis.
- 1.4. This Reply Report has been written to sit alongside and explain the “marked up” version of the final recommendations on PC7 to the Canterbury Land and Water Regional Plan, contained in Appendix A of this Report. It responds to many of the issues raised in submissions and evidence, and questions from the Hearing Commissioners.
- 1.5. Many of the issues raised during the hearing have been addressed in the Section 42A Report, which was prepared ahead of the hearing, and that report remains valid and continues to be relied on. Essentially, this report addresses the further changes from the earlier Section 42A Report recommendations and responds to some specific issues raised by the submitters and

¹ No evidence of substance was presented at the hearing on PC2 to the WRRP. Officers' recommendations on submissions on PC2 to the WRRP therefore remain unchanged from those contained in the Section 42A Report.

the Hearing Panel. In that sense, it is very much a “reply” document, and does not set out to restate the Regional Council’s earlier report.

- 1.6. Since the publication of the Section 42A Report in March 2020, a number of expert conferencing sessions have produced joint witness statements, and there have been questions from the Hearing Panel that have been separately answered. This report does not restate the content of those documents. However, the final changes that result are incorporated into the Officers’ final marked-up version of PC7.
- 1.7. Much of the technical material produced in response to issues raised incorporated into the text of this reply. However, some technical memoranda have been prepared and are attached to this report as separate appendices.

2. Legal and Statutory Context

- 2.1. This section of the Reply Report addresses any outstanding legal matters identified either in the submissions of other parties or asked directly of counsel by the Hearing Panel. We address these matters on a topic by topic basis.

Scope

Approach to scope advanced by Ngā Rūnanga

- 2.2. Counsel for Ngā Rūnanga² advanced an alternative approach to determining scope than that set out in the Section 42A Report. Ngā Rūnanga submitted that there are different standards for determining scope and whether a submission is “on” a plan change depending on whether it is a full plan review or a more discrete plan change. Ngā Rūnanga submitted that a ‘hybrid’ approach should be adopted to scope in this case. Ngā Rūnanga submitted that given PC7’s broad application (as some provisions apply region-wide), the case law and legal principles regarding full plan reviews are more relevant in these circumstances (regarding whether an amendment is reasonably and fairly raised in submissions), rather than a strict enquiry as to whether a submission is “on” a plan change. In this regard, Ngā Rūnanga seeks to apply an approach in between that applied in *Palmerston North City Council v Motor Machinists Ltd* [2013] NZHC 1290 (which related to a limited district plan change) and *Albany North Landowners v Auckland Council* [2017] NZHC 138 (relating to a full proposed unitary plan).
- 2.3. The Council recognises that the provisions of PC7 are more widely applicable to the public than those in a limited district plan change. However, it is submitted that the High Court in *Albany North Landowners* did not necessarily prefer the *Countdown* “reasonably and fairly raised” test over that in *Motor Machinists*, as they are two different tests. The *Countdown* test focusses on whether an amendment can be made on the basis that it was reasonably and fairly raised in a submission, whereas the *Motor Machinists* test deals with whether the

² Counsel represented Ngā Rūnanga, Te Ngāi Tūāhuriri Rūnanga and Arowhenua and Te Rūnanga.

changes sought by a submission can be entertained at all. The *Albany North Landowners* decision refers to this distinction when the High Court stated:³

[131] By contrast a s 32 report is, in the context of a full district plan review, simply a relevant consideration among many in weighing whether a submission is first “on” the PAUP and whether the proposed change requested in a submission is reasonably and fairly raised by the submission.

- 2.4. Further, the High Court in *Albany North Landowners* was considering this matter in relation to consequential changes, and whether these were reasonably and fairly raised, rather than primary amendments sought through submissions. The High Court recognised that the Auckland Unitary Plan process is “far removed” from other relatively discrete plan changes, and that the approach to scope was appropriate given there was no express limit to the areal extent of the Unitary Plan (it encompassed the entire Auckland region and was intended to be a 30 year plan), the number of submissions and the participatory scheme of the RMA.⁴
- 2.5. Given this, it is submitted that it is not appropriate to apply this approach in the case of PC7. Although some provisions amended by PC7 do apply region-wide, not every provision in the CLWRP is being amended by PC7. Persons across the region may have considered the plan change as notified, noted that the provisions relevant to them were not amended, and therefore chose not to submit. In this instance, it would be contrary to the principles of natural justice (as noted in *Motor Machinists*) to allow the plan change to be amended appreciably in circumstances where people have been denied an effective opportunity to participate in the plan change process.
- 2.6. It is submitted that the appropriate approach is to apply the *Motor Machinists* test, noting that in the context of PC7, the plan change is more broad and therefore greater scope exists (whereas on its facts, *Motor Machinists* involved a more discrete change).
- 2.7. For completeness, we note that in respect of Arowhenua and Te Rūnanga’s submission points previously identified as potentially being out of scope:
 - a. Those which seek to include “the activity does not occur within 20m of a mātaihai reserve” or “the activity does not occur within a Rock Art Management Area”, on rules which are not amended by PC7, may not be outside the scope of PC7 on the basis that this relief seeks to amend rules that would apply within two distinct mapped areas (which were introduced by PC7 and therefore form part of the subject matter of PC7). Although these provisions are not amended in any way by PC7, and the relief sought by the submission could have an appreciable impact on a person’s activities (i.e. by changing the activity status), they would only apply within the extent of a mapped area that has been introduced by PC7. The situation would be quite different if provisions that were not amended by PC7 were subsequently amended and applied beyond the mapped areas (i.e., in areas that are beyond the subject matter of PC7).

³ *Albany North Landowners v Auckland Council* [2017] NZHC 138.

⁴ *Albany North Landowners v Auckland Council* [2017] NZHC 138 at [135].

- b. Those which seek to expand the mapped areas for the habitats of indigenous freshwater species are outside the scope of relief that can be granted. Even if a broader approach to scope is taken, and the consideration given is to whether the relief is “reasonably and fairly raised”, maps of proposed habitats have not been provided. Therefore, the submission has not given “precise details” of the relief that is sought, and there is not sufficient specificity in the submission to ensure that all are sufficiently informed about what is proposed.⁵ In this case, introduction of a mapped habitat for species beyond what has already been included as part of PC7 may lead to additional restrictions on landowners and their proposed activities, that they could not have been reasonably informed of based on the notified version of PC7 or the submissions on PC7. This would then mean that they have been denied an effective opportunity to participate in the planning process. For that reason, the Council submits that this relief is not reasonably and fairly raised in the submission, as the submission does not provide precise details of the areas sought to be mapped and where the restrictions would apply.

Matters of scope addressed by CCC

- 2.8. Two matters pertaining to scope were addressed by counsel for the CCC during the hearing.⁶ The first was in relation to a change to the definition of ‘Indigenous Freshwater Species Habitat’ and subsequent changes to the maps identifying that habitat, recommended by the CCC’s expert Dr Margetts. Dr Margetts proposed the addition of other “at risk” species to the definition of ‘Indigenous Freshwater Species Habitat’ in her evidence; the extent of any mapped habitat was not identified in the CCC’s original submission.
- 2.9. Accordingly, for the same reasons discussed above in respect of Arowhenua and Te Rūnanga’s submission, in the absence of maps of this proposed habitat area for “at risk” species, the submission does not provide “precise details” of the relief sought and there is not sufficient specificity in the submission to ensure that persons are sufficiently informed about what is proposed.⁷ Had this information been provided in the CCC’s submission, people would have had the opportunity to consider whether that relief might affect them and to decide whether a further submission on the relief may be required.
- 2.10. The second matter of scope raised by counsel for the CCC related to Part 5, paragraph 8.20 of the Section 42A Report, which reads as follows:

We note that setting limits for waterbodies outside the Waimakariri sub-region including Christchurch’s aquifers is outside the scope of the plan change (which is to set limits for FMUs in the Waimakariri sub-region). However, the proposed provisions also specifically manage risks to Christchurch’s aquifers, by establishing a NPA (which includes the majority of the modelled source

⁵ See *Vernon v Thames-Coromandel District Council* [2017] NZEnvC 2 at [12].

⁶ Opening legal submissions for Christchurch City Council dated 11 November 2020 at [49]-[63].

⁷ See *Vernon v Thames-Coromandel District Council* [2017] NZEnvC 2 at [12].

area for the Christchurch aquifers) and requiring consent holders to reduce nitrogen losses below Baseline GMP over two stages.

- 2.11. Counsel for the CCC submitted that the above paragraph wrongly states the law with respect to scope and considered that the Council’s position is ambiguous, given that the CCC’s submission points are not identified as being potentially out of scope.⁸
- 2.12. We do not consider that the above paragraph wrongly states the law in respect of scope. Rather, the Section 42A Report author was simply clarifying that while limits for waterbodies outside of the Waimakariri sub-region cannot be imposed through the PC7 process, land-use controls within the Waimakariri sub-region can be imposed and that as a result of controlling those land uses, waterbodies outside of the Waimakariri sub-region may benefit (for example, the Christchurch aquifers).

Consequential amendments

- 2.13. During the hearing, the Hearing Panel asked whether consequential changes could be made to provisions in PC7 as a result of the insertion of provisions in the CLWRP required under the NPSFM 2020.
- 2.14. The NPSFM 2020 requires regional councils to insert a fish passage objective in clause 3.6(1) of the NPSFM 2020 in their regional plans, “The passage of fish is maintained, or is improved, by instream structures, except where it is desirable to prevent the passage of some fish species in order to protect desired fish species, their life stages, or their habitats.”
- 2.15. The NPSFM 2020 also requires regional councils to insert a policy in respect of ‘natural inland wetlands’⁹ and a policy in respect of rivers¹⁰ in their regional plans. Those policies read as follows:

“The loss of extent of natural inland wetlands is avoided, their values are protected, and their restoration is promoted, except where:

(a) the loss of extent or values arises from any of the following:

- (i) the customary harvest of food or resources undertaken in accordance with tikanga Māori
- (ii) restoration activities
- (iii) scientific research
- (iv) the sustainable harvest of sphagnum moss

⁸ Opening legal submissions for Christchurch City Council dated 11 November 2020 at [54]-[55].

⁹ NPSFM 2020, cl 3.22.

¹⁰ NPSFM 2020, cl 3.24.

(v) the construction or maintenance of wetland utility structures (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020)

(vi) the maintenance or operation of specified infrastructure, or other infrastructure (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020)

(vii) natural hazard works (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020); or

(b) the regional council is satisfied that:

(i) the activity is necessary for the construction or upgrade of specified infrastructure; and

(ii) the specified infrastructure will provide significant national or regional benefits; and

(iii) there is a functional need for the specified infrastructure in that location; and

(iv) the effects of the activity are managed through applying the effects management hierarchy.”

“The loss of river extent and values is avoided, unless the council is satisfied:

(a) that there is a functional need for the activity in that location; and

(b) the effects of the activity are managed by applying the effects management hierarchy.”

2.16. Clause 10(2)(b)(i) of Schedule 1 provides that a decision on provisions of a plan and submissions “may include matters relating to any consequential alterations necessary to the proposed statement or plan arising from the submissions”. For completeness, we note that there are no submissions on the fish passage objective or the two policies, nor seeking changes to the provisions of PC7 as a result of the insertion of the fish passage objective and the two policies, given that submissions on PC7 closed prior to the gazettal of the NPSFM 2020.

2.17. Section 55(2) of the RMA provides that local authorities must amend regional plans if a national policy statement directs the inclusion of specific objectives and policies. These amendments must be made without using the process in Schedule 1 of the RMA and local authorities must give public notice of the amendments within five working days after making them (section 55(2A) of the RMA). The Council resolved to incorporate clause 3.26(1) on 24 September 2020 in its relevant regional plans, including the LWRP, in accordance with section 55(2) of the RMA. The Council gave public notice of the amendments on 28 September 2020.

2.18. The Council also made other changes, including renumbering and relocating existing plan provisions and other minor changes (e.g. changes to the table of contents of each plan) as a result of the inclusion of the objective. These changes were made pursuant to clause 4.3 of the NPSFM 2020 and clause 20A of Schedule 1 of the RMA.

- 2.19. Relevantly, clause 4.3(3) of the NPSFM 2020 provides that if regional councils choose to amend plans by merely changing wording or terminology for consistency with the NPSFM 2020, the amendment is to be treated as a correction of a minor error (and therefore, under clause 20A of Schedule 1 to the RMA, the amendment can be made without using a process in that Schedule).
- 2.20. Accordingly, only changes to wording or terminology for consistency with the NPSFM 2020 may be recommended in reliance on clause 4.3(3) of the NPSFM 2020, and in the absence of scope, consequential amendments cannot be made in reliance on clause 10(2)(b) of Schedule 1 to the RMA.

Implications of the National Policy Statement for Freshwater Management 2020

- 2.21. On 5 August 2020, the Government gazetted a number of documents as part of its ‘Action for healthy waterways package’, including the NPSFM 2020, which came into force on 3 September 2020 and replaced the NPSFM 2017.
- 2.22. As set out in the Council’s opening legal submissions dated 22 September 2020, PC7 and PC2 do not need to immediately give full effect to the NPSFM 2020 rather, the Council must give effect to the NPSFM 2020 as soon as is reasonably practicable. Further, the extent to which it is reasonably practicable for the provisions of PC7 and PC2 to give effect to the NPSFM 2020 is confined by the scope within submissions to do so. For completeness, we note that there is now judicial comment on the NPSFM 2020 and the requirement to give effect to the NPSFM 2020 “as soon as reasonably practicable”. The Environment Court in *Federated Farmers of New Zealand Incorporated v Bay of Plenty Regional Council* [2020] NZEnvC 213 has observed that the requirement to give effect to the NPSFM 2020 “as soon as reasonably practicable” is subject to section 55 of the RMA and is understood to be integral to ensuring that regional plans give effect to the NPSFM 2020 as required by section 67(3)(a) of the RMA.¹¹
- 2.23. In any event, the Council must notify a freshwater planning instrument, where that instrument has the purpose of giving effect to the NPSFM 2020, by 31 December 2024 (in accordance with section 80A of the RMA).
- 2.24. We note that during the hearing, Federated Farmers advanced the position that the PC7 process was not the appropriate process for giving effect to the NPSFM 2020 on the basis that Part 4, cl 4.1(2) of the NPSFM 2020 provides:

Local authorities must publicly notify any changes to their regional policy statements, regional plans, and district plans that are necessary to give effect to this National Policy Statement as required under the Act.

- 2.25. Federated Farmers maintained the position that the PC7 process should be guided by the ECan Act 2016 and the CWMS and that care be taken to distinguish between the requirements of

¹¹ *Federated Farmers of New Zealand Incorporated v Bay of Plenty Regional Council* [2020] NZEnvC 213 at [41].

the NPSFM 2017 and those of the NPSFM 2020.¹² In response to questions from the Hearing Panel, Federated Farmers suggested that people may have requested different relief in their submissions on PC7 had they known the contents of the NPSFM 2020.

- 2.26. Despite this submission, the Council’s position with respect to giving effect to the NPSFM 2020 remains that where there is scope to do so within the PC7 process, the Hearing Panel should strive to give effect to the NPSFM 2020. This is consistent with the case law discussed in the Council’s opening legal submissions¹³ and the fact that the NPSFM 2020 replaced the NPSFM 2017 when it came into force on 3 September 2020. As a result, any consideration of the NPSFM 2017 is unlawful as it has been replaced.
- 2.27. Further, the issue of whether or not parties may have submitted differently in the light of the NPSFM 2020 is irrelevant. What is now clear is that the NPSFM 2020 has to be given effect to. We do not accept that every measure to give effect to the NPSFM 2020 through the PC7 process needs to be notified afresh; the extent to which PC7 can give effect to the NPSFM 2020 is confined by scope as a result of a separate notification process. In saying that, the Council accepts that unless and until certain implementation steps have been followed, the NPSFM 2020 can not be fully given effect to.¹⁴ Those implementation steps are set out in Part 3 of the NPSFM 2020 and involve comprehensive procedural requirements for regional councils when making decisions on how to give effect to the NPSFM 2020. Many of these processes require substantial mana whenua and community consultation by regional councils. We note that given the confines of the PC7 process (i.e., the Hearing Panel has been delegated the powers and functions to hear submissions on PC7 and PC2 and make recommendations on them to the Council) the implementation steps in Part 3 of the NPSFM 2020 are not directly relevant to the Hearing Panel.
- 2.28. For completeness, we note that during the hearing the Hearing Panel asked submitters to comment on their understanding of the direction contained in clause 3.3(2) of Part 3 of the NPSFM 2020, regarding the setting of goals and the timeframes within which to achieve those goals. Clause 3.3(2) of the NPSFM 2020 relates to the requirement for regional councils to develop long-term visions for freshwater in their regions and include those long-term visions as objectives in their regional policy statements. Long-term visions must, relevantly, set goals that are ambitious but reasonable (that is, difficult to achieve but not impossible) and identify a timeframe to achieve those goals that is both ambitious and reasonable (for example, 30 years after the commencement date).
- 2.29. ‘Ambitious’ is defined in the Oxford Dictionary as “intended to satisfy high aspirations and therefore difficult to achieve”, while “reasonable” is defined as, “as much as is appropriate or fair; moderate”. It is submitted that in setting goals that are reasonable *but* ambitious, this requires the setting of goals that are intended to satisfy high aspirations, but that are also

¹² Statement of Evidence of Dr Hume, Mr Grant and Mr Henderson on behalf of the Combined Canterbury Provinces of Federated Farmers of New Zealand dated 26 November 2020 at [26]-[27], [56].

¹³ Opening Legal Submissions of counsel for the Canterbury Regional Council dated 22 September 2020 at [20]-[25].

¹⁴ Opening Legal Submissions of counsel for the Canterbury Regional Council dated 22 September 2020 at [25].

appropriate or fair for the community (and it is also submitted that the reasonableness aspect is reflected in the requirement to develop every long-term vision through engagement with communities and tangata whenua, in clause 3.3(3)). Given the requirement in section 67(3)(c) of the RMA for regional plans to give effect to any regional policy statement, the insertion of the long-term visions in the regional policy statement will ensure that regional plans contain the necessary methods to achieve these long-term visions.

- 2.30. The timeframe within which to achieve those goals is also required to be both ambitious and reasonable. This is a separate requirement from that in clause 4.1 of the NPSFM 2020 which requires local authorities to give effect to the NPSFM 2020 as soon as reasonably practicable.

Balancing approach under Part 2 of the RMA and interpretation of ‘priority’

- 2.31. The introduction of the hierarchy of obligations is significant. As a result, the Hearing Panel asked submitters whether, in the light of the NPSFM 2020, it was still appropriate to seek a balance between the health and well-being of water bodies and freshwater ecosystems, and the various other uses to which that water could be put.
- 2.32. In response to questions from the Hearing Panel, counsel for the Opihi Flow & Allocation Working Party submitted that the NPSFM 2020 contains three ‘priorities’ and that no single priority is mutually exclusive. Further, counsel for the Opihi Flow & Allocation Working Party submitted that there may be other uses to which freshwater can be put and that the NPSFM 2020 anticipates this.
- 2.33. Counsel accepts that the NPSFM 2020 anticipates that there are other uses to which the freshwater resource may be put (see policy 15 of the NPSFM 2020 which provides that communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with the NPSFM 2020). However, it is submitted that the health and well-being of water bodies and freshwater ecosystems must be prioritised *first*.
- 2.34. Counsel does not accept that there are three ‘priorities’ and that no single priority is mutually exclusive. Rather, there is a very clear hierarchy of obligations in Te Mana o te Wai, as set out in clause 1.3 of the NPSFM 2020, which is reflected both in the Objective (where that hierarchy is repeated) and in Policy 1 (which requires freshwater to be managed in a way that gives effect to Te Mana o te Wai). This hierarchy of obligations contains three elements; the first of which must be prioritised before the second and third elements, and the first and second elements which must be prioritised before the third.
- 2.35. The hierarchy in the NPSFM 2020 reflects the findings of the Environment Court in *Aratiatia Livestock Limited v Southland Regional Council* [2019] NZEnvC 208. Although this decision predates the NPSFM 2020 and so does not expressly refer to the hierarchy of obligations, the decision interprets the term Te Mana o te Wai (albeit in the context of the NPSFM 2017). The Court found that the regional plan the subject of this case “redirects the usual RMA focus on the scale and significance of effects of resource use onto the mauri or life force of water”, with

the enquiry instead focussing on how users of resources protect the water’s mauri and health.¹⁵

2.36. In reaching its decision, the Court set out its three key understandings in relation to the NPSFM 2017 and Te Mana o te Wai:

- a. First, that upholding Te Mana o te Wai acknowledges and protects the mauri of water, and that mauri of water sustains hauora (of the environment, waterbodies, and people); that, as a matter of national significance, the NPSFM 2017 required users of water to provide for hauora and in so doing, acknowledge and protect the mauri of water.¹⁶
- b. Second, that as a matter of national significance, “the health and wellbeing of water are to be placed at the forefront of discussion and decision-making. Only then can we provide for hauora by managing natural resources in accordance with ki uta ki tai.”¹⁷
- c. Third, that “providing for the health and wellbeing of waterbodies is at the forefront of all discussions and decisions about fresh water.”¹⁸

2.37. The Court found that local authorities were required to ensure that every user of water must, in addition to using the water, provide for the health of the environment, the health of the waterbody and the health of the people.¹⁹

2.38. For completeness, counsel acknowledges that Part 3 of the NPSFM 2020 requires the Council to actively involve tangata whenua in freshwater management, including in identifying the local approach to giving effect to Te Mana o te Wai. However, that does not change the fact that Te Mana o te Wai is already defined in the NPSFM 2020. Further, clause 3.1(1) of the NPSFM 2020 provides that although Part 3 of the NPSFM 2020 contains a non-exhaustive list of things that local authorities must do to give effect to the objective and policies in Part 2 of the NPSFM 2020, nothing in Part 3 limits the general obligation under the RMA to give effect to the objective and policies in Part 2 of the NPSFM 2020.

Resort to Part 2 of the RMA

2.39. The role of Part 2 of the RMA in the assessment of planning documents (particularly the requirement to give effect to the higher order planning documents under section 67(3) of the RMA) has been the subject of the Supreme Court decision in *Environmental Defence Society Incorporated v New Zealand King Salmon Company Limited*.²⁰ The Court found that there was no basis to refer back to section 5 of the RMA or undertake an overall judgement when

¹⁵ *Aratiatia Livestock Limited v Southland Regional Council* [2019] NZEnvC 208 at [7].

¹⁶ *Aratiatia Livestock Limited v Southland Regional Council* [2019] NZEnvC 208 at [17].

¹⁷ *Aratiatia Livestock Limited v Southland Regional Council* [2019] NZEnvC 208 at [59].

¹⁸ *Aratiatia Livestock Limited v Southland Regional Council* [2019] NZEnvC 208 at [62].

¹⁹ *Aratiatia Livestock Limited v Southland Regional Council* [2019] NZEnvC 208 at [61]-[62].

²⁰ *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd* [2014] NZSC 38, [2014] 1 NZLR 593.

assessing whether policies in the NZCPS had been given effect to by the provisions of a proposed plan change.²¹ The rationale for this conclusion being that the NZCPS is the mechanism by which Part 2 is given effect in relation to the coastal environment.²²

- 2.40. However, the Supreme Court indicated three situations where it would be necessary to “go back to” Part 2. The three exceptions which would allow resort to Part 2 include:²³
- a. An allegation of lawfulness of the higher-level document/provisions;
 - b. Incomplete coverage of “the field” by the planning document concerned where Part 2 may provide assistance in dealing with the matters not covered; and
 - c. Uncertainty as to the meaning of particular provisions where reference to Part 2 may well be justified to assist in a purposive interpretation.
- 2.41. In a Memorandum of Counsel dated 2 December 2020, WIL responded to a question asked by the Hearing Panel regarding whether any of the three exceptions in *King Salmon* applied when giving effect to the NPSFM 2020.
- 2.42. WIL submitted that the NPSFM 2020 does not “cover the field” such that reference back to Part 2 is appropriate to avoid a perverse outcome which does not give effect to Part 2 of the RMA.
- 2.43. WIL submitted that the single objective which provides for social and economic well-being as a third ranking priority and one standalone policy is not sufficient to avoid the need for reference to Part 2. Given the 14 other policies in the NPSFM 2020 largely focus on water quality, this standalone policy does not ‘tick the box’ and reliance on it risks a decision being made that conflicts with section 5(2) of the RMA.
- 2.44. Further, WIL submitted that the NPSFM 2020 provides no detail as to how and the extent to which economic and social well-being are to be achieved and when they will be appropriate to provide for (or not). Absent such detail, WIL submitted that the NPSFM 2020 has not gone to the extent of ‘re-writing’ the RMA or taking economic and social well-being considerations almost entirely out of decision making.
- 2.45. WIL also submitted that procedural requirements of the NPSFM 2020 would need to be met in order to fully give effect to the NPSFM 2020 and that until this occurs there is uncertainty as to how the provisions of the NPSFM 2020 should be interpreted. Until substantial engagement with mana whenua and the community has occurred in the express context of

²¹ *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd* [2014] NZSC 38, [2014] 1 NZLR 593 at [77] and [85].

²² *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd* [2014] NZSC 38, [2014] 1 NZLR 593 at [86(b)] at [152].

²³ *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd* [2014] NZSC 38, [2014] 1 NZLR 593 at [86(b)] at [88].

the NPSFM 2020, it is not possible, in WIL’s submission, to definitively reach a view on how Te Mana o te Wai is to be applied. In the absence of Te Mana o te Wai having been articulated and implemented, it is WIL’s submission that the NPSFM 2020 must by necessary implication be considered ‘incomplete’ such that reference to Part 2 would be appropriate to ‘bridge the gap’ in relation to the NPSFM 2020.

- 2.46. Following WIL’s Memorandum of Counsel, a number of parties filed responses including DOC, CCC, and Ngā Rūnanga. Counsel agrees with the responses provided by those parties.
- 2.47. Counsel for DOC summarised what appeared to be WIL’s argument; it is not that economic and social considerations have been omitted from the NPSFM 2020, but that they have not been given sufficient priority.²⁴ Counsel for the Council agrees with DOC’s assessment in this regard; it cannot be said that the NPSFM 2020 does not cover the field, in the sense contemplated by the Supreme Court in *King Salmon*. The NPSFM 2020 covers the field in respect of freshwater management. The objective and policies of the NPSFM 2020 apply Part 2 of the RMA and give it substance in the context of the management of freshwater resources.²⁵ Accordingly, it is not considered appropriate to revert to Part 2 of the RMA on the basis of incompleteness.
- 2.48. Nor is it considered appropriate to have recourse to Part 2 of the RMA on the basis of uncertainty. As indicated above in respect of the discussion regarding the definition of Te Mana o te Wai, there is clear direction within the NPSFM 2020 itself as to how the NPSFM 2020 is to be implemented.

Implications for the section 32AA

- 2.49. Section 32AA of the RMA requires a further evaluation to be carried out for any changes that have been made to, or are proposed for PC7 since the Section 32 Report was completed. The Section 32AA evaluation must be carried out in accordance with section 32(1) to (4) and must be undertaken at a level of detail that corresponds to the scale and significance of the changes.
- 2.50. A further evaluation undertaken in accordance with section 32AA can be referred to in the decision-making record in sufficient detail to demonstrate that the further evaluation was undertaken, without the need to publish a separate evaluation report.²⁶
- 2.51. The Section 32 Report provides:²⁷

PC7 does not propose to amend any CLWRP objectives, and therefore the objectives will still remain if the amended proposal were to take effect. For the purposes of PC7, the evaluation under section 32(1)(b) therefore relates to the relevant objectives of the CLWRP and the purpose of the proposal. Where the purpose of the proposal is

²⁴ Memorandum of Counsel for the Director-General of Conservation in response to Memorandum of Counsel for Waimakariri Irrigation Ltd dated 18 December 2020 at [11].

²⁵ Memorandum of Counsel for the Director-General of Conservation in response to Memorandum of Counsel for Waimakariri Irrigation Ltd dated 18 December 2020 at [15].

²⁶ RMA, s 32AA(1)(d)(ii) and (2).

²⁷ Section 32 Report at Part 1.10, at 18.

different, or in addition, to the objectives of the CLWRP, that purpose is stated in the relevant section of this report.

For the purposes of PC2, the evaluation under section 32(1)(b) relates to the purpose of the proposal.

2.52. Relevantly, the report also states that in respect of the NPSFM:²⁸

Section 32 requires an evaluation report to examine the extent to which the proposed provisions are the most appropriate way of achieving the objectives of the proposal. In this case, the purpose of the proposal is to give effect to the NPSFM and to do so in a way that is consistent with the objectives of the CLWRP. The most relevant objectives in the CLWRP are:

3.8 The quality and quantity of water in fresh water bodies and their catchments is managed to safeguard the life-supporting capacity of ecosystems and ecosystem processes, including ensuring sufficient flow and quality of water to support the habitat and feeding, breeding, migratory and other behavioural requirements of indigenous species, nesting birds and, where appropriate, trout and salmon.

3.12 When setting and managing within limits, regard is had to community outcomes for water quality and quantity.

3.16 Freshwater bodies and their catchments are maintained in a healthy state, including through hydrological and geomorphic processes such as flushing and opening hāpua and river mouths, flushing algal and weed growth, and transporting sediment.

2.53. The NPSFM 2020 was introduced following the completion of the Section 32 Report. Accordingly, for the purposes of the section 32AA evaluation, the purpose of the proposal ought to be considered in the light of the NPSFM 2020 with the aim of giving effect to that document to the extent that there is scope in submissions to do so.

NES-Freshwater

2.54. During the hearing, counsel for As One Inc. addressed the implications of both the NPSFM 2020 and the NESFW. Counsel for As One Inc. submitted that the risk of not immediately imposing more restrictive rules is fundamentally altered by the fact that the NESFW is in place until after 2024 to give effect to the NPSFM 2020 until regional plans can be updated through the freshwater planning process.²⁹

2.55. The Council's conflict assessment has shown that in many circumstances, the provisions of the LWRP are already more stringent than the NPSFM 2020. In any event, the presence of the NES-F does not avoid the need for the Council to give effect to the NPSFM 2020.

2.56. For completeness, we note that a further evaluation pursuant to section 32AA of the RMA is required for changes that have been made to, or are proposed for, the proposal (i.e., PC7 and

²⁸ Section 32 Report at Part 5.1.3, at 43-44.

²⁹ Opening legal submissions on behalf of the submitter dated 16 November 2020 at [46.1].

PC2) since the Section 32 Report for the proposal was completed. The section 32AA evaluation needs to be undertaken in accordance with section 32(1) to (4), and section 32(4) provides:

If the proposal will impose a greater [[or lesser]] prohibition or restriction on an activity to which a national environmental standard applies than the existing prohibitions or restrictions in that standard, the evaluation report must examine whether the prohibition or restriction is justified in the circumstances of each region or district in which the prohibition or restriction would have effect.

- 2.57. With the introduction of the NESFW, any changes that are proposed to the provisions in PC7 and PC2 through the Officer's Reply would need to be evaluated in accordance with section 32(4), at a level of detail that corresponds to the scale and significance of the changes.³⁰

Canterbury Water Management Strategy

- 2.58. During the hearing, the issue of the weight to be placed on the CWMS was raised by counsel for As One Inc.
- 2.59. Section 24 of the ECan Act 2016 requires the Council (and in this case the Hearing Panel) to have particular regard to the vision and principles of the CWMS when considering any proposed fresh water plan during the transition period, in addition to the matters relevant under the RMA to its decisions made under clause 10(1) of Schedule 1 of the RMA.
- 2.60. The transition period means the period starting on the transition day, and ending on the close of the day before resumption day.³¹ "Resumption day" is defined as the day after the day on which the official result of the 2019 election is declared under section 86 of the Local Electoral Act 2001 in relation to Environment Canterbury.
- 2.61. The ECan Act 2016 was repealed on the close of the resumption day. However, the ECan Act 2016 contains specific savings provisions in relation to Part 3 of the Act, which provides:³²
- (1) This Act is repealed on the close of the resumption day.
 - (2) Despite subsection (1),—
 - (a) Part 3 and Schedules 1 to 3 of this Act continue, as if they had not been repealed, for the purposes of completing any decision or decisions (including any appeals) to which they apply that have not been completed before the resumption day; and
 - (b) for the purposes of paragraph (a), the transition period is to be treated as if it had not ended.
- 2.62. Part 3 of the ECan Act 2016 applies to proposed plans that have been notified prior to the 2019 election and that relate to freshwater management. This includes PC7.

³⁰ RMA, s 32AA(1)(c).

³¹ ECan Act 2016, s 2 'transition day' means the day after the day on which the official result of the 2016 election is declared under section 86 of the Local Electoral Act 2001 in relation to Environment Canterbury.

³² ECan Act 2016, s 7.

- 2.63. Accordingly, PC7 must be determined as if the relevant provisions in the ECan Act 2016 had not been repealed and they will continue to apply for the purposes of completing any decision or decisions that have not been completed before resumption day. For that purpose, the transition period is to be treated as if it has not ended.
- 2.64. Therefore, the Council must have particular regard to the vision and principles of the CWMS, which are set out in Schedule 3 of the ECan Act 2016.
- 2.65. In relation to the requirement to have “particular regard”, the Court of Appeal has considered this in *Sandford Limited v The New Zealand Recreational Fishing Council Inc* and stated that one would expect that the term “particular regard” has a meaning that involves a greater obligation on the decision maker than the requirement to have “regard” to a consideration.³³
- 2.66. The Court of Appeal has recognised that where the requirement is to have regard to a specific factor of obvious relevance this requires a decision maker not only to be especially careful not to overlook the matter but also to give greater weight to that factor in its determination than the other relevant circumstances which the decision maker may take into account.³⁴
- 2.67. However, the Court of Appeal has stated that where the decision maker is required to have particular regard to a number of factors of varying relevance, which are expressed on general purposes rather than specific criteria, the decision maker must be permitted to discount those which are not relevant and give varying weight to those that are. In those circumstances, the requirement to have particular regard requires the decision maker to:³⁵

Satisfy himself or herself that the decision meets those of the purposes which are of most relevance to the extent that that can be achieved in harmony with other relevant considerations applying to the decision.

- 2.68. As discussed in the Section 42A Report,³⁶ the vision and principles in the CWMS are being implemented in Canterbury through the CWMS as a whole. This includes the Zone Committee process, which was established to enable community informed outcomes in light of the CWMS. The CWMS and the ZIPA are the result of extensive consultation and community participation aimed at reaching a consensus as to how to best manage the freshwater resources in the OTOP and Waimakariri sub-regions. As such, it provides valuable guidance about how the people and communities of Canterbury wish to see provision for their wellbeing and health and safety, through the management of the use, development and protection of resources, including water and land.

³³ *Sandford Limited v The New Zealand Recreational Fishing Council Inc* [2008] NZCA 160.

³⁴ *Sandford Limited v The New Zealand Recreational Fishing Council Inc* [2008] NZCA 160; *Wheeler v Wheeler* (1984) 2 NZFLR 385; *Sweeney v Sweeney* [1985] 2 NZLR 673 (HC).

³⁵ *Sandford Limited v The New Zealand Recreational Fishing Council Inc* [2008] NZCA 160.

³⁶ Section 42A Report [11.5]-[11.11].

- 2.69. Although there is no statutory requirement for PC7 to incorporate or give effect to the entire content of the CWMS or the ZIPA, these documents as a whole are an important component in determining the most appropriate way of achieving the purpose of the RMA.
- 2.70. Section 66(2)(c) of the RMA does not create an exhaustive list of considerations when preparing or changing a regional plan. The High Court has held that regard may be had to non-binding national policy documents, as relevant background material, even if those documents do not have any status under the RMA.³⁷

Zone Committee recommendations

- 2.71. Counsel for As One Inc. also addressed the weight to be placed on the ZC recommendations, and asserted that:³⁸

27 The key issue is that the only way in which placing a particular group's views ahead of the s32 focus could occur under the relevant statutory provisions was if the Collaborative Planning Process had applied, in which case Clause 51 of Schedule 1 would have enabled it. In the absence of that the focus had to remain s32.

...

37 This is not merely a question of weighting; the s42A reports have largely substituted consistency with the views of Zone Committee for the tests that this Panel will have to apply in accordance with s32AA and s32 and the evidence that is required to be able to apply those tests correctly. It is an error of law that materially affects the outcome of their assessment, resulting in recommendations that if followed, would lead to decisions that are not only based on an error of law, but for which there also is no proper evidentiary basis. It would be a failure to consider a relevant matter, namely the proper evidentiary cost-benefit analysis against the purposes to be achieved.

- 2.72. It is accepted that PC7 did not utilise the optional collaborative planning process provided for under Schedule 1 of the RMA. However, it is submitted that this does not affect the legitimacy of the ZC process or the weight to be given to the ZIPA. As discussed above in respect of the weight to be placed on the CWMS, the Council has various obligations in relation to PC7 under the RMA, including the requirement to have particular regard to the vision and principles of the CWMS.³⁹
- 2.73. It is submitted that the Council (and Hearing Panel) may consider the wider CWMS regime, including the views of the ZC as set out in the ZIPA, as part of having particular regard to the vision and principles of the CWMS, and noting that the matters to be considered under section 66 of the RMA are not an exhaustive list of considerations when preparing or changing a regional plan.

³⁷ *West Coast Regional Council v The Friends of Shearer Swamp* [2012] NZRMA 45.

³⁸ Opening Legal Submissions on behalf of As One Inc. dated 16 November 2020 at [26]-[39].

³⁹ ECan Act 2016, s 24.

- 2.74. While the weight to be given to different evidence is a matter for the decision-maker, the relevant legal tests set out in the RMA must ultimately be met.

Drinking Water Standards

Role of regional councils in respect of drinking water

- 2.75. A number of submitters addressed the issue of increased nitrate-nitrogen concentrations in drinking water, the associated health risks, and the DWSNZ. In order to assist the Hearing Panel, we have provided some clarification as to the role of the Council in respect of drinking water.

- 2.76. Section 30 of the RMA sets out the functions of regional councils. These functions do not explicitly refer to drinking water however, they imply that regional councils are responsible for managing drinking water quality, given the responsibilities of regional councils in respect of managing natural resources, development capacity, maintenance of water quality in water bodies, and the control of discharges into waterbodies. The relevant provisions of section 30 of the RMA are as follows:

30(1) Every regional council shall have the following functions for the purpose of giving effect to this Act in its region:

(a) the establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the natural and physical resources of the region:

...

(ba) the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in relation to housing and business land to meet the expected demands of the region:

(c) the control of the use of land for the purpose of—

...

(ii) The maintenance and enhancement of the quality of water in water bodies and coastal water:

...

(f) the control of discharges of contaminants into or onto land, air, or water and discharges of water into water:

- 2.77. ‘Development capacity’ is defined as including the provision of adequate ‘development infrastructure’ to support the development of the land, and ‘development infrastructure’ includes the network infrastructure for water supply. Accordingly, regional councils have a specific function to ensure that there is adequate water supply, and by implication this includes managing the quality of water supplies (noting also that section 5 of the RMA requires the management of physical resources in a way that provides for the health and safety of people and communities).

- 2.78. Regional councils have a number of other responsibilities under the RMA in relation to drinking water sources. For example, sections 70 and 107 of the RMA contain restrictions and

considerations for regional councils when granting discharge permits. Further, regional councils have responsibilities under the NESDW (noting that pursuant to section 61(1)(e) of the RMA regional councils must prepare and change regional policy statements in accordance with any regulations, and under section 68(2) regional rules cannot be inconsistent with regulations). The NESDW requires regional councils to:

decline a discharge permit where the discharge will be upstream from a drinking water abstraction point.⁴⁰

not include any rules in regional plans which would allow a permitted activity upstream from a drinking water abstraction point where this could result in water supplies being unsafe.⁴¹

consider whether a proposed activity may lead to significant adverse effects on the quality of drinking water at an abstraction point when considering a resource consent application, and place conditions on resource consents when necessary.⁴²

- 2.79. For completeness, we note that the Water Services Bill⁴³ (currently at the Select Committee stage) is intended to improve drinking water safety and environmental outcomes in New Zealand and will aim to implement the Government's recommendations from the Three Waters Review.
- 2.80. The Three Waters Review followed the Havelock North Drinking Water Inquiry and investigated the management regime in place for drinking water, wastewater and stormwater. The Havelock North Drinking Water Inquiry confirmed that even though the obligation on regional councils to protect source water quality is not expressly stated in the RMA, regional councils have a clear duty to manage and address contamination in this respect, arising from their functions under the RMA (including controlling the use of land, use of water, and the discharge of contaminants).
- 2.81. The Three Waters Review found that regional councils had not been consistently imposing controls on land use, and as a result, this affected the safety of drinking water supplies. The review proposed the introduction of enhanced obligations and duties on regional councils, including a duty to contribute to source water risk management plans, a duty on all parties to collaborate and share information with each other, a requirement for regional councils to report trends in source water quality, ensuring that RMA decisions of regional councils support the provision of safe drinking water, and reviewing plans to ensure that appropriate controls are in place. Following the review, Taumata Arowai – the Water Services Regulator Act 2020 was introduced and received Royal assent on 6 August 2020.⁴⁴ The Act establishes Taumata

⁴⁰ NESDW, regulation 7.

⁴¹ NESDW, regulation 10.

⁴² NESDW, regulation 12.

⁴³ Water Services Bill 314-1(2020).

⁴⁴ For completeness, we note that the Act is not currently in force and will take effect from 7 November 2021 or by Order in Council, whichever is earlier.

Arowai, a Crown agent responsible for administering and enforcing the new drinking water regulatory system.

- 2.82. The Water Services Bill will repeal part of the Health Act 1956, as well as making small amendments to the Local Government Act 2002 and the RMA. A new provision in the RMA would require consent authorities to have regard to risks, or potential risks, to source water when processing resource consent applications.

Evidence of Dr Humphrey regarding nitrate-nitrogen in drinking water

- 2.83. Counsel for As One Inc. submitted that it would be wrong at law to place weight on the evidence of Dr Humphrey when he appeared before the Hearing Panel on behalf of the Orari River Protection Group and answered questions from the Hearing Panel regarding the impacts of nitrate-nitrogen in water.
- 2.84. Dr Humphrey is the Medical Officer of Health for Canterbury, but did not present evidence in that capacity. He made that known to the Hearing Panel when he clarified that the Medical Officer of Health in South Canterbury is Dr Cheryl Brunton and explained that he was not speaking on behalf of the Canterbury or South Canterbury District Health Boards, nor in his capacity as the Medical Officer of Health.
- 2.85. Dr Humphrey is a member of the Nitrates in Water Research Group, and it was through his involvement with this organisation that he supported the Orari River Protection Group's submission by speaking to the impacts of nitrate-nitrogen in water.
- 2.86. The Hearing Panel has been delegated the functions and duties of hearing submissions on PC7 and PC2 and of making recommendations to the Council on them, in accordance with section 34A of the RMA. In doing so, the Hearing Panel has a broad discretion to receive as evidence any statement, document, information or matter that in its opinion, may assist it to deal effectively with the hearing on PC7 and PC2.⁴⁵ Further, the Hearing Panel has discretion as to the weight to be placed on such evidence, considering factors such as:⁴⁶
- a. Experience and qualifications;⁴⁷
 - b. The reasons for opinions and the consistency, coherence and presentation of evidence;⁴⁸

⁴⁵ RMA, s 41(1)(b). See also section 4B of the Commissions of Inquiry Act 1908.

⁴⁶ See *Shirley Primary School v Christchurch City Council* [1999] NZRMA 66 (EnvC) at [144]; *Stokes v Christchurch City Council* [1999] NZRMA 409 (EnvC) at [47], [52], [84]; *Scurr v Queenstown Lakes District Council* EnvC Christchurch C060/05, 29 April 2005 at [52]; *Briggs v Christchurch City Council* C045/08, 24 April 2008 at [120], [238]-[249].

⁴⁷ *Shirley Primary School v Christchurch City Council* [1999] NZRMA 66 (EnvC) at [144]; *Stokes v Christchurch City Council* [1999] NZRMA 409 (EnvC) at [47].

⁴⁸ *Shirley Primary School v Christchurch City Council* [1999] NZRMA 66 (EnvC) at [144]; *Horton v R* [2019] NZCA 239 at [34].

- c. Whether the evidence is objective and independent and does not advocate for the party who engaged the witness;⁴⁹
 - d. Reliability of evidence including general acceptance in the scientific community and supporting scientific studies/research;⁵⁰
 - e. The basis of analysis undertaken, and whether any key documents or assumptions relied upon are provided for examination by other experts;⁵¹
- 2.87. Accordingly, it is submitted that the Hearing Panel has discretion regarding the statements, documents and information it receives as evidence and has discretion regarding the weight that it places on Dr Humphrey's evidence (in the light of any inferences that may be drawn from the fact that Dr Humphrey was not giving evidence in his capacity as the Medical Officer of Health for Canterbury or on behalf of the Canterbury District Health Board). It would not however, be wrong at law for the Hearing Panel to place weight on that evidence.

Artificial lakes

- 2.88. During the hearing, the Hearing Panel queried the inclusion of Lake Pegasus in PC7.
- 2.89. Section 14 of the RMA provides that no person may take, use, dam, or divert water (other than open coastal water) unless the taking, using, damming, or diverting is expressly allowed by a national environmental standard, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or resource consent.
- 2.90. The definition of "water" under the Act is wide. As provided by section 2, the only exclusions are when water is inside any "pipe, tank or cistern". The definitions of "freshwater" and "water body" are also relevant to specific powers and functions of a regional council:

Freshwater means all water except coastal water and geothermal water:

Water—

- (a) Means water in all its physical forms whether flowing or not and whether over or under the ground:
- (b) Includes fresh water, coastal water, and geothermal water:
- (c) Does not include water in any form while in any pipe, tank, or cistern:

Water body means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area.

- 2.91. The definition of a "water body" includes a lake. Section 2 of the RMA defines "lake" and "wetland" as follows:

⁴⁹ *Shirley Primary School v Christchurch City Council* [1999] NZRMA 66 (EnvC) at [144]; *Scurr v Queenstown Lakes District Council* EnvC Christchurch C060/05, 29 April 2005 at [52]; *Briggs v Christchurch City Council* C045/08, 24 May 2008 at [238]; *Hill Park Residents Association Inc v Auckland Regional Council* EnvC Auckland A30/03, 6 March 2003 at [96]-[97]; *Horton v R* [2019] NZCA 239 at [33].

⁵⁰ *Shirley Primary School v Christchurch City Council* [1999] NZRMA 66 (EnvC) at [144].

⁵¹ *Biomarine Ltd v Auckland Regional Council* EnvC Christchurch A014/07, 13 February 2007 at [153]; *Horton v R* [2019] NZCA 239 at [33].

Lake means a body of fresh water which is entirely or nearly surrounded by land.

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

- 2.92. The definitions of “lake” and “wetland” do not expressly exclude artificial lakes or artificial wetlands. This can be contrasted with the definition of “river” which includes a modified watercourse, but expressly excludes an artificial watercourse⁵². Further, fresh water in an artificial lake or artificial wetland also falls within the definition of “water”.
- 2.93. The Council has various functions under section 30 of the RMA to regulate:
- a. The taking, use damming and diversion of water (section 30(1)(e));
 - b. The quantity level and flow of water in any water body (section 30(1)(e));
 - c. Set allocation limits (section 30(1)(fa)) in relation to both water quality and water quantity under the NPS.
- 2.94. As an artificial lake falls within the definitions of “lake”, “water” and “water body” under the RMA, the Council has the power to regulate an artificial lake in accordance with these functions.
- 2.95. The NPSFM 2020 adopts the definitions in the RMA and does not separately define “lake” or “wetland”. However, the NPSFM 2020 does define “natural wetland”, which expressly excludes wetlands constructed by artificial means.⁵³ It also refers to water body and bodies of water. Under the NPSFM 2020, the Council is required to identify FMUs for the Canterbury region and every water body in the region must be located within at least one FMU.⁵⁴ Accordingly, Lake Pegasus must be included in an FMU.
- 2.96. Todd Pegasus submitted requesting that Pegasus Lake be excluded from PC7. However, in the legal submissions on behalf of Templeton Pegasus Limited it was accepted that this is not viable relief.⁵⁵ The legal submissions further accepted that:⁵⁶

The Commission must give effect to the NPSFM 2020 where it is within scope of PC7 to do so. NPSFM 2020 requires degraded water bodies to be improved over time to targets at or above the national bottom line for the compulsory values and other relevant values identified.

...

⁵² RMA, s 2 definition of “river” means “a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal)”.

⁵³ NPSFM 2020, clause 3.21.

⁵⁴ NPSFM 2020, clause 1.4 definition of “Freshwater management unit, or FMU”, clauses 3.8(1) and (2).

⁵⁵ Legal submissions for Templeton Pegasus Limited dated 12 November 2020 at [8].

⁵⁶ Legal submissions for Templeton Pegasus Limited dated 12 November 2020 at [8] and [31].

It's acknowledged Pegasus Lake must remain in PC7 to give effect to the NPSFM 2020. However the classification, target and timeframe for Pegasus Lake needs to be realistic given basis on which the consent was first granted, and the limited ability of the consent holder to affect change.

- 2.97. The inclusion of Pegasus Lake in PC7 is addressed further at paragraphs 15.11-15.16 and 38.21-38.24 of this Reply Report.

Policy 8.4.28A – 'avoid'

- 2.98. Policy 8.4.28A (as recommended in the Reply Report) seeks to avoid discharges of contaminants to surface water or to land where contaminants may enter surface water as a first priority, and only where avoidance is not achievable, the best practicable option is to be used to minimise the loss or discharge of contaminants.⁵⁷
- 2.99. Templeton Pegasus Limited submit that the use of the word "avoid" in Policy 8.4.28A is problematic for Pegasus Lake for a number of reasons, including that on the basis of the decision in *King Salmon*,⁵⁸ "avoid" means "do not do something in the first instance", which will require any new consents for the same purpose for Pegasus Lake to be declined.⁵⁹
- 2.100. For clarification, we note that the Supreme Court decision in *Environmental Defence Society Inc v New Zealand King Salmon Company Limited* states that the word "avoid" is considered to have its ordinary meaning of "not allow" or "prevent the occurrence of" this was in the context of the use of "avoid" in section 5(2)(c) of the RMA.⁶⁰
- 2.101. However, "avoid" was found to have that ordinary meaning only to the extent that it gives effect to the particular goals that the avoidance is designed to achieve (in the *King Salmon* context, avoid was to be considered against the background that the policies in question were both aimed at particular goals of protecting the natural landscape).⁶¹ A policy including the word "avoid" but that includes a qualifier may be less directive.
- 2.102. The approach of the Supreme Court was clarified in the Environment Court in *Opoutere Ratepayers and Residents' Association v Waikato Regional Council*. The Environment Court stated "a requirement to give effect to a policy that is framed in a specific and unqualified way (that is, which creates "an environmental bottom line") may in a practical sense be more prescriptive than a requirement to give effect to a policy which is worded at a higher level of abstraction."⁶²

Definition of 'Indigenous Freshwater Species Habitat'

- 2.103. Beef + Lamb is seeking changes to the definition of 'Indigenous Freshwater Species Habitat' to include an additional criterion requiring the presence of a species to be confirmed by a suitably

⁵⁷ Section 42A Reply Report, Policy 8.4.28A.

⁵⁸ *Environmental Defence Society v New Zealand King Salmon Company* [2014] NZSC 38.

⁵⁹ Legal submissions for Templeton Pegasus Limited dated 12 November 2020 at [27].

⁶⁰ *Environmental Defence Society Incorporated v New Zealand King Salmon Company Limited* [2014] NZSC 38 at [96].

⁶¹ *Environmental Defence Society Incorporated v New Zealand King Salmon Company Limited* [2014] NZSC 38 at [93].

⁶² *Opoutere Ratepayers and Residents' Association v Waikato Regional Council* [2015] NZEnvC 105 at [19].

qualified and experienced practitioner.⁶³ PC7 proposes to permit certain activities, provided they do not occur in these habitats.⁶⁴

2.104. In order for a permitted activity rule to be legally valid, the standards, terms and conditions need to be stated with sufficient certainty so that compliance is able to be determined readily without reference to discretionary assessments.

2.105. The Courts have determined over the years that any permitted activity rule must:

- a. be comprehensible to a reasonably informed, but not necessarily expert, person;⁶⁵
- b. not reserve to a council the discretion to decide by subjective formulation whether a proposed activity is permitted or not;⁶⁶ and
- c. be sufficiently certain to be capable of objective ascertainment.⁶⁷

2.106. The relief sought by Beef + Lamb reduces the level of certainty provided by the definition, and in turn the relevant permitted activity rules, as it will not be apparent from consulting the planning maps alone whether the presence of one of the listed freshwater species has been confirmed by a suitably qualified and experienced practitioner. The effect of this is that the extent of the IFSH will need to be determined on a case-by-case basis.

NESPF – Rayonier

2.107. Rayonier New Zealand Limited and Port Blakely Limited raised several issues in its submission related to the NESPF, the rules in PC7 relating to plantation forestry, and the accompanying section 32 analysis.

2.108. Counsel for Rayonier New Zealand Limited and Port Blakely Limited submitted that PC7 does not satisfy the requirement under section 32(4) of the RMA to demonstrate that any rules in PC7 that are more stringent than the NESPF are necessary and justified in the Canterbury region.⁶⁸

2.109. Regulation 6(1)(a) of the NESPF provides that plan rules may be more stringent than the NESPF regulations in certain circumstances, including if the rule gives effect to an objective developed to give effect to the NPSFM.

2.110. Rayonier New Zealand Limited and Port Blakely Limited accept that the Council does not have jurisdiction to propose rules that are more stringent than the NESPF in PC7.⁶⁹

⁶³ Hearing Statement for Beef + Lamb dated 2 December 2020 at [38].

⁶⁴ For example, rules 5.136-5.141.

⁶⁵ *Re Application by Lower Hutt City Council* EnvC Wellington W046/2007, 31 May 2007 at [10].

⁶⁶ *Twisted World Limited v Wellington City Council* EnvC Wellington W024/2002, 8 July 2002 at [63].

⁶⁷ *Twisted World Limited v Wellington City Council* EnvC Wellington W024/2002, 8 July 2002 at [64].

⁶⁸ Legal submissions on behalf of Rayonier New Zealand Limited and Port Blakely Limited dated 12 November 2020 at [19].

⁶⁹ Legal submissions on behalf of Rayonier New Zealand Limited and Port Blakely Limited dated 12 November 2020 at [54].

2.111. The requirements of section 32 of the RMA are set out in the Section 32 Report for PC7⁷⁰ and the Section 42A Report.⁷¹

2.112. Section 32(4) of the RMA provides that:

If the proposal will impose a greater or lesser prohibition or restriction on an activity to which a national environmental standard applies than the existing prohibitions or restrictions in that standard, the evaluation report must examine whether the prohibition or restriction is justified in the circumstances of each region or district in which the prohibition or restriction would have effect.

2.113. The Section 32 Report of PC7 evaluated the provisions proposed in Part A of PC7 that clarify the relationship between the NESPF and the CLWRP.⁷² The Section 32 Report considered that some of the provisions in the CLWRP are more stringent than the regulations in the NESPF, and that there are some matters that are not within the scope of the NESPF that will continue to be managed under the CLWRP.⁷³

2.114. In relation to the stringency assessment, the Section 32 Report concluded that:⁷⁴

In this case, the conditions included in Rule 5.189 collectively represent the provisions currently in the CLWRP which are considered to be more stringent than the NESPF. Imposing greater restrictions on plantation forestry activities is justified in these circumstances because managing the particular matters outlined in the conditions of Rule 5.189 is necessary in order to achieve freshwater objectives in the CLWRP developed in accordance with the NPSFM and continue to manage activities that are not managed under the NESPF. In turn, this provides for the CLWRP to give effect to the objectives of the NPSFM.

2.115. It is submitted that the Council's Section 32 Report satisfies the requirements of section 32(4) of the RMA by examining whether the greater prohibitions or restrictions are justified in the circumstances. In any event, we also note that a further evaluation pursuant to section 32AA of the RMA will be required for any changes proposed to PC7 since the Section 32 Report was completed.

⁷⁰ Section 32 Report at Part 1.10, at 18-19.

⁷¹ Section 42A Report at [3.40]-[3.55].

⁷² Section 32 Report at Part 5.2 at 52-60.

⁷³ Section 32 Report at Part 5.2.1, at 52.

⁷⁴ Section 32 Report at Part 5.2.7, at 60.

Part 2: Common Themes in Submissions on PC7 and PC2

3. Introduction

- 3.1. At the hearing, evidence was presented by a range of submitters, legal counsel and experts on several matters that are common to more than one part of PC7 and PC2. This section of the report contains the Officers’ responses to the more general issues raised at the hearing.
- 3.2. The following common themes are addressed:
- NPSFM 2020 and Te Mana o te Wai
 - Waipuna/Springs
 - Stock exclusion

4. NPSFM 2020 and Te Mana o te Wai

- 4.1. The NPSFM 2020 came into force on 3 September 2020. It replaces the NPSFM 2017 and provides local authorities with updated direction on how freshwater should be managed under the RMA. PC7 and PC2 were notified to give effect to the NPSFM 2017.
- 4.2. Clause 4.1 of the NPSFM 2020 provides that “every local authority must give effect to this National Policy Statement as soon as reasonably practicable”. In accordance with section 80A of the RMA, the Council must notify a freshwater planning instrument, where that instrument has the purpose of giving effect to the NPSFM 2020, by 31 December 2024.
- 4.3. As indicated in the Council’s legal submissions presented at the opening of the hearing, to the extent there is scope within submissions to do so, the Hearing Panel should strive to give effect to the NPSFM 2020. However, PC7 and PC2 do not need to immediately give effect to the NPSFM 2020. Rather, the Council must give effect to the NPSFM 2020 as soon as is reasonably practicable. However, it is important to acknowledge that the NPSFM 2020 is in many respects a significant departure from previous iterations of the National Policy Statement. Several of these key differences under the NPSFM 2020 are discussed below.

Te Mana o te Wai

- 4.4. One of the key changes in the NPSFM 2020 is the further elevation and articulation of the concept of Te Mana o te Wai. It recognises that protecting the health of freshwater protects the health and well-being of the wider environment.
- 4.5. Te Mana o te Wai has the meaning set out in clause 1.3 and is described as a fundamental concept, encompassing six principles⁷⁵, along with a hierarchy of obligations that prioritises:
- a. first, the health and well-being of water bodies and freshwater ecosystems

⁷⁵ Mana whakahaere, kaitiakitanga, manaakitanga, governance, stewardship, and care and respect.

- b. second, the health needs of people (such as drinking water)
 - c. third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.
- 4.6. The only objective of the NPSFM 2020 is to ensure that natural and physical resources are managed in a way that gives effect to this hierarchy of obligations.
- 4.7. In addition to the articulation of Te Mana o te Wai in clause 1.3 and the Objective, the Council must engage with communities and tangata whenua to determine how Te Mana o te Wai applies to water bodies and freshwater ecosystems in the region. Therefore, while it is possible to take action to give effect to the NPSFM 2020, based on the knowledge and views expressed to-date, Officers consider that it is important that the local approach to giving effect to Te Mana o te Wai (as required in clause 3.4) is determined so that those actions can be refined and adjusted. This necessarily has a bearing on the extent to which PC7 and PC2 can give effect to the NPSFM 2020, acknowledging also the submission scope constraints for these processes.
- 4.8. Further, in giving effect to Te Mana o te Wai, the Council must actively involve tangata whenua in freshwater management (including decision-making processes); engage with communities and tangata whenua to identify long-term visions, environmental outcomes, and other elements of the NOF; and apply the hierarchy of obligations when:
 - a. developing long-term visions;
 - b. implementing the NOF; and
 - c. developing objectives, policies, methods, and criteria relating to natural inland wetlands, rivers, fish passage, primary contact sites, and water allocation;
- 4.9. Evidence from some submitters raises concerns with the extent to which Te Mana o te Wai can be considered and reflected in PC7 and PC2. For example, Mr Ensor, on behalf of AMWG, considers that the implementation of Te Mana o te Wai needs to begin very early in the process, and suggests that in the context of PC7, this should have occurred in part through the ZC process. Mr Ensor further expresses challenges with implementing Te Mana o te Wai in the absence of context from Arowhenua and Te Rūnanga, and in relation to highly modified environments (i.e. the presence of the Opuha Dam) without extensive community involvement and a strong evidence base. Some evidence and legal submissions have also advanced the need to take an overall view of the three priorities and adopt some form of balancing approach, rather than a strict prioritisation that may leave the third priority (or even the second and third priorities) relatively diminished or unable to be achieved.
- 4.10. Ms Davidson, in her rebuttal evidence on behalf of Arowhenua and Te Rūnanga, states that Arowhenua has “clearly communicated its concerns with and desired outcomes for hauora of the Opihi catchment” and “[w]hile the outcomes have not necessarily been expressed using the concept of Te Mana o te Wai, the outcomes have been consistently sought”. Ms Davidson considers that direction under both the NPSFM 2017 and NPSFM 2020 make Te Mana o te Wai a “central consideration” and that it is not appropriate to diminish its importance or relevance on the basis that Mr Ensor suggests. Ngā Rūnanga, through its legal submissions,

expresses clear views as to the correct interpretation of the objective of the NPSFM 2020 and its persuasive role in the consideration of submissions on PC7.

- 4.11. Overall, Officers largely agree with these conclusions. Policy direction in the NPSFM 2020 highlights the elevated importance of Te Mana o te Wai for freshwater management and decision-making. Policy 1 requires that freshwater is managed in a way that ‘gives effect’ to Te Mana o te Wai. This obligation has been elevated from the requirement under the NPSFM 2017 to ‘consider and recognise’ Te Mana o te Wai in the management of freshwater⁷⁶. In the Officers’ opinion, this necessarily involves consideration of the hierarchy of obligations which, at the forefront, requires the health and wellbeing of the waterbody and freshwater ecosystem to be put first, before any use is contemplated.
- 4.12. In light of the further clarification of the meaning and application of Te Mana o te Wai, both in the direction in the NPSFM 2020, and in evidence presented by submitters at the hearing, Officers consider there are some further opportunities to amend provisions in PC7 to give effect to the concept. Some specific recommendations on provisions to give effect to Te Mana o te Wai are discussed elsewhere in this report under the relevant sub-topics, and in places the Officers advance these as an option for the Hearing Panel to consider, should it wish to move PC7 further towards outcomes that give effect to Te Mana o te Wai. That said, Officers are of the view that fully giving effect to Te Mana o te Wai will require a further and comprehensive plan review process.

National Objectives Framework

- 4.13. The NOF process has been expanded upon under the NPSFM 2020. For the purpose of this Reply report, Officers will not discuss all of the requirements under, and implications of, the expanded NOF, as Council will continue to develop an implementation programme in the coming months. However, there are several relevant changes under this framework that immediately affect the provisions in PC7 and therefore are brought to the attention of the Hearing Panel.
- 4.14. Two additional values have been added to the compulsory values (previously Appendix 1 of the NPSFM 2017, now Appendix 1A of the NPSFM 2020). In addition to identifying the values of ‘ecosystem health’ and ‘human health for recreation’ (renamed ‘human contact’ in the NPSFM 2020), the NPSFM 2020 includes ‘threatened species’ and ‘mahinga kai’ as compulsory values. The ecosystem health value has also been broken down into five biophysical components that contribute to it⁷⁷.
- 4.15. The NPSFM 2020 introduces new attributes to provide for ecosystem health. These relate to fish index of biotic integrity, suspended fine sediment, dissolved oxygen, macroinvertebrates, ecosystem metabolism and submerged plants in lakes.

⁷⁶ Objective AA1 and Policy AA1 of the NPSFM 2017.

⁷⁷ These are: water quality, water quantity, habitat, aquatic life and ecological processes.

- 4.16. The NPSFM 2020 also includes more stringent national bottom lines for the nitrate toxicity and ammonia attributes⁷⁸ as follows:
- a. Nitrate (toxicity) in rivers is restricted to an annual median of 2.4 milligrams of nitrate-nitrogen per litre and an annual 95th percentile of 3.5 milligrams of nitrate-nitrogen per litre (now B Band, up from C Band under the NPSFM 2017); and
 - b. Ammonia (toxicity) in rivers and lakes is restricted to an annual median of 0.24 milligrams of ammoniacal-nitrogen per litre (now B band, up from C Band under the NPSFM 2017).
- 4.17. As discussed in later sections of this Report, Officers generally do not recommend amendments to outcomes tables for consistency with new attributes for ecosystem health. In general, there is an understandable lack of clear scope to do so, and Officers are generally of the view that a consistent and comprehensive review of the CLWRP outcomes tables will be undertaken in the near future as a part of the NPSFM 2020 implementation.

Relationship between the region-wide water quality limits for rivers and lakes and the sub-region limits

- 4.18. The evidence of Mr Brass, on behalf of DOC, raised questions regarding the relationship between the Schedule 8 water quality limits for rivers and lakes, and the sub-regional water quality limits set in Sections 6 to 15 of the CLWRP, and in particular whether a new Schedule 8 limit introduced by PC7 would apply where that attribute has not been assigned a limit in an applicable sub-region section.
- 4.19. Policy 4.2 directs water bodies to be managed to achieve the limits in Sections 6 to 15 or Schedule 8. In addition, Policy 4.7 directs resource consents should not be granted if the granting would result in any one of a number of outcomes:
- Breach of a water quality or quantity limit set in Sections 6 to 15; or
 - Further over allocation of water quality and/or quantity; or
 - Breach of the limits in Schedule 8 (in the absence of limits existing in Sections 6 – 15).
- 4.20. While Officers have not reviewed the Plan provisions to determine if this is a valid scenario, these policies require that if an attribute listed in Schedule 8 is not included in a sub-regional water quality limits table, the Schedule 8 attribute limit should apply by default.

Specific provisions for natural inland wetlands, rivers and fish passage

- 4.21. The NPSFM 2020 also requires that regional councils amend regional plans to incorporate specific provisions relating to natural inland wetlands, rivers and fish passage. In accordance with section 55(2) of the RMA, Council incorporated the following provisions into the CLWRP on 28 September 2020:

⁷⁸ Tables 5 and 6 of the NPSFM 2020.

Objective 2A.1: The passage of fish is maintained, or improved, by instream structures, except where it is desirable to prevent the passage of some fish species in order to protect desired fish species, their life stages, or their habitats.

Policy 2A.3: The loss of extent of natural inland wetlands is avoided, their values are protected, and their restoration is promoted, except where:

- (a) the loss of extent or values arises from any of the following:*
 - (i) the customary harvest of food or resources undertaken in accordance with tikanga Māori*
 - (ii) restoration activities*
 - (iii) scientific research*
 - (iv) the construction or maintenance of wetland utility structures (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020)*
 - (v) the maintenance or operation of specified infrastructure, or other infrastructure (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020)*
 - (vi) natural hazard works (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020); or*
- (b) the regional council is satisfied that:*
 - (i) the activity is necessary for the construction or upgrade of specified infrastructure; and*
 - (ii) the specified infrastructure will provide significant national or regional benefits; and*
 - (iii) there is a functional need for the specified infrastructure in that location; and*
 - (iv) the effects of the activity are managed through applying the effects management hierarchy.*

Policy 2A.4: The loss of river extent and values is avoided, unless the council is satisfied:

- (a) that there is a functional need for the activity in that location; and*
- (b) the effects of the activity are managed by applying the effects management hierarchy.*

4.22. The Hearing Panel questioned whether any consequential amendments to the provisions in PC7 and PC2 would be required to ensure consistency throughout the CLWRP as a result of the objective and policies inserted by the NPSFM 2020. Officers have identified several provisions that are likely to require consequential amendments for consistency with the new NPSFM 2020 provisions. This includes a number of changes to policies, as well as changes to some rules, especially restricted discretionary activity rules where wetlands and fish passage are not within the range of matters of discretion.

4.23. In the Officers' opinion, the potential consequential changes fall into three categories:

- (a) Consequential changes that are on provisions changed by PC7 and are within the scope of submissions lodged – understandably these submissions could not have sought

specific changes to align with an objective and policies that did not exist at the time submissions were lodged, but the kind of changes recommended are generally within the scope of the submissions lodged.

- (b) Consequential changes that are on provisions changed by PC7 but are not within the scope of submissions lodged. For these, the Officers do not recommend any consequential changes be made, due to this lack of scope in submissions.
- (c) Consequential changes to provisions that are not amended by PC7. Officers consider these are outside the scope of PC7 and are not able to be changed, even if there is potential for better alignment between the newly inserted provisions and existing provisions of the CLWRP. A future plan change will be required to resolve these issues.

4.24. Officers have appended a table to this Report (Appendix B) that sets out categories (a) and (b) above, and the category (a) changes are also recorded in the Officers' final marked-up version of PC7.

5. Waipuna/Springs

5.1. As identified in the Section 42A Report, PC7 proposes a number of amendments and new provisions to better protect waipuna (springs). Specifically, the Waimakariri and OTOP sections propose to expand the waterbodies that the stock exclusion rules in Section 5 manage to include intermittently and permanently flowing springs. A number of submitters have provided evidence to the Hearing Panel expressing concerns about what a 'spring' is and the appropriateness for these provisions to apply to intermittently flowing springs.⁷⁹

5.2. As recognised in the Section 42A Report, Officers understand the purpose of recognising springs in PC7 is to manage potential ecological and cultural effects. The Section 42A Report provides an example of the scientific definition of a spring but acknowledges this may not identify springs or seepages of cultural value to Ngāi Tahu.

5.3. The evidence presented to the Hearing Panel from Ngāi Tahu has not provided any further assistance in defining springs for PC7. Given the reference to spring in permitted activity rules for the Waimakariri and OTOP sub-regions, Officers do recommend that a definition is included in order to provide plan users greater certainty. Officers consider it would be appropriate to use the scientific definition that has used by Environment Canterbury to identify springs. Officers recommend the following definition be inserted into each of the Waimakariri and OTOP definition sections:

Spring means an area where groundwater flows to the land surface and is at a rate or quantity where water discharges into a surface water body either on an intermittent or permanent basis.

⁷⁹ For example; Great Southern Deer Farms Ltd; NZDFA; Knocklyn Holdings Ltd; Woodbury Deer Industry Environment Group.

- 5.4. The recommended definition will not capture seepages that do not connect to a surface waterbody, addressing the concerns raised by submitters such as Knocklyn Holdings Ltd and Woodbury Deer Industry Environment Group, and should provide protection of the springs with the most significant value to Ngāi Tahu, as it is the Officers' understanding that springs that have some form of connectivity to surface water bodies are of the highest significance.⁸⁰

6. Stock exclusion

- 6.1. At the hearing, evidence was heard from a number of submitters on provisions in PC7 that introduce additional requirements for the exclusion of stock from water bodies in the OTOP and Waimakariri sub-regions.
- 6.2. In the Section 42A Report, submissions on the stock exclusion provisions were considered separately under the relevant part of PC7 (i.e. sub-region) to which they related. However, given the common issues that have been raised in relation to stock exclusion at the hearing, and the significant cross-over between the provisions, evidence on these matters has been grouped into general themes and considered in this section. In addition, the recent promulgation of the Stock Exclusion Regulations encourages a consistent approach.
- 6.3. Evidence on the stock exclusion provisions can generally be grouped into the following topics:
- Challenges for particular land uses
 - Alignment with national regulations and direction

Challenges for particular land uses

- 6.4. Several submitters, primarily from the deer industry, raised a multitude of concerns relating to the implementation of the proposed additional stock exclusion requirements within extensive and/or low intensity farming areas.
- 6.5. General concerns identified by submitters at the hearing included:
- Challenges to identify affected waterbodies;
 - Costs of fencing, consenting and ongoing compliance;
 - Impacts on farm profitability and viability;
 - Adverse environmental effects of fencing and maintenance; and
 - The influence of flood events on the location of waterbodies.
- 6.6. Ms France, on behalf of Great Southern Deer Farms Ltd, requested clear definitions in PC7 for intensive and extensive farming operations, and a stocking rate of 8 SU/ha set below which farming operations would not be subject to the additional stock exclusion requirements.

⁸⁰ Informed by cultural health assessment and MIMP -Representatives of Te Ngāi Tūāhuriri and Tipa, G. (2016). *Cultural health assessments and water management for the Rakahuri – Waimakariri zone*. Tipa and Associates.

- 6.7. Officers consider a stocking rate, as has been used in Southland, is not the preferred threshold for three reasons:
- The introduction of a stocking rate for Waimakariri and OTOP in PC7 would be different to how stock exclusion is managed in other areas of Canterbury under the CLWRP. Therefore, regional consistency, for this region-wide issue, is more appropriate;
 - While a stocking rate is conceptually simple, it requires the addition of definitions and tables of stock classes and other reasonably complex provisions which are neither anticipated in submissions or simple additions to PC7; and
 - Experience has shown that stocking rates are difficult to administer from a compliance perspective.
- 6.8. Officers note that the changes to the stock exclusion requirements proposed by PC7 are relatively discrete. Much of the evidence presented appeared to apply to concerns with the existing stock exclusion provisions, and their relationship to small and ephemeral rivers, which are unchanged by PC7. Officers are recommending changes to the definition of ‘spring’, which are intended, in part, to resolve some of these concerns. However, Officers consider that the kind of changes needed to fully resolve the submitters concerns are outside the scope of PC7.

Alignment with national regulations and direction

- 6.9. Some submitters, including D & V Caseley, raised concerns relating to differences between the Stock Exclusion Regulations and the proposed stock exclusion additions under PC7. Presenting at the hearing, Ms Caseley considered the Stock Exclusion Regulations should be relied on as they give effect to the NPSFM 2020, provide more certainty for stock owners, and are a more “current and applicable” document in relation to stock exclusion. She also stated that stock owners would be working under two potentially conflicting sets of provisions.
- 6.10. Ms Caseley also considered that the Stock Exclusion Regulations provide a reasonable timeframe for any works to be completed. By giving effect to the Stock Exclusion Regulations as opposed to the proposed provisions under PC7, Ms Caseley considered that there would be opportunity to undertake more detailed assessments on a case-by-case basis to determine where more stringent stock exclusion restrictions may be appropriate.
- 6.11. The Hearing Panel acknowledged the complexity of landowners being subject to multiple stock exclusion requirements, including national regulations and regional rules. To address these complexities, the Hearing Panel requested that the Officers address the interplay between these requirements.
- 6.12. To assist the Hearing Panel, Officers have provided a comparison table containing several ‘typical’ farm scenarios and the stock exclusion requirements for each scenario under the Stock Exclusion Regulations, the operative CLWRP, and PC7 (Appendix C). This table identifies several differences between the documents in terms of the application of the stock exclusion requirements. The Table in Appendix C is not an assessment of stringency in terms of the RMA requirements.

- 6.13. Many of these differences exist between the Stock Exclusion Regulations and the existing provisions of the CLWRP, which are unchanged by PC7. Officers do not recommend any changes to the PC7 provisions to align, or remove conflicts between, the documents. In future, Environment Canterbury may choose to undertake a further plan change to the CLWRP in response to the Stock Exclusion Regulations, which would be subject to a separate Schedule 1/Freshwater Planning process. Officers also note that the nature of the Regulations is to create a range of activities that are not permitted, and for which a resource consent cannot be sought. This is a different concept to the CLWRP, which anticipates that for a range of situations where the permitted criteria cannot be met, a resource consent could be sought.

Omission in notified OTOP Rule

- 6.14. The two stock exclusion rules, one for the Waimakariri Section and one for the OTOP section are set out below:

8.5.33 Within the Waimakariri Sub-region any reference in Rules 5.68A, 5.68B, 5.68, 5.69, 5.70 and 5.71 to the bed of a lake, river or wetland also includes a spring, and an artificial watercourse that discharges into a lake, river or wetland, but does not include any subsurface drain or artificial watercourse that does not have surface water in it.

14.5.25 Within the Orari-Temuka-Opihi-Pareora sub-region, any reference in Rules 5.68A, 5.68B, 5.69, 5.70 and 5.71 to the bed of a lake, river or wetland also includes a spring and an artificial watercourse where these discharge to a lake, river or wetland waterbody, but does not include any sub-surface drain or artificial watercourse that does not have surface water in it.

- 6.15. The wording of these rules is essentially the same. However, Rule 14.5.25 omits reference to Rule 5.68. This is an unintended omission from the notified version. Rule 5.68 is a permitted activity and is critical to the rule cascade for stock exclusion. Its omission essentially makes Rule 14.5.25 moot. There do not appear to be any submissions specifically seeking that Rule 5.68 be included – the assumption by all would appear to be that it was already included. However, there are submission from the likes of WWHT that seek fencing and setbacks from wetlands and ‘spring heads’. Officers consider that if it is not appropriate to use Schedule 1, Clause 16(2) of the RMA to correct this omission, then submissions from the likes of WWHT provide adequate scope to include Rule 5.68.

Part 3: Submissions on Part A of PC7: Omnibus

7. Introduction

- 7.1. The submitters relevant to the Omnibus part of PC7 were heard throughout all hearing weeks.
- 7.2. This section of the report follows the same topic structure as the Section 42A Report – with responses to the mapped ‘Indigenous Freshwater Species Habitat’ and commercial vegetable growing provisions being the substantial parts. A number of matters are also dealt with in the earlier Common Issues section of this report.

8. NPSFM attributes⁸¹

NPSFM stringency tables

- 8.1. The Hearing Panel requested a table setting out a comparison of water quality statistics for rivers and lakes in Tables 1a and 1b of the CLWRP that have been introduced or amended by PC7; the equivalent attributes in the NPSFM 2020; current state based on monitoring data; relevant submission requests; and Officer recommendations. This information is attached as Appendix D.
- 8.2. The rows where there is no submission seeking an identifiable change are not included. It is also noted that for the region-wide provisions, some water quality statistics are included in Schedule 8. In the sub-regions, these tend to also be included in tables (a) and (b). Therefore, for the region-wide assessment, this includes Tables 1a and 1b and Schedule 8.
- 8.3. There are a number of submissions that seek general relief, which is not considered by the Officers to be sufficiently precise to recommend alterations to the numeric values in these tables. Examples include:
- (a) WWHT, which seeks a 30% uncertainty factor for various numerical values;
 - (b) CDHB, which seeks further investigation of various matters, and in places does not seek specific changes; and
 - (c) CCC, with respect to Schedule 8, where “Amend Schedule 8 to add lower thresholds in line with up to date research on effects of water quality attributes on human health and ecosystems, NPS limits and relevant ANZECC 2000 Guideline values, and outcomes sought by the community” is sought.
- 8.4. Outside of a narrow range of points, Officers do not recommend wholesale changes to try and align Tables 1a and 1b with the NPSFM 2020 attributes and measurement statistics. This is for three main reasons:
- (a) Significant parts of the Tables and Schedule 8 are not proposed to be changed by PC7, and are therefore outside the scope of PC7 – changes to some numeric values and not others could lead to inconsistent outcomes;

⁸¹ Ms Shirley Hayward, Environment Canterbury Scientist provided science advice for this topic.

- (b) The submissions provide limited scope for change, so only a limited proportion of Tables 1a and 1b could be lawfully adjusted;⁸² and
 - (c) Mechanisms to give effect to more stringent numeric values in Tables 1a and 1b and Schedule 8 would be limited. The primary mechanism for achieving the current water quality outcomes and limits in Tables 1a and 1b and Schedule 8 are the existing region-wide methods, and other than in limited areas (e.g. new Schedule 6 freshwater bathing areas) are not proposed to be altered by PC7. In short, the methods (rules and other management frameworks) to achieve this higher water quality are not included in Part A of PC7.
- 8.5. In summary, no amendments are recommended to the stringency of the values in Table 1b and Schedule 8. The following amendments are recommended to the values in Tables 1a:
- (a) Table 1a: increase the stringency of QMCI in ‘hill-fed lower urban’ streams to 4.5 QMCI (scope provided in the submission of WWHT PC7-88.7); and
 - (b) Table 1a: increase the stringency of *E. coli* [95th percentile] in ‘hill-fed lower urban’, ‘Banks Peninsula’ and ‘spring-fed plains urban’ rivers to 1000 *E. coli*/100ml (scope provided in the submission of CCC PC7-337.149).
- 8.6. Overall, Officers consider that it would be more efficient and effective to align all of the sub-regional tables and the region-wide tables with the NPSFM 2020 NOF criteria and statistical measures in a cohesive and consistent way in a future plan change intended to give full effect to the NPSFM 2020.

Chlorophyll a – periphyton

- 8.7. Table 1a of the CLWRP contains periphyton biomass thresholds for different river types (as chlorophyll a) as well as a percentage cover of nuisance filamentous green algae.
- 8.8. PC7 introduces footnote 2 into Table 1a which defines a new exceedance criteria for Chlorophyll a outcomes as no more than 8% of samples exceeding the band thresholds (i.e. no more than three samples out of 36 should exceed the thresholds) or no more than 17% for Productive Classes (six out of 36 samples). This compliance metric is as per the NPSFM 2020 periphyton attribute.
- 8.9. Although PC7 introduced a new exceedance criteria for Chlorophyll a outcomes, reference to the existing criteria - maximum biomass, was inadvertently retained in Table 1a. Officers considered that deletion of maximum biomass was a minor amendment and accordingly, in the Section 42A Report, recommended its deletion under Schedule 1, Clause 16(2) of the RMA.⁸³

⁸² Officers do note that a number of parties gave much more specific technical evidence than their submissions contained, or requested changes in their evidence when no change was requested in their (or anyone else's) submission.

⁸³ Refer to footnote 286 of the Section 42A Report.

- 8.10. At the hearing, Ms McArthur, on behalf of DOC, expressed concerns that replacing the maximum biomass thresholds with the exceedance criteria for Chlorophyll a in Table 1a represents a significant degradation in the periphyton biomass (chlorophyll a) outcome, and is not “a minor correction” as stated in the Section 42A Report. In her evidence, Ms McArthur states:

Shifting from a maximum biomass threshold to an attribute state which allows exceedance in 17% of chlorophyll a samples can exceed the attribute state for more than six months over a three year monitoring period. Allowing 8% of samples to exceed the threshold means chlorophyll a can exceed the attribute state for up to 3 months over a three year monthly monitoring period. This greatly increases the allowable frequency and duration of nuisance periphyton and has subsequent adverse effects on ecosystem health, particularly the health of macroinvertebrate communities.

- 8.11. Ms McArthur considers that if the Table 1a chlorophyll a metric is changed to the exceedance criteria as recommended in footnote 2, the attribute state for ‘hill-fed lower’ and ‘lake-fed’ river types should have amended chlorophyll a outcomes of 120 mg/m² (rather than 200 mg/m²). Ms McArthur considers that this will ensure these river types provide for a good state of ecosystem health and can meet a QMCI of 6 and dissolved oxygen minimum saturation of 90%.
- 8.12. As set out in the technical report supporting the Section 32 Report for this topic, the NPSFM exceedance criteria are more lenient than the CLWRP maximum criterion, and effectively means that one sample per year (or three samples per 3 years etc) could exceed the thresholds. Based on a three-year dataset of periphyton biomass in 24 Canterbury rivers, more than half the sites (15 sites) did not meet with their respective outcomes in Table 1a as a maximum value although only four sites failed to meet their respective outcomes using the 92nd percentile statistic (exceeded in no more than 8% of samples). Some sites that exceeded the CLWRP outcomes were known to have the invasive algae *Didymosphenia geminata* (didymo), which can cause extreme high biomass under favourable conditions. The three-year study included on moderately dry year which can drive higher than normal periphyton biomass. These natural and, in the case of didymo, uncontrollable variations contribute to occasional exceedance of the CLWRP outcomes.
- 8.13. In considering the evidence from Ms McArthur, Officers have evaluated more recent Council monitoring data which indicates that for at least some ‘hill-fed lower’ rivers that do exceed the CLWRP maximum chlorophyll a value but comply when using the NPSFM exceedance criteria (no more than 8 percent of samples exceed), they do at times exhibit undesirable effects on ecological and amenity values. Therefore, the leniency provided by inclusion of the NPSFM exceedance criteria without amending the chlorophyll a threshold may represent a degraded state compared to the outcomes set out in the CLWRP. This is most significant for river types where chlorophyll a outcomes are set at 200 mg/m².
- 8.14. Officers support the request of DOC to change the chlorophyll a outcomes for ‘Hill-fed lower’ and ‘Lake-fed’ river types from 200 to 120 mg/m² in the scenario that footnote 2 of Table 1a

is retained (as notified) and the maximum biomass statistic is deleted (as recommended in the Section 42A Report). However, Officers do not consider there is scope in PC7 to change the numeric outcomes for chlorophyll a as they were not amended in Table 1a. Accordingly, Officers recommend deleting footnote 2 and retaining 'max biomass' in Table 1a in anticipation of a future plan change reviewing the exceedance criteria and band threshold using more recent information.⁸⁴

- 8.15. If the Hearing Panel does consider that there is scope, Officers recommend adopting the changes to the chlorophyll a outcomes for 'Hill-fed lower' and 'Lake-fed' river types in Table 1a as sought by DOC, in addition to retaining footnote 2 and deleting 'max biomass'. Officers note a minor error in footnote 2 of Table 1a, which refers to '16% samples' rather than '17% of samples', and recommend that this is amended under the authority of Schedule 1, Clause 16 of the RMA.

Dissolved nitrogen

- 8.16. Footnote 2 to Schedule 8 specifies that where a particular river currently meets a higher (better) attribute state than indicated in the rivers table, that river shall not deteriorate below its existing attribute state as established in 2018.
- 8.17. At the hearing, Ms McArthur, on behalf of DOC, said that while her evidence⁸⁵ supported this footnote, the NPSFM 2020 now has provisions and a definition of what the baseline state is, so this footnote is a potential issue.
- 8.18. The NPSFM 2020 defines baseline state as:

baseline state, in relation to an attribute, means the best state out of the following:

- (a) the state on the date it is first identified by a regional council*
- (b) the state on the date on which a regional council set a freshwater objective for the attribute under the National Policy Statement for Freshwater Management 2014 (as amended in 2017)*
- (c) the state on 7 September 2017*

- 8.19. Section 3.10 of the NPSFM 2020 sets out the actions that the regional council must undertake in identifying attributes and their baseline states in an FMU or part of an FMU. Section 3.10(3) states that every regional council must identify the baseline state of an attribute using the best information available at the time.
- 8.20. As the Schedule 8 limits are 'default' region-wide limits and not set through a NOF process, Officers consider that the footnote is appropriate ahead of the Council giving full effect to the NPSFM 2020 as part of a wider review of the CLWRP.

⁸⁴ DOC PC7-160.2

⁸⁵ Evidence in chief of Ms McArthur, on behalf of DOC, paragraph 59 (page 15).

Māori Lakes and Lakes Emily and Georgina

- 8.21. Table 1b contains TLI outcomes for different types of lakes, including ‘Māori Lakes and Lakes Emily and Georgina’, and ‘all other small to medium sized high country lakes’, which are both within the management unit “small to medium sized high country lakes”. Schedule 8 does not set specific limits for ‘Māori Lakes and Lakes Emily and Georgina’ so the management unit ‘small/medium sized high country lakes’ applies.
- 8.22. Māori Lakes, and Lakes Emily and Georgina have TLI freshwater outcomes of 4 in Table 1b (specifically identified), but a corresponding TLI limit of 3 in Schedule 8 (as part of region-wide ‘small to medium sized high country lakes’). TLI scores increase with increasing eutrophication; therefore, in general, the higher the score, the worse the water quality of the lake. This means the TLI limit is more stringent than the relevant TLI outcome for these lakes.
- 8.23. The submissions of DOC and Ngā Rūnanga sought changes to the TLI outcome for Māori Lakes and Lakes Emily and Georgina in Table 1b to TLI 3 (rather than 4) to align with the TLI limits for ‘small/medium high country lakes’ in Schedule 8 and to protect the natural character and ecosystem health of the lakes for future generations.⁸⁶
- 8.24. The Section 42A Report did not recommend any changes to the TLI for Māori Lakes and Lakes Emily and Georgina in response to these submissions, as PC7 did not amend the TLI outcome for these Ashburton lakes, or the corresponding total nitrogen, total phosphorus and Chlorophyll a attributes. Although it was not clearly articulated in the Section 42A Report, Officers did not consider there was scope in PC7 to make such an amendment.
- 8.25. The evidence of Ms McArthur, on behalf of DOC, expanded on the submitter concerns of misalignment of outcomes and limits in the TLI for Māori Lakes and Lakes Emily and Georgina (Table 1b), and stated:

The TLI for Māori Lakes and lakes Emily and Georgina should be set at ≤ 3 , as is the case for all other small and medium sized high country lakes and phytoplankton (chlorophyll a mg/m^3) should also be commensurate with that TLI (i.e., 2 mg/L annual median and 10 mg/L annual maximum). A TLI of 3 equates to good water quality and will better ensure phytoplankton, high LakeSPI and 90% minimum dissolved oxygen saturation outcomes can be met in these lakes and that lakes will not degraded to a ‘flipped’ and de-vegetated ecological state that is difficult to restore.

- 8.26. The evidence of Dr Drinan, on behalf of DOC, also recommends changes to Table 1b for these lakes to a TLI of ≤ 3 , chlorophyll a annual average $\leq 2 \text{ mg}/\text{m}^3$ and annual maximum $\leq 10 \text{ mg}/\text{m}^3$, and total nitrogen and total phosphorus limits commensurate with these outcomes in Schedule 8. Dr Drinan provides extensive details on the high cultural and conservation values of Māori Lakes, and Lakes Emily and Georgina, including lake water quality data, and descriptions of habitats for a range of threatened or at-risk indigenous birds, fish,

⁸⁶ DOC (PC7-160.3) and Ngā Rūnanga (PC7-423.14 and PC7-423.75)

invertebrates and plants. Dr Drinan considers the recommended changes would better align with the existing ecological health and proposed cultural outcomes sought for these lakes.

- 8.27. The evidence of Mr Brass, on behalf of DOC, summarises that setting higher standards for the outcomes for these lakes would:
- recognise and provide for those matters of national importance;
 - give effect to the NPSFM by ensuring that water quality is maintained or improved; and
 - improve consistency with Schedule 8 and with the other outcomes in Table 1b.
- 8.28. While Officers recognise that there is merit in amending the TLI outcome to ≤ 3 for Māori Lakes and Lakes Emily and Georgina to improve consistency with the TLI limits in Schedule 8, Officers are not convinced there is scope in PC7 to make this change. PC7 did not amend the TLI outcome for these Ashburton lakes, the corresponding total nitrogen and total phosphorus limits in Schedule 8 for ‘small/medium high country lakes’, or the corresponding chlorophyll a outcome in Table 1b for these lakes.⁸⁷ A reassessment of outcomes for these lakes could be undertaken as a part of a further plan change to fully implement the NPSFM 2020 in the future.
- 8.29. Should the Hearing Panel consider there to be scope in PC7 to make this change, Officers would support deleting the TLI and Chlorophyll a outcomes for Māori Lakes and Lakes Emily and Georgina in Table 1b. The outcomes for ‘small/medium high country lakes’ would then apply to these lakes. No amendments would be required to Schedule 8 as Māori Lakes and Lakes Emily and Georgina are not specifically referred to.

9. Plantation forestry

- 9.1. PC7 proposes a new rule framework (Rules 5.189 and 5.190) that specifically apply to plantation forestry activities to increase the certainty around which CLWRP rules apply in addition to the NESPF.
- 9.2. Update #2 to the ‘tracked changes’ version of PC7 included a number of recommendations to change Rules 5.189 to 5.190. These rules cover plantation forests regulated by the NESPF and ‘permanent’ forests specifically planted and managed for a carbon sink. The changes sought to improve clarity by separating the rule cascade for plantation forestry activities from the rules applicable to carbon sink forests. The plantation forestry activities are grouped under Rules 5.189 to 5.190, and the rules applicable to carbon sink forests are grouped under new Rules 5.190A and 5.190B.

⁸⁷ The corresponding chlorophyll a outcomes in Table 1b for Māori Lakes and Lakes Emily and Georgina corresponds to the existing TLI of 4. As set out in paragraph 2.25 (page 62) of the Section 42A Report, Officers recommend correcting the error made when inserting the chlorophyll a outcomes for these lakes.

Stringency assessment

- 9.3. In its submission, Rayonier New Zealand Limited and Port Blakely Limited raised concerns that Rule 5.190 has a more stringent rule classification (discretionary) than the comparable rules in the CLWRP, and stated the increase in stringency was unnecessary and unjustified. They sought that the default status be amended to restricted discretionary.
- 9.4. No changes to the activity status of Rules 5.189 and 5.190 were recommended in the Section 42A Report in response to this submission, other than the reinstatement of a controlled activity rule for planting new areas of plantation forest in a flow sensitive catchment (equivalent to Rule 5.73 of the CLWRP). The reason for that recommendation was to provide a reasonably simple rule framework for the broad range of plantation forestry activities that the NESPF applies to.
- 9.5. The legal submissions of Mr Fowler, on behalf of Rayonier New Zealand Limited and Port Blakely Limited, reiterates the submitter's concerns that the PC7 plantation forestry rules duplicate existing NESPF regulations and create unnecessary and unjustified additional regulatory control over day-to-day plantation forestry activities in the Canterbury Region. Mr Fowler submits there is no evidence in the Section 32 Report or the Section 42A Report that the environmental effects of plantation forestry operations in the Canterbury Region are not being adequately managed through the existing provisions of the NESPF. Further, he submits that the NESPF standards are adequate to improve or maintain freshwater quality in the region in the interim before Council fully implements the NPSFM 2020 in a future plan change.
- 9.6. Accordingly, Mr Fowler seeks the deletion of conditions (3) to (7) of Rule 5.189, meaning the deletion of all restrictions other than in relation to planting or replanting in a Flow Sensitive Catchment listed in the CLWRP.
- 9.7. The evidence of Mr Wyeth, on behalf of Rayonier New Zealand Limited and Port Blakely Limited, acknowledges it is difficult to make an absolute assessment of whether proposed sediment discharge condition (3) of Rule 5.189 is more stringent than the NESPF, given the range of NESPF regulations relating to sediment management. In addition, he notes the relative stringency of the total suspended solids discharge limits in condition (3) will vary with the size of the waterbody, such that *"... a TSS discharge of 50g/m³ into a small waterbody could result in a significant change in visual clarity compared to a large waterbody)."* Mr Wyeth notes that extent to which councils have applied more stringent rules is a specific matter being assessed through the one-year-review of the NESPF⁸⁸.
- 9.8. Relevant to proposed conditions (3) to (6) of Rule 5.189, Officers note that the terms of reference for the planned Year One review of the implementation of the NESPF also include a review of:

⁸⁸ Refer, Te Uru Rākau (2019), 'Terms of Reference for Year One Review of NES-PF': <https://www.teururakau.govt.nz/dmsdocument/32878/direct>

- (a) whether the settings in the NESPF relating to harvesting and slash management are appropriate for controlling the environmental effects of plantation forestry on erosion-prone land, including whether the controls for ESC orange and red zone land are too narrow; and
 - (b) the biodiversity protections in the NESPF, including protections for indigenous flora and mobile fauna like birds and fish.
- 9.9. Officers have considered the evidence presented by Rayonier New Zealand Limited and Port Blakely Limited and retain the view that all conditions of proposed Rule 5.189 should be retained for the reasons set out in the Section 42A Report. Further discussion on sediment discharge condition (3) and wetlands condition (6) is provided below.
- 9.10. Officers also recommend adding a new permitted activity condition into Rule 5.189 for plantation forestry activities that occur within a RAMA for the reasons set out under the sub-heading “Potential effects of plantation forestry on rock art sites”.

Sediment discharges

- 9.11. In its submission, Rayonier New Zealand Limited and Port Blakely Limited sought the deletion (or otherwise amendment) of condition (3) of permitted activity Rule 5.189 which specifies a numeric permitted activity threshold for total suspended solids concentrations and visual clarity standards in discharges.⁸⁹ The submission raised a number of concerns with this condition, including its uncertainty, impracticality to apply in practice, undue stringency, and failure to adequately provide for elevated background levels of suspended sediment in the receiving waterbody.⁹⁰
- 9.12. In the Section 42A Report, Officers recommended retaining condition (3) of Rule 5.189 as notified, with the reasoning that the diffuse discharge of fine sediment into waterways and its subsequent settlement onto the bed has a range of negative impacts on aquatic ecosystems. In particular, suspended fine sediment may have negative effects on fish migration, and the deposition of fine sediment may have negative effects on macroinvertebrates and promote cyanobacterial blooms.
- 9.13. At the hearing, Mr Mann, on behalf of Rayonier New Zealand Limited and Port Blakely Limited, presented evidence in support of the submission to delete the ‘sediment discharge rule’. Mr Mann raised concerns of costs and uncertainty with measuring and monitoring diffuse discharges of sediment on account of other land use activities occurring in the up-gradient catchments and other sources of sediment unrelated to forestry operations, such as bank erosion. Mr Mann was also concerned about the wide scope of the application of the suspended sediment concentrations to all rivers in a forest of any soil type (not just highly erodible soils) and in any rain event.

⁸⁹ Visual clarity standards, as a measure of maximum percentage change, are set out in Table S5A of Schedule 5 of the CLWRP

⁹⁰ Paragraphs 14 to 18 of submission of Rayonier New Zealand Limited and Port Blakely Limited

9.14. Mr Wyeth, on behalf of Rayonier New Zealand Limited and Port Blakely Limited, presented evidence on the NESPF water quality standards for sediment that apply as permitted activity conditions for earthworks, forestry quarrying, harvesting, mechanical land preparation and slash traps.⁹¹ The NESPF requires that sediment must be managed to ensure that, after reasonable mixing, it does not give rise to the following effects in receiving waters:

- (a) any conspicuous change in colour or visual clarity;
- (b) the rendering of fresh water unsuitable for consumption by farm animals; and
- (c) significant adverse effects on aquatic life.

9.15. Mr Wyeth notes that the water quality standards are qualitative and there are no numeric standards within the NESPF to assist with interpreting these standards, and states:

The assumption therefore when the NES-PF was developed was that regional councils would continue to use their own definitions and guidelines (e.g. visual clarity and reasonable mixing) to interpret the NES-PF water quality standards. I note that central government has recently developed water quality attributes for sediment through the new National Policy Statement for Freshwater Management (NPS-FM).

9.16. During the hearing, the Hearing Panel asked Mr Wyeth whether the deletion of the total suspended solids concentration numeric values, but retention of the Schedule 5 visual clarity standards would address the concerns raised in his evidence. Mr Wyeth responded that such an amendment was in line with paragraph 32 of his evidence and would therefore meet his concerns.

9.17. Officers have considered the evidence of Rayonier New Zealand Limited and Port Blakely Limited and acknowledge there are challenges with monitoring diffuse discharges of sediment into waterways. However, the addition of fine sediment running off into waterways can have significant adverse effects on the receiving waterways that are unable to be, or highly onerous to, remediated. Officers consider it is important to manage both total suspended solids concentrations and visual clarity standards in order to manage the risks of suspended and deposited sediment. For example, visual clarity is not always a good indicator of the risks to benthic ecology in a waterway.

9.18. Accordingly, Officers recommend that both the total suspended solids concentration and the visual clarity standards in condition (3) of Rule 5.189 is retained. A minor amendment is suggested to refer to the Schedule 5 visual clarity standards “outside the mixing zone” for improved clarity.

Reference to wetlands in Rule 5.189

9.19. Proposed condition (6) of permitted activity Rule 5.189 states: “*the activity does not reduce the area of a wetland.*”

⁹¹ Evidence in chief, paragraph 30 – 32 (pages 10-11)

- 9.20. The evidence of Mr Wyeth, on behalf of Rayonier New Zealand Limited and Port Blakely Limited, comments that this condition is likely to be more stringent than the NESPF as it relates to any wetland, whereas the NESPF includes requirements for plantation forestry activities to be set back from wetlands greater than 0.25ha.⁹²
- 9.21. During the evidence presented by Rayonier New Zealand Limited and Port Blakely Limited, the Hearing Panel commented that the restrictions for wetlands in condition (6) of Rule 5.189 potentially duplicated the NESPF regulations for wetlands greater than 0.25ha.
- 9.22. Officers note that disturbance of a wetland less than 100 square metres is not regulated by the NESPF and there is a permitted activity pathway for the disturbance of wetlands less than 0.25ha in area. In comparison, there are no permitted activity rules in the CLWRP for disturbing or reducing the area of a wetland. The CLWRP requires resource consent for the reduction in area of a wetland, and is assessed as either a restricted discretionary or non-complying activity.
- 9.23. Regulation 6 of the NESPF allows for a rule in a plan to be more stringent than the regulations if the rule gives effect to an objective developed to give effect to the NPSFM. Policy 6 of the NPSFM 2020 requires “[t]here is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.”⁹³ The NPSFM 2020 also contains implementation provisions requiring the identification and mapping of certain natural inland wetlands (which may include wetlands 0.05ha or greater in area).⁹⁴
- 9.24. As set out in Part 2: Common Themes ‘*Specific provisions for natural inland wetlands, rivers and fish passage*’ of this Report, Council has inserted a new policy into the CLWRP with respect to natural inland wetlands – Policy 2A.3, which requires the avoidance of the loss of extent of natural inland wetlands, subject to exceptions.⁹⁵ Officers do not consider that any of these exceptions would apply to the plantation forestry activities regulated by the NESPF.
- 9.25. Overall, Officers recommend that the retention of wetland condition (6) in Rule 5.189 as it better implements Policy 2A.3 of the CLWRP and better gives effect to the NPSFM 2020, until such time as a future plan change implements the steps relating to natural inland wetlands and fully gives effect to the NPSFM 2020.

Potential effects of plantation forestry on rock art sites

- 9.26. During the hearing, Ms Hall and Ms Symon presented evidence on the management and protection of rock art sites on behalf of Arowhenua and Te Rūnanga. Both witnesses discussed how rock art sites are a culturally significant and unique aspect of New Zealand’s heritage.

⁹² For example, regulations 14(3), 29, 54(3), 74(8).

⁹³ Natural inland wetland means a natural wetland that is not in the coastal marine area (Clause 3.21 of the NPSFM 2020).

⁹⁴ As set out in Clause 3.23 of the NPSFM 2020

⁹⁵ As set out in Clause 3.22(1) of the NPSFM 2020.

They also stressed the fragility and high sensitivity of rock art to a range of activities, particularly those with potential to change the wider hydrology of the sites.

- 9.27. Ms Hall supported the relief sought by Arowhenua and Te Rūnanga in its submission for a new permitted activity condition in multiple rules in the CLWRP that manage activities that could affect the mapped RAMAs within the OTOP catchment. Ms Hall indicated that the activities considered to be a potential risk to rock art include the taking, use, damming, diversion or discharge of water, the discharge of contaminants, and land use activities.
- 9.28. In her evidence, Ms Symon outlined the potential impacts of certain activities on rock art sites, including changes to vegetation cover, diversion of water and earthworks.⁹⁶ As an example, Ms Symon considered the planting of trees in the vicinity of rock art may result in roots penetrating and widening rock fractures resulting in changed drainage and weakened slope/rock face.
- 9.29. Ms Owen, on behalf of HNZPT, stated that the sensitivity of rock art to damage and loss are such that only avoidance of adverse effects can ensure protection of rock art.
- 9.30. In response to questioning by the Hearing Panel, Mr Wyeth, on behalf of Rayonier New Zealand Limited and Port Blakely Limited, explained that there are plantation forestry related activities and effects not regulated under the NESPF that will continue to be managed under the relevant plan. Relevant to rock art, the effects on cultural and historic heritage are excluded from the NESPF and plan rules (including PC7 provisions) continue to manage these effects.
- 9.31. In light of this evidence, and in response to the questions from the Hearing Panel, Officers have reconsidered the recommendations on the provisions and agree that an additional permitted activity condition for plantation forestry activities within the RAMA is appropriate. Officers note that a number of the activities considered by Ms Hall and Ms Symon as potential risks to rock art sites are plantation forestry activities regulated by the NESPF.
- 9.32. As mapped rock art sites in the CLWRP are currently limited to RAMAs within the OTOP sub-region, Officers consider it appropriate to refer to RAMAs rather than 'rock art sites' to provide certainty for the application of this permitted activity condition. Grouping this OTOP sub-region requirement with the region-wide plantation forestry rules is consistent with the intent of this PC7 topic to simplify the planning framework for plantation foresters.
- 9.33. Non-compliance with this condition is recommended to be a discretionary activity. Officers acknowledge that this may be a more stringent rule classification than recommended for equivalent OTOP provisions, but the discretionary activity status is intended to provide a reasonably simple rule framework for the broad range of plantation forestry activities that the NESPF applies to.

⁹⁶ Evidence in chief of Ms Symon, on behalf of Arowhenua and Te Rūnanga, dated 22 July 2020, Appendix B: Guideline for implementing a land-based taonga risk and vulnerability assessment in the context of freshwater environments: Māori Rock Art (2018), Table 1.

- 9.34. By requiring consents for plantation forestry activities that occur within a RAMA, the effects can be better managed, and the Rūnanga afforded the opportunity to advise and participate during the consenting process after assessment on a case-by-case basis. This will enable the actual and potential effects of activities on rock art sites to be fully considered for any subsequent recommendation, and/or condition of consent as appropriate.

Recommendation

- 9.35. Insert a new condition in permitted activity Rule 5.189 to ensure rock art sites (specifically RAMAs) are protected from the potential adverse effects from plantation forestry activities.

10. Ngāi Tahu values

- 10.1. The wording of some restricted discretionary rules in the CLWRP impedes Environment Canterbury's ability to consider effects on Ngāi Tahu values and sites of significance to Ngāi Tahu, including wāhi tapu and wāhi taonga. In response to this issue, PC7 proposes to amend 23 rules by including new matters of discretion which will allow consideration of effects on Ngāi Tahu values⁹⁷. The same wording is proposed for all new matters of discretion.
- 10.2. Officers recommended changes to the notified wording in response to submissions and questions of the Hearing Panel on the Section 42A Report⁹⁸. The amendments sought to assist plan users' understanding of Ngāi Tahu values and the potential effects a proposed activity may have on Ngāi Tahu values and sites of significance, by referring to existing descriptions in the CLWRP, district plans and IMPs. For example, the terms 'wāhi tapu' and 'wāhi taonga' are explained in Section 1.3.1 of the CLWRP, and Part B of PC7 introduces a new planning map layer that identifies MPZs and RAMAs in Section 14 of the Plan.
- 10.3. The evidence of Mrs Barnett for ESAI states the recommended amendments are open to interpretation and do not provide clarity as to which Ngāi Tahu values need to be assessed in regard to the respective rules and associated activities. ESAI contends that this "could lead to inconsistent approaches, time delays, increased costs and the imposition of highly stringent conditions or declined consents where they may not warrant such treatment based on scientific assessment." ESAI also objects to the wording referring to other district plans and IMPs, stating this requires an assessment of plans outside the jurisdiction of the CLWRP. ESAI requests that the provisions either list the particular sites of value to Ngāi Tahu in a schedule in the Plan or specifically state what values or environmental entities need to be considered when assessing the activities.⁹⁹

⁹⁷ The new matters of discretion applies to 23 rules - Rules 5.9, 5.11, 5.13, 5.15, 5.17, 5.19, 5.26, 5.28, 5.36, 5.40, 5.110, 5.115, 5.117, 5.120, 5.123, 5.126, 5.128, 5.133, 5.161, 5.164, 5.176, 5.178, 5.180.

⁹⁸ As set out in the Errata "Responses to Questions of Hearing Commissioners on Council Section 42A Report dated 28 May 2020, and additional questions dated 16 June 2020"

⁹⁹ Evidence in chief, ESAI, paragraphs 4.10-4.15 (pages 9 & 10).

- 10.4. Officers do not consider that the wording recommended by the Officers requires an assessment of provisions in district plans and IMPs, but instead provides direction for plan users on where to find information on sites of significance to Ngāi Tahu for consent applications. This is consistent with Policy 4.14B of the CLWRP, which refers to district plans and IMPs, in addition to the CLWRP, as documents that may identify statutory acknowledgement areas, nohoanga sites, surface waterbodies, silent file areas, culturally significant sites, Heritage New Zealand sites, any listed archaeological sites, and cultural landscapes.
- 10.5. Ms Davidson, in her summary of evidence on behalf of Ngā Rūnanga, highlights concerns that referring to specific documents or defining terms that relate to Ngāi Tahu values risks alienating Ngā Rūnanga from the resource consent process. She notes the relevance of Policy 2 of the NPSFM 2020 which requires that tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for.
- 10.6. In her evidence in chief, Ms Davidson expands on her concerns about specifying Ngāi Tahu values and sites of significance as being those identified in the CLWRP, district plans and IMPs as follows:¹⁰⁰
- (a) *It is my understanding that the intent of an IMP is to enhance the understanding of councils, consent applicants and consultants in preparation for engaging with iwi and hapū. It is not a decision making tool in and of itself and I believe it should not replace direct consultation with the applicant.*
 - (b) *There is a risk that the approach will exclude engagement with Ngā Rūnanga on matters that concern them.*
 - (c) *Not all Rūnanga currently have IMPs in place within Canterbury. Even if they do, given the extent of the Canterbury region and the issues that Rūnanga need to consider, the matter may not be at a scale or of a type contemplated by the IMP.*
 - (d) *Neither district plans nor the CLWRP contain a full record of the sites of significance to Ngā Rūnanga.*
 - (e) *It does not provide for “silent files” – where sites are held in confidential files or may only be accessible by selected Rūnanga representatives.*
 - (f) *It may be that the concern is more about engagement with Rūnanga or their environmental entity and cost, timeframes and uncertainty about outcomes. These are matters that re-drafting of the matters of discretion cannot resolve.*
- 10.7. Ms Davidson considers that these risks will be exacerbated by the approach of applying definitions to the terms ‘wāhi tapu’ and ‘wāhi taonga’ or expanding on the existing descriptions of these terms in the CLWRP. She requests that the wording of the restricted discretionary matters remain as notified.
- 10.8. On reflection and consideration of the evidence, Officers agree with Ms Davidson that reference to the CLWRP, district plans and IMPs for the identification and description of Ngāi

¹⁰⁰ Evidence in chief of Ms Davidson, on behalf of Ngā Rūnanga, paragraph 124 (page 31).

Tahu values and sites of significance is not appropriate or required. Importantly, the wording must not have the unintended consequence of alienating the relevant rūnanga from discussions at the time an application is proposed, in order to identify what values or sites may be affected and how such effects can be appropriately managed. These discussions with rūnanga should provide the further clarity ESAI is seeking on individual proposals.

Recommendation

- 10.9. Retain the wording of the matter of discretion as notified for all 23 rules (Rules 5.9, 5.11, 5.13, 5.15, 5.17, 5.19, 5.26, 5.28, 5.36, 5.40, 5.110, 5.115, 5.117, 5.120, 5.123, 5.126, 5.128, 5.133, 5.161, 5.164, 5.176, 5.178, 5.180).

11. Indigenous freshwater species habitats¹⁰¹

Name of the definition/map layer

- 11.1. PC7 introduced a new definition of ‘Indigenous Freshwater Species Habitat’ into Section 2.9 and accompanying planning map layer in the CLWRP Planning Maps. The definition lists eleven threatened and at risk indigenous freshwater fish and invertebrates, and describes the location of their habitat in rivers and lakes in the Canterbury region. The PC7 layer includes three species that are threatened in Canterbury but currently are not nationally threatened (i.e. giant kōkopu/taiwharu, freshwater crayfish/kekewai and freshwater mussel/kākahi).¹⁰²
- 11.2. In the Section 42A Report, Officers recommended the term ‘Indigenous Freshwater Species Habitat’ be amended to ‘Critical Habitat of Threatened Indigenous Freshwater Species’ to improve clarity for plan users that the provisions refer to the habitat of the 11 species listed in the definition, rather than much more broadly all indigenous habitat in lakes and rivers. This recommendation was in response to the submission from G Fenwick, who sought a broader list of species and suggested replacing the term ‘Indigenous Freshwater Species Habitat’ with the broader term ‘Significant Habitat of Indigenous Biodiversity’ which is referred to in the Canterbury Regional Policy Statement.
- 11.3. At the hearing, Dr Dunn, on behalf of DOC, opposed use of the term ‘Critical Habitat of Threatened Indigenous Freshwater Species’, but did not provide an alternative name when questioned by the Hearing Panel. In his evidence, Dr Dunn stated that the term ‘Critical Habitat of Threatened Indigenous Freshwater Species’ is ambiguous, as the term ‘critical

¹⁰¹ This topic is authored by Duncan Gray (science) and Andrea Richardson (planning)

¹⁰² These provisions are informed by two Section 32 Report supporting technical documents; “Critical habitat for Canterbury freshwater fish, koura/kekewai and kākahi”; and “Prioritisation of native aquatic species habitat for protection under the LWRP Omnibus plan change”.

- Allibone, R and Gray, D. Critical habitat for Canterbury freshwater fish, koura/kekewai and kākahi. Water Ways Consulting Ltd and Environment Canterbury Report, December 2018; and
- Allibone, R and Gray, D. Prioritisation of native aquatic species habitat for protection under the LWRP Omnibus plan change. Water Ways Consulting Ltd and Environment Canterbury Technical Memorandum, 21 May 2019.

habitat’ is undefined both ecologically and in the higher order planning instruments (specifically the RMA and the CRPS). Dr Dunn stated that the Allibone and Gray (2018) report fails to define the term ‘critical habitat’, but in general appears to describe ‘significant habitats’ which differs in an ecological and policy sense.

- 11.4. To provide brevity in the provisions that refer to this term, and given no alternative name was put forward by a submitter during the hearing, Officers recommend that the name is amended to ‘Critical Habitat’.¹⁰³ Further, Officers consider that the removal of ‘threatened species’ from the term may minimise potential confusion that the definition (and associated mapping) meets the requirements of the NPSFM 2020 to identify the location of habitats of threatened species within each FMU.¹⁰⁴ The scope of this PC7 topic was limited to indigenous fish and two invertebrates (freshwater mussel/kākahi and freshwater crayfish/kekewai), whereas the NPSFM 2020 defines threatened species as any indigenous species of flora or fauna that meets certain requirements.¹⁰⁵
- 11.5. For simplicity, the PC7 term ‘Indigenous Freshwater Species Habitat’ (referred to as ‘IFSH’ from now) continues to be referred to in this report rather than the recommended name ‘Critical Habitat’.¹⁰⁶

Amendments to IFSH Mapping (jointly Environment Canterbury and DOC)

- 11.6. Dr Dunn, on behalf of DOC, and Council Scientist Dr Duncan Gray reviewed mapped habitat sites in the proposed IFSH Planning Map layer, and updated the dataset underlying those maps to improve the accuracy and robustness of the mapping layer. Lake habitats were not considered in this joint mapping work. The resultant map layer is referred to as ‘dataset 4’.
- 11.7. DOC contributed to the mapping of the habitats of all species in the definition of IFSH except for freshwater mussel/kākahi, freshwater crayfish/kekewai and lamprey/kanakana. Therefore, Dr Gray augmented the ‘dataset 4’ map layer with the habitats of these three species to create ‘dataset 5’.
- 11.8. Officers compared each ‘dataset 5’ river habitat area against the notified IFSH layer in the PC7 Planning Maps to determine if there is scope in PC7 for any recommended changes to the spatial extents. With reference to Table 1 below, each habitat area was assigned one of 12 scope categories and the Planning Maps amended according to the ‘dataset 5 action’ to create ‘dataset 6’.

¹⁰³ G Fenwick PC7-339.2

¹⁰⁴ Clause 3.8(3)(c) of the NPSFM 2020.

¹⁰⁵ The NPSFM 2020 defines threatened species as any indigenous species of flora or fauna that (a) relies on water bodies for at least part of its life cycle; and (b) meets the criteria for nationally critical, nationally endangered, or nationally vulnerable species in the New Zealand Threat Classification System Manual.

¹⁰⁶ G Fenwick PC7-339.2

Table 1. Scope categories applied to each river habitat in the IFSH Planning Map layer.

Scope Category	Dataset 5 Action
DOC extension of notified layer	Retain
In the notified layer	Retain
New extent for notified population	Retain
Not notified, data not reliable	Remove
Not notified, kākahi present	Remove
Not notified, kākahi presumed extinct	Remove
Not notified, MF recorded	Remove
Not notified, no MF recorded	Remove
Not notified, subsequent data shows kekewai present	Remove
Not notified, threatened species recorded	Remove
Realigned from notified according to aerial photos	Retain
Several notified extents combined	Retain

- 11.9. Appendix E of this report is a spreadsheet detailing each IFSH site, the Planning Map grid reference, the species identified in that habitat, and, with reference to the above table, the ‘scope category’ and ‘dataset 5 Action’.¹⁰⁷

IFSH Mapping - Lakes Benmore and Aviemore

- 11.10. The PC7 Planning Maps identify the entirety of Lakes Benmore and Aviemore as IFSH on account of providing habitat for freshwater mussel/kākahi.
- 11.11. In their submission, Meridian raised concerns about the nature and extent of habitat mapping in these lakes, and the potential impacts of the suite of provisions on the continued maintenance and operation of the nationally significant Waitaki Power Scheme. Meridian sought the deletion of the mapping in Lakes Benmore and Aviemore, as it considered the extent of the mapping to be excessive and consequentially the impact of the associated policies and rules disproportionate to the issue being managed. Meridian also sought the deletion of giant kōkopu/taiwharu, freshwater mussel/kākahi and freshwater crayfish /kekewai from the proposed definition of IFSH, which if accepted, would result in the removal of the mapped habitat in Lakes Benmore and Aviemore from the PC7 Planning Maps.
- 11.12. In the Section 42A Report, Officers agreed with Meridian¹⁰⁸ that the restrictions associated with this definition and mapping should not impact on existing renewable generation infrastructure and associated operation and maintenance activities in the immediate vicinity of this infrastructure. Accordingly, the maps were amended to provide a 40 metre buffer from all existing hydro-electricity generation structures (in line with the buffer distance sought by Trustpower).
- 11.13. The evidence of Mr Feierabend and Ms Whyte, on behalf of Meridian, expanded on Meridian’s concern that the proposed IFSH mapping has the potential to constrain the current generation, operation, maintenance and improvement activities undertaken to enable the Waitaki Power Scheme to provide the current level of national benefits without unnecessary

¹⁰⁷ DOC PC7-160.1

¹⁰⁸ Section 42A Report recommendations also in response to submissions from Trustpower and Genesis.

compliance risks or costs. Mr Feierabend's evidence included spatial maps of the area where Meridian's asset management activities in Ohau C, Benmore and Aviemore Power Stations are required, and which are labelled 'Freshwater Indigenous Species Habitat Exclusion Areas'.

- 11.14. Mr Feierabend stated that the activities are currently permitted activities in the CLWRP, and the proposed PC7 amendments to these rules¹⁰⁹ will now require resource consent which creates an unnecessary administrative burden and cost on the running of the Waitaki Power Scheme. Further, Mr Feierabend stated that these activities are already occurring without adverse effects on the environment, and therefore the PC7 provisions should appropriately recognise the Scheme and allow for reasonable maintenance activities to continue as permitted activities.
- 11.15. Mr Feierabend explained the implications of amending Policy 4.101 and Rule 5.163 as proposed on Meridian's work programmes to remove aquatic weed species (primarily Lagarosiphon) from Lake Aviemore and Lake Benmore as a permitted activity.
- 11.16. Officers note that the 'Freshwater Indigenous Species Habitat Exclusion Areas' sought by Meridian are much greater than the 40 m buffer recommended in the Section 42A Report (the buffer distance sought in the submission of Trustpower). Further, the activities that may be undertaken in these areas are much broader than the removal of aquatic weed species.
- 11.17. The mapping of the entirety of Lakes Benmore and Aviemore as IFSH in the Planning Maps is based upon observations of kākahi within both lakes. These observations were made at discrete points on the lake shore. Dedicated broad scale surveys of macroinvertebrates within the lakes have not been undertaken (to the knowledge of Council Officer Dr Gray). However, localised surveys of macrophytes do occur annually and have observed kākahi.¹¹⁰ As such the recommendation to include the entirety of both lakes within the IFSH layer was based upon comparison with similarly deep, cold and oligotrophic lakes where kākahi were found to be widespread.
- 11.18. James et al. (1998¹¹¹) describe the distribution of macroinvertebrates, including kākahi, around the shore of Lake Coleridge. Kākahi were found at five of the eight sites surveyed and showed a preference for deeper water (up to 18m), a higher biomass of charophytes and smaller substrate particles. In Lake Taupo, mussels were most abundant at 5 m depth and present down to 30 m (James 1985¹¹²).
- 11.19. To date freshwater mussels have not been found below 30 m and tend to be sparse at that depth (James 1985; James et al. 1998). As such, as an alternative to mapping the entirety of Lakes Benmore and Aviemore as IFSH, bathymetry data could be used to map only the parts

¹⁰⁹ Rule 5.136, Rule 5.137, Rule 5.139, Rule 5.140; Rule 5.140A, Rule 5.141, Rule 5.148, Rule 5.163, Rule 5.167, Rule 5.168 pPC7

¹¹⁰ Ms Mary De Winton of NIWA (Pers Comm).

¹¹¹ James, M.R., Weatherhead, M., Stanger, C., & Graynoth, E. (1998). *Macroinvertebrate distribution in the littoral zone of Lake Coleridge, South Island, New Zealand – effects of habitat stability, wind exposure, and macrophytes*. New Zealand Journal of Marine and Freshwater Research 32:287-305.

¹¹² James, M.R. (1985). *Distribution, biomass and production of the freshwater mussel, Hyridella menziesi (Gray), in Lake Taupo, New Zealand*. Freshwater Biology 15: 307-314.

of the lakes shallower than a given cut-off point, for example 30 m. This would allow for the protection of the habitat apparently preferred by kākahi without the need to map the entire lake.

- 11.20. In terms of whether weed removal is beneficial to kākahi habitat, James (1985) suggests that the presence of macrophyte beds and abrupt changes in bed slope may enhance the food supply to kākahi in oligotrophic lakes. James (1985) also observed substantial kākahi populations associated with lagarosiphon beds in Lake Taupo, although complete weed cover appeared to preclude kākahi. It would appear that while macrophyte beds offer stable habitat for kākahi in rivers and shallow areas of lakes by providing protection from current and wave effects, excessive macrophyte growth may also have a negative impact.
- 11.21. However, given the large mapping areas in Lakes Benmore and Aviemore compared with the exclusions areas sought by Meridian, Officers consider that removal of those very small areas from the mapping would have limited impacts on kākahi populations in these lakes. For this reason, Officers recommend amendments to the PC7 Planning Map layer IFSH to remove the habitat in the exclusion areas provided in the evidence of Mr Feierabend on behalf of Meridian.¹¹³
- 11.22. Officers consider that the management of aquatic macrophytes in Lakes Benmore and Aviemore should specifically consider potential impacts on kākahi populations and the works be designed, undertaken and monitored accordingly. A consenting pathway would provide a clear process to assess effects, and determine an appropriate management and monitoring regime for weed removal in areas of Lakes Benmore and Aviemore identified as IFSH in the PC7 Planning Maps. Accordingly, Officers recommend that PC7 Rule 5.163 is retained as notified.

IFSH Mapping - Buffer from Irishman Creek culvert

- 11.23. The submission from Genesis sought amendments to the IFSH mapping in the vicinity of a culvert through which Irishman Creek flows beneath the Tekapo Canal.¹¹⁴
- 11.24. The Section 42A Report recommended a 40 m buffer between all mapped habitat areas and the infrastructure of nationally significant hydro-electricity generation. However, Genesis have indicated that they require a 100 m buffer in order to carry out maintenance at the Irishman Creek culvert. The evidence of Dr Young on behalf of Genesis stated that the requested increase in buffer length would represent a loss of 1.3 % of the habitat mapped in Irishman Creek.
- 11.25. The loss of any habitat of a threatened species has the potential to reduce the viability of a population. The threatened species in this habitat area is bignose galaxias which are only known to be found in the Mackenzie Basin. However, as the exclusion area requested is a small component of total habitat area in Irishman Creek, Officers recommend that the mapped habitat in Irishman Creek be amended to provide a 100 m buffer up and downstream

¹¹³ Meridian PC7-346.4

¹¹⁴ Genesis PC7-422.15

of the culvert to provide a permitted activity pathway for activities associated with this hydro-electricity generation structure (Figure 1).

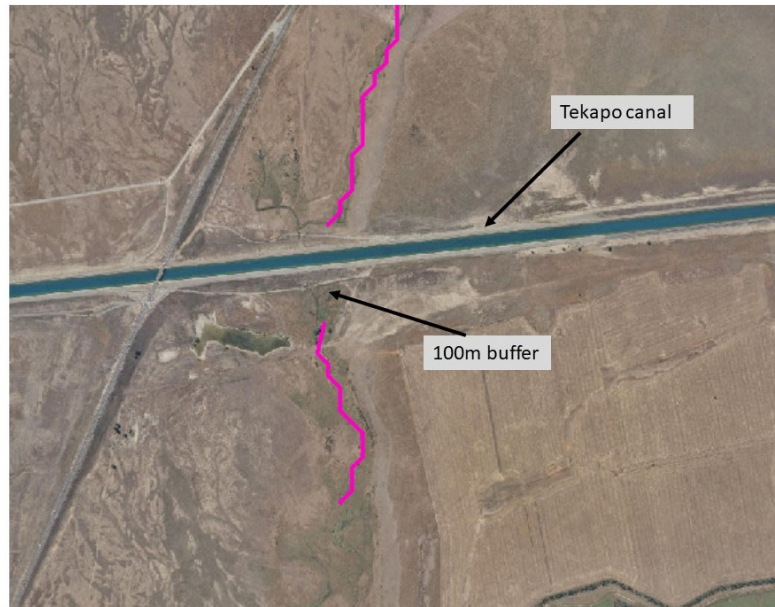


Figure 1. Recommended amendment to the IFSH map layer in Irishman Creek up and down stream of Tekapo Canal.

IFSH Mapping – Selwyn District

- 11.26. Mr Nicholas Boyes, on behalf of Selwyn DC, provided evidence seeking the removal of three IFSH sites located in the Selwyn District, specifically in the areas of Killinchy (Map B-066) and Southbridge (Map B-076).¹¹⁵ Mr Boyes stated that those IFSH sites are within artificial waterways/stockwater races, sections of which have been filled in and/or were not in the notified planning map layer. Similarly, ESAI sought the deletion of mapped habitats that follow a stockwater race from Brookside to Killinchy (Map B-066).
- 11.27. Council Officer Dr Gray inspected these Selwyn District sites in November 2020 and agrees with the evidence provided by Selwyn DC. These mapped habitats have therefore been removed from the IFSH map layer. Officers note that any IFSH sites not in the notified map layer, but erroneously included in the s42A report version of the IFSH layer, have been removed from the recommended planning maps as their inclusion is considered to be beyond the scope of PC7.
- 11.28. In her evidence, Ms Coates on behalf of Beef + Lamb sought the deletion of an IFSH site at the corner of Bush and Mill Roads in Oxford due to being based on historical records (pre-2000). Officers note that this site and others identified from records older than the year 2000 have been removed from the IFSH layer during the creation of 'dataset 4' in collaboration with DOC.

¹¹⁵ PC7-300.4, PC7-300.5

Therefore, this IFSH site has been removed from the recommended IFSH layer in the planning maps.

IFSH Mapping – Mudfish habitat at Peacock Springs

- 11.29. Ms Seaton, on behalf of Isaac Wildlife and Conservation Trust presented evidence seeking the deletion of the mapped IFSH located on land owned by Isaac Wildlife and Conservation Trust unless clause (a) of Policy 4.101 is retained as notified. Ms Seaton is concerned that the policy wording recommended in the Section 42A report would mean any future resource consent applications by the submitter might be declined. Further, Ms Seaton stated the mapping of these Canterbury Mudfish habitats on the submitter's land as IFSH means that active management works for these mudfish areas, including vegetation removal and planting, and earthworks and vegetation clearance in the riparian area, might require resource consent where currently they potentially do not.
- 11.30. The evidence of Ms Spencer, on behalf of DOC details the establishment and management of Canterbury Mudfish at within the submitters land at Peacock Springs, and states that to maintain the mudfish population at Peacock Springs requires some active management, particularly occasional deepening of ponds and removal of weed willow species which congest the habitat. Furthermore, Ms Spencer stated that the mudfish populations occur within pits created by the extraction of gravel and filled by shallow groundwater, the ponds have no surface water connection to other waterbodies, and as such are generally artificial in nature.
- 11.31. Officers note that under the operative CRPS, the Council is solely responsible for indigenous biological diversity in wetlands, the coastal marine area, and in the beds of lakes and rivers. Territorial Authorities are solely responsible for indigenous biodiversity outside of these areas. As an artificial lake falls within the definitions of "lake", "water" and "water body" under the RMA, the Council has the power to regulate an artificial lake in accordance with these functions.¹¹⁶
- 11.32. In saying that, Officers recommend removing the Canterbury mudfish habitat at Peacock Springs within the land owned by Isaac Wildlife and Conservation Trust from the proposed IFSH layer in the PC7 Planning Maps, as the new consenting requirements for conservation management activities within and adjacent to these habitats may reduce the scope and extent of these activities, and therefore reduce the environmental benefits to this threatened species.

Policies 4.61A and 4.101 and activity status of associated rules

- 11.33. PC7 introduces Policies 4.61A and 4.101 which provide direction for activities that may impact on these mapped IFSH areas. Policy 4.61A refers to the abstraction of water, and Policy 4.101 refers to sediment discharges, vegetation clearance, excavation, deposition of material, and other disturbances in a surface water body. In addition, PC7 introduces new conditions into

¹¹⁶ As set out in Part 1: Legal and Statutory Context 'Artificial Lakes' of the Reply Report.

13 existing permitted activity rules that restrict activities proposed within or adjacent to these habitats, meaning consent will be required.

- 11.34. In their evidence, Ms Whyte and Mr Feierabend, on behalf of Meridian, and Ms Foran, on behalf of Trustpower, provided alternative wording for Policy 4.101 to better provide for activities associated with the Waitaki and Coleridge Power Schemes. Ms Foran also sought changes to Policy 4.61A. Mr Mitchell, on behalf of Genesis, sought that the definition of IFSH is amended to explicitly exclude areas around hydro-electricity generation infrastructure.
- 11.35. As set out in the Section 42A Report, Officers do not consider an amendment is required to the proposed water abstraction Policy 4.61A in regard to water takes associated existing hydro-electricity generation, as existing Policy 4.51 of the CLWRP directs that such water takes are to be considered as part of the existing environment in recognition of their national benefits.¹¹⁷
- 11.36. In response to evidence from Meridian, Genesis and Trustpower, Officers recommend amendments to Policy 4.101 to enable consent applications for the purpose of hydro-electric power generation at the Waitaki Power Scheme or Coleridge Power Scheme to apply the 'effects management hierarchy', as defined in the NPSFM 2020, if the activity will cause the damage or loss of a habitat identified in the IFSH map layer. Given the recommended changes to the Planning Maps of the mapped IFSH to provide a setback from Scheme infrastructure, this policy is likely to only apply to consent applications for weed removal activities.
- 11.37. Officers consider that the recommended amendments to Policy 4.101 would protect the habitats of indigenous freshwater species, as required by Policy 9 of the NPSFM 2020, but would better recognise and provide for the national significance of renewable energy generation activities, as required by the National Policy Statement for Renewable Electricity Generation 2011. Further, Clause 3.31 of the NPSFM 2020 requires Council to have regard to the importance of the Waitaki Power Scheme's generation capacity, storage and operational flexibility (in addition to other matters) when implementing any part of the NPSFM 2020 as it applies to an FMU or part of an FMU.¹¹⁸ In saying that, Clause 3.31 does not refer to the Coleridge Power Scheme, and the implementation steps set out in this clause are not directly relevant to the proposed IFSH provisions.¹¹⁹
- 11.38. Ms Davidson, in her evidence on behalf of Ngā Rūnanga, suggested that as Policies 4.61A and 4.101 both use the word 'avoid', the rule framework should have a prohibited activity status.¹²⁰
- 11.39. Officers agree that the activity status for rules linking to the directive to avoid effects in Policies 4.61A and 4.101 better aligns with a non-complying activity status. "Avoiding" in

¹¹⁷ Paragraph 5.43 (page 95) of the Section 42A Report.

¹¹⁸ Also, the importance of the Scheme's contribution to meeting New Zealand's greenhouse gas emission targets, and contribution to maintaining the security of New Zealand's electricity supply.

¹¹⁹ As set out in Part 1: Legal and Statutory Context '*Implications of the National Policy Statement for Freshwater Management 2020*' of the Reply Report.

¹²⁰ Evidence in chief, paragraph 156 (page 39).

section 5(2)(c) has its ordinary meaning of "not allowing" or "preventing the occurrence of", and so a more restrictive activity status is appropriate. Compared with a prohibited status, a non-complying status will allow effects that may be acceptable in certain circumstances, such as temporal or minor habitat damage, to be considered through a resource consent process. However, Officers are not convinced there is scope in the submissions to make this change.

- 11.40. Should the Hearing Panel consider there to be scope in PC7 to make this change, Officers recommend introducing a new non-complying activity drop-out rule for any activity undertaken in or adjacent to an IFSH. This recommendation would apply to permitted activity Rules: 5.136, 5.137, 5.138, 5.139, 5.140, 5.140A, 5.141, 5.148, 5.151, 5.152, 5.163, 5.167 and 5.168.¹²¹ Consequential amendments would also be required to the condition and rule references in the associated drop-out Rules 5.141A, 5.150, 5.152A, 5.164, 5.165 and 5.169.

Fish passage Policy 4.102

- 11.41. As required by Clause 3.26 of the NPSFM 2020, Council has inserted an objective regarding fish passage into the Plan without recourse to the RMA Schedule 1 process.¹²² Objective 2A.1 of the CLWRP states:

The passage of fish is maintained, or improved, by instream structures, except where it is desirable to prevent the passage of some fish species in order to protect desired fish species, their life stages, or their habitats.

- 11.42. The NPSFM 2020 has further requirements for regional plans in relation to fish passage, including:
- Policies which identify desired fish species (and their relevant life stages); undesired fish species; and rivers and receiving environments where desired fish species have been identified, and where fish passage for undesired species is to be impeded;¹²³
 - Mandatory matters to which regard must be had when considering an application for a consent relating to an instream structure; and¹²⁴
 - A requirement to promote the remediation of existing structures and the provision of fish passage (other than for undesirable fish species) where practicable.¹²⁵
- 11.43. In developing these fish passage policies, a regional council is required to take into account any Freshwater Fisheries Management Plans and Sports Fish and Game Management Plans approved by the Minister of Conservation, and seek advice from DOC and statutory fisheries managers regarding fish habitat and population management.¹²⁶ Further, in giving effect to the NPSFM 2020, the Council must actively involve tangata whenua in freshwater management (including decision-making processes).

¹²¹ This recommendation does not apply to Rule 5.71 as it is already a prohibited activity.

¹²² NPSFM 2020 Clause 3.26(1).

¹²³ NPSFM 2020 Clause 3.26(2).

¹²⁴ NPSFM 2020 Clause 3.26(4).

¹²⁵ NPSFM 2020 Clause 3.26(5).

¹²⁶ NPSFM 2020 Clause 3.26(3).

- 11.44. DOC, in its legal submissions, stated that the policies required by the NPSFM 2020 in regard to fish passage, and the steps to implement them, are specific and detailed, and a further plan change will be required in order to give effect to, or fully give effect to them.¹²⁷ Further, DOC stated that although the revised wording for Policy 4.102 proposed by Mr Brass (on behalf of DOC) does not fully address the fish passage requirements of the NPSFM 2020, it will assist in the interim to implement the new fish passage objective.
- 11.45. Officers have reviewed proposed Policy 4.102 in light of the new fish passage objective inserted into the CLWRP, and the further requirements for regional plans in relation to fish passage set out above. Officers agree with DOC that a further plan change is required to fully give effect to the fish passage requirements set out in Clauses 3.26(2), (4) and (5) of NPSFM 2020. However, Officers consider that it is more appropriate to rely on the existing provisions in the CLWRP in the interim period, relevantly Policy 4.3(e), and then start afresh in a future planning process to develop provisions that meet the fish passage requirements of the NPSFM 2020 and the requirements for culturally significant species.¹²⁸

Schedule 5 visual clarity standards

- 11.46. In response to questions from the Hearing Panel, Mr Simon Hedley, on behalf of Rooney Earthmoving, stated that adding the words “outside the Mixing Zone” to Rule 5.141 would go some way to address concerns that the visual clarity standards in this rule are too onerous.
- 11.47. Officers consider that inserting the words “outside the Mixing Zone” after the words “the Schedule 5 visual clarity standards” would improve plan implementation of the visual clarity references in Rule 5.141 (temporary discharges associated with the structures rules) and Rule 5.152 (temporary discharges associated with the gravel rules).¹²⁹

Rule 5.151 – temporary structures and diversions

- 11.48. At the hearing, Mr Hedley, on behalf of Rooney Earthmoving, raised concerns that permitted activity condition (4) of Rule 5.151 (temporary structures and diversions) does not allow for the range of flow rates in rivers, and is complicated and uncertain. This condition requires that any diversion of water out of a river channel does not reduce the wetted width of the existing channel by more than 25% at any point.
- 11.49. Officers do not agree that the condition is complicated. For example, if the width of the wetted channel is 4 metres wide, the diversion can only reduce the flow in the channel by an amount that reduces the wetted channel to 3 metres in width (after which the activity is discretionary under Rule 5.152A). The purpose of the provisions is to address ecological impacts of braid diversions.¹³⁰ Accordingly, Officers recommend that the condition is retained as notified.

¹²⁷ Specifically, Clauses 3.26(2), (4) and (5) of NPSFM 2020.

¹²⁸ Policy 4.3(e) of the CLWRP provides, “Surface water bodies are managed so that: ... (e) the passage for migratory fish species is maintained unless restrictions are required to protect populations of native fish”.

¹²⁹ Rooney Earthmoving PC7-392.2

¹³⁰ The provisions are informed by the Section 32 Report supporting technical document: Gray, D and Grove, P. Ecological impacts of braid diversion. Environment Canterbury Technical Memorandum, 28 April 2019.

12. Hinds Drains Working Party recommendations

Hinds Coastal Strip Zone - Policy 13.4.24 and Rule 13.5.30

- 12.1. The HWDP Recommendations¹³¹ addresses a potential issue with the abstraction of deeper groundwater in the ‘Hinds Coastal Strip Zone’. This area is defined and mapped in PC7, and located within the Mayfield-Hinds Groundwater Allocation Zone. The Recommendation document states that water permit holders in this area may wish to swap their existing takes for deeper groundwater as it may be more reliable. The issue outlined in that document is that “...drilling for water has proven problematic due to the amount of sand found at deep levels, and in the instances where water has been located, sand has severely restricted yields and in many cases led to pump failure.”
- 12.2. The options put forward in the HDWP Recommendations to address this issue include¹³²:
- (a) Providing consent holders in the Hinds Coastal Strip Zone the option to abstract water from their surface water or shallow groundwater take while also abstracting groundwater from a new deeper bore; and
 - (b) Providing consent holders in the Hinds Coastal Strip Zone a transition period of three years to enable the new deeper groundwater supply to be developed into a reliable source, after which time the existing surface water or shallow water take is surrendered.
- 12.3. PC7 Policy 13.4.24 recognises the potential difficulties of abstracting deep groundwater with a reliable yield in the Hinds Coastal Strip Zone due to sandy soils. The policy directs that a consent holder with an existing surface water or stream depleting groundwater take in this area who switches to a deeper groundwater take from the T allocation block may retain a portion of their existing take for a limited period of time. This limited time period, referred to as a ‘transition period’ in Policy 13.4.24, is intended to provide the consent holder time to develop the flow rate of the new groundwater bore. PC7 condition 6 of Rule 13.5.30 applies to existing water permit holders that seek to take groundwater within the Hinds Coastal Strip Zone, and gives effect to Policy 13.4.24.
- 12.4. At the hearing, Mr Bubb, on behalf of Aqualinc Research Limited, presented evidence that a deep bore is not pumped at the highest flow rate initially, but instead the flow rate is slowly increased “with careful development over time.” Mr Bubb did not provide guidance on the likely time period required to develop the flow rate of a deep bore in sandy soils.
- 12.5. Mr Bubb outlined concerns that proposed Policy 13.4.24 only applies to consent applications to take ‘deep groundwater’ which may exclude shallower takes with a low stream depletion

¹³¹ Recommendation 4.6 of the Hinds Drains Working Party recommendations document - <https://api.ecan.govt.nz/TrimPublicAPI/documents/download/2538210>

¹³² The HDWP Recommendations (Recommendation 4.6; page 25).

effect. The term ‘deep groundwater’ is defined in Section 13 of the CLWRP as groundwater that is abstracted from a depth of at least 80 metres below ground level. Mr Bubb is of the view that the policy should be broader in scope to also encompass shallower groundwater takes, subject to those not having a direct, high or moderate stream depletion effect.

- 12.6. Further, Mr Bubb does not consider that condition 6 of Rule 13.5.30 should refer to the yield of the new bore not achieving “the annual volume required for reasonable use determined in accordance with Schedule 10.” Mr Bubb indicates that the flow rate is the critical factor, not the annual volume, and stated in his evidence “if the consent holder cannot seek to use a portion of the surface water take in conjunction with their new groundwater supply, they may have insufficient water to be able to run their irrigation system effectively.”
- 12.7. To resolve this concern, Mr Bubb proposes amended wording for condition 6 of Rule 13.5.30 that omits the requirement for the consent holder to demonstrate at the time of application for resource consent that the yield of the new bore will not achieve the annual volume required for reasonable use, determined in accordance with Schedule 10 of the CLWRP. The proposed wording also omits the requirement to demonstrate an equal or lesser stream depletion effect.
- 12.8. Having heard the evidence presented at the hearing, Officers are still of the opinion¹³³ that there is insufficient technical justification for needing a 3 year (36 month) transition period for consent holders to allow for full development of new groundwater bores in the Hinds Coastal Strip Zone. Furthermore, providing for partial substitution of a surface water or stream depleting groundwater for up to 36 months will delay the community goal of increasing surface water flows in the Hinds Drains.
- 12.9. Accordingly, Officers recommend the deletion of Policy 13.4.24, and reference to this zone in Rule 13.5.30, specifically the deletion of Condition 6 and Matter 6.¹³⁴ Consequential amendments are also recommended to delete the definition of ‘Hinds Coastal Strip Zone’ and its planning map layer on Map B-092, and to delete the reference to condition 6 of Rule 13.5.30 in Rule 13.5.31.¹³⁵
- 12.10. If the Hearing Panel does not share the Officers’ reservation about the provision of a transition period for water permit holders in the Hinds Coastal Strip Zone, Officers agree with Mr Bubb that it would be appropriate for Policy 13.4.24 to provide for proposed groundwater takes shallower than 80 metres (in addition to ‘deep groundwater’) so long as the take will not have a direct, high or moderate stream depletion effect. This is consistent with Policy 13.4.6 of the

¹³³ As set out in paragraph 6.29 (page 130) of the Section 42A Report, paragraph 6.44 (page 133) of the Section 42A Report, and in the Errata “Responses to Questions of Hearing Commissioners on Council s42A Report dated 28 May 2020, and additional questions dated 16 June 2020”.

¹³⁴ Submissions from Forest & Bird on Policy 13.4.24 (PC7-472.135, PC7-472.142) and on Rule 13.5.30 (PC7-472.144, PC7-472.145).

¹³⁵ The wording ‘partially or fully’ in the chapeau of Rule 13.5.30 was recommended for inclusion in the Section 42A Report to provide for partial substitution of a water take in the Hinds Coastal Strip Zone, and this recommendation has now been removed.

CLWRP, introduced through Plan Change 2 to the CLWRP (Section 13: Hinds/Hekeao Plains Catchment), which states:

‘In the Valetta and Mayfield-Hinds Groundwater Allocation Zones avoid allocating groundwater from the T-Allocation Block in Table 13(f), unless the proposed groundwater take will substitute for an existing surface water take, and the proposed take is from deep groundwater, or the take will not have a direct, high or moderate stream depletion effect.’

- 12.11. In addition, if condition 6 of Rule 13.5.30 is kept, Officers consider that demonstration of an equal or lesser stream depletion effect is not required so long as the rule requires the combined rate and annual volume to be no more than the existing take, and the take to be from deep groundwater or to have a low stream depletion effect.¹³⁶
- 12.12. Furthermore, based on the advice to Officers from Council Senior Consent Planner Mr Simon Woodlock¹³⁷, Officers agree with Mr Bubb that a reliable yield is more appropriately determined by a flow rate rather than an annual volume. Mr Woodlock advised that reliable yield is typically measured by aquifer testing to model the long term maximum sustainable rate of take. The maximum sustainable rate of take is used to determine its ‘system capacity’.¹³⁸ Mr Woodlock considers that the new bore could have a lesser peak rate of take than the existing consented rate of take, and still efficiently irrigate the property if its system capacity meets peak irrigation demand. For this reason, Officers do not consider the provisions need to require the consent holder to demonstrate the yield from the new bore meets the existing consented rate of take.
- 12.13. Officers note that Matter 1 of Rule 13.5.30 (unchanged by PC7) provides for consideration of whether the volume and abstraction rate of water to be taken and used is reasonable for the proposed use assessed in accordance with Schedule 10.
- 12.14. If Policy 13.4.24 is retained, Officers suggest that it be drafted as follows:

Recognise the potential difficulties for existing surface water and hydraulically connected groundwater permit holders in the Hinds Coastal Strip Zone to obtain reliable groundwater ~~that does not have a stream depletion effect~~ when considering resource consent applications to take deep groundwater, or groundwater that does not have a direct, high or moderate stream depletion effect, by providing for a transition period for the consent holder to:

¹³⁶ The Section 42A Report recommends condition 5 of Rule 13.5.30 is amended to require demonstration that the take will have a low stream depletion effect.

¹³⁷ Simon Woodlock has eight years’ experience in consent planning at Canterbury Regional Council. His areas of expertise include groundwater and surface water take and use, and nutrient discharge resource management. He holds a Bachelor of Environmental Management from Lincoln University.

¹³⁸ System capacity is referred to in Schedule 10 of the CLWRP, and is required when calculating an annual volume for a property.

- a. take water from the existing point of take as well as the new groundwater bore provided the total rate and annual volume of water taken does not exceed the rate of take or annual volume authorised by the existing water permit; and
- b. demonstrate the rate of take of the new groundwater take.
- ~~a. providing for a portion of the existing water take to be retained provided the proposed take will have an equal or lesser stream depletion effect than the existing water permit; and~~
- ~~b. providing for a transition period for the consent holder to demonstrate the reliability and volume of the non-stream depleting groundwater take.~~

12.15. Officers also suggest that if condition 6 of Rule 13.5.30 is retained, and the associated restricted discretionary matter 6, they could be re-drafted as follows:

Condition 6 of Rule 13.5.30:

- 6. Where the proposed point of take is within the Hinds Coastal Strip Zone:
 - a. the existing water permit will be fully surrendered within 36 months of the date the water permit for the proposed take is granted; and
 - b. the total rate of take and annual volume of the existing surface water or groundwater take and the proposed take will not exceed the rate of take or annual volume authorised by the existing water permit.
 - ~~a. if a portion of the existing surface water or stream depleting groundwater take will be retained, the combined volume of the proposed deep groundwater take and the existing surface water or stream depleting groundwater take is the same or lesser volume than the existing water permit, and the existing water permit is surrendered concurrently with the application; or~~
 - ~~b. if no portion of the existing surface water or stream depleting groundwater take will be retained, the existing surface water or stream depleting groundwater take is surrendered and the bore dis-established within 36 months of the date of the new resource consent, and the combined rate and volume of water taken at any time is the same or lesser amount than the existing water permit.~~

Matter 6 of Rule 13.5.30:

- 6. Where the proposed point of take is within the Hinds Coastal Strip Zone:
 - a. the timing of the disestablishment of the existing bore ~~or surface water take point~~, and provision of proof to the Canterbury Regional Council to demonstrate that disestablishment has occurred; and
 - b. where ~~water will be taken from the existing point of take as well as the new groundwater bore a combination of deep groundwater and surface water abstraction is to continue~~, the need for telemetered data that demonstrates in real time that abstraction limits are not breached.

Recommendation

- 12.16. Delete Policy 13.4.24, and Condition 6 and Matter 6 in Rule 13.5.30.¹³⁹ Consequential amendments are also recommended to delete the definition of ‘Hinds Coastal Strip Zone’ and its planning map layer on Map B-092, and to delete the reference to condition 6 of Rule 13.5.30 in Rule 13.5.31.¹⁴⁰

Bore interference effects – Rule 13.5.30 and Rule 13.5.30A

- 12.17. Condition 3 of restricted discretionary Rule 13.5.30 of the CLWRP requires that bore interference effects are acceptable, as determined in accordance with Schedule 12. Under the operative CLWRP, if this condition is not met, the activity defaults to prohibited activity Rule 13.5.31. PC7 proposes a non-complying activity pathway under Rule 13.5.30A if there is not compliance with this condition. In the Section 42A Report, Officers recommend further changes to the wording of Rule 13.5.30A in response to submissions.
- 12.18. In his evidence, Mr Bubb supports the amendments to Rule 13.5.30A that are recommended in the s42A Report. He states that Council Consent Officers’ interpretation of Rule 13.5.30 is that ‘acceptable’ bore interference effects are only determined in accordance with Schedule 12 of the CLWRP, regardless of whether a written approval is provided by an affected bore owner.
- 12.19. Officers note that the amendments put forward by Mr Bubb would provide a restricted discretionary activity pathway for bore interference effects that are not acceptable, as determined in accordance with Schedule 12. This would be a less stringent rule classification than other equivalent rules in the CLWRP, including region-wide Rule 5.128 and sub-region Rules 11.5.34 and 15A.5.39. Officers consider that a non-complying activity status (as proposed) is more appropriate to consider the adverse effects on the yields of affected bores, and do not consider there is sufficient justification for lessening the rule stringency for consent holders in the Valetta and Mayfield-Hinds GAZs.

13. Managed Aquifer Recharge

- 13.1. In its submission, ESAI sought amendments to the PC7 MAR provisions to expand the assessment of the potential impacts of MAR systems to include “effects on land use activities” as a result of raised groundwater levels, and to require remediation and/or compensation if such effects occur.¹⁴¹

¹³⁹ Submissions from Forest & Bird on Policy 13.4.24 (PC7-472.135, PC7-472.142) and on Rule 13.5.30 (PC7-472.144, PC7-472.145).

¹⁴⁰ The wording ‘partially or fully’ in the chapeau of Rule 13.5.30 was recommended for inclusion in the Section 42A Report to provide for partial substitution of a water take in the Hinds Coastal Strip Zone, and this recommendation has now been removed.

¹⁴¹ ESAI (PC7-207.37, PC7-207.42, PC7-207.43, PC7-207.44, PC7-207.45). As discussed in paragraph 7.39 (page 145) of the Section 42A Report, other submitters also raised this concern and sought similar relief – W J & L E Bailey Farming, WWHT and W J Winter & Sons.

- 13.2. In the Section 42A Report, Officers agreed with ESAI that down-gradient ponding or flooding is a key risk of MAR systems and as such potential effects need to be appropriately managed. However, no changes were recommended to the provision in response to this submission, as Officers considered the provisions provide clear direction that any adverse effects on property from raised groundwater levels or increased surface water flows need to be assessed in a consent application, any adverse effects addressed, and any potential effects monitored.
- 13.3. At the hearing, Ms Barnett on behalf of ESAI presented evidence on the potential impacts of MAR on down-gradient land use activities as a result of raised groundwater levels. Ms Barnett stated that land use activities also need to be considered (i.e. in addition to property) as they may be impeded by even a small elevation of the groundwater levels, which is not necessarily detrimental to the land over time but may result in, for example, the inability to drill or harvest crops. She stated that crop development and harvest requires precision within narrow timeframes to carry out the particular cropping tasks, and that the timing is critical in order to provide production for food markets, meet contracted obligations and provide sustained employment. Increased groundwater elevation during these critical phases impacts land uses, and if significant, could result in complete crop failure. Consequently, ESAI considers that the MAR provisions should recognise the effects on “land use activities” and require any such effects that do occur to be remediated.
- 13.4. Policy 4.99(g) provides for MAR where adverse effects on people and property from raised groundwater levels and higher surface water flows are, as a first priority, avoided and where avoidance is impracticable, effects are minimised. This policy is intended to require consent applications for MAR to consider the effects on existing property as described in ESAI’s evidence by way of the wording “effects on people and properties”.
- 13.5. On further consideration, Officers consider the wording “effects on people and properties” in clause (g) of Policy 4.99 may not provide sufficient clarity for plan users to consider the effects of MAR on land use activities such as those described in ESAI’s evidence. The CLWRP definition of property¹⁴² does not refer to land use activities, and it is not reasonable to expect that ‘effects on people’ would include effects on activities such as cultivation.
- 13.6. Accordingly, Officers recommend that clause (g) of Policy 4.99 is amended to include ‘effects on permitted or consented land use activities’. Officers note that “effects on land use activities” was proposed in the submission of ESAI, and requires consent applicants to consider a much broader range of effects than the effects on crop development and harvest described in the evidence of ESAI. Reference to ‘permitted or consented’ activities is intended prevent applicants needing to pre-empt what land use activities may occur on neighbouring properties in the future and where.
- 13.7. For the same reasons, matter of discretion 11 of Rule 5.191 is also recommended to introduce this wording.

¹⁴² The CLWRP defines ‘property’ as any contiguous area of land, including land separated by a road or river, held in one or more than one ownership, that is utilised as a single operating unit, and may include one or more certificates of title.

14. Commercial vegetable growing

- 14.1. The purpose of the proposed tailored regulatory framework to manage commercial vegetable growing in PC7 is to overcome the challenges posed by the operative rules which are difficult, if not impossible, to implement for commercial vegetable growers. Developing a practical regulatory regime to manage the loss of nutrients from commercial vegetable growing is difficult. Vegetables have acknowledged community benefits, but at the same time water quality needs to be improved in many areas where vegetable production occurs. The unique operating requirements of this sector, and the difficulties in achieving the CLWRP freshwater outcomes, limits and targets has been comprehensively described in the Section 32 Report, Section 42A Report, submissions and evidence of submitters.
- 14.2. Since the completion of the Section 42A Report, evidence has been presented on the topic of commercial vegetable growing and questions from the Hearing Panel have been received. From the evidence, it is apparent there remains differing views on how the issues should be resolved. In general, the submitters consider the proposed framework is too complex and still does not adequately recognise the community value of commercial vegetable growing. In light of this evidence, and in response to the questions from the Hearing Panel, Officers have reconsidered our recommendations on the provisions, particularly on:
- (a) Consenting pathways;
 - (b) Land rotation;
 - (c) Policy direction to recognise the value of commercial vegetable growing to the social wellbeing of Canterbury; and
 - (d) Rule 5.42CE – prohibited activity.
- 14.3. The revised recommendations are set out below and together are intended to simplify the regulatory framework for commercial vegetable growers and strengthen the recognition of the importance of vegetable growing.
- 14.4. Based on the evidence presented, Officers have also reconsidered, but made no further changes, to the recommendations on:
- (a) Capping Commercial Vegetable Growing Areas;
 - (b) Baseline Commercial Vegetable Growing Area Definition;
 - (c) Rule 5.42CA – permitted activity threshold; and
 - (d) Activity status of Rule 5.42CB.
- 14.5. Finally, in response to questions from the Hearing Panel, Officers have also expanded on the Section 42A Report discussion regarding the amendments recommended to Policy 4.36A and Rule 5.42CC to insert reference to the Baseline GMP loss rate.
- 14.6. Officers recommendations below have been informed by the evidence presented at the Hearing and a workshop held, at the Hearing Panel’s request, with HortNZ on 17 December

2020. Ms Harris of Irrigo Centre Ltd representing a number of irrigators¹⁴³ was also invited but was unable to attend. However, some feedback was provided and considered.

Consenting pathways

- 14.7. Several submissions were received opposing the inclusion of specific rules regulating commercial vegetable growing where this already forms part of a farming operation authorised by way of a land use consent and seeking clarification on how the provisions applied to mixed farming systems.¹⁴⁴
- 14.8. The Section 42A Report recommended changes to the provisions so that any commercial vegetable growing, whether part of a mixed farming system or not, required a discharge permit if not permitted under Rule 5.42CA. This recommendation sought to address potential confusion relating to the applicability of the provisions to different farming systems, while attempting to avoid further complicating the nutrient management approach in the CLWRP. It was recognised in the Section 42A Report that this would lead to some farming operations requiring both land use consents and discharge permits to authorise their activities and would require additional consents to be sought by any growers who already held land use consents.¹⁴⁵
- 14.9. Mr Hodgson on behalf of HortNZ addresses the potential consenting pathways for commercial vegetable growing and states that it 'is important that PC7 does not cut across these consents [land use consents held by growers] and require new and additional consents to be obtained for the CVG component.'¹⁴⁶
- 14.10. Ms McClung, on behalf of HortNZ, seeks that PC7 'provides the flexibility required to ensure an efficient and effective consenting pathway for the activity within an irrigation scheme, within a mixed farming system and for stand-alone intensive commercial vegetable growing.'¹⁴⁷ Specifically, HortNZ seeks that there are three clear pathways to authorise commercial vegetable growing and that the current provisions for mixed farming systems are adjusted to make them suitable.
- 14.11. On reflection and consideration of the evidence, Officers agree with submitters that it is appropriate to provide three consent pathways for growers to authorise their nutrient losses, with the ability for growers to identify which pathway is best suited to their individual farm circumstances.

¹⁴³ Acton Farmers Irrigation Co-operative, Barrhill Chertsey Irrigation Limited, Ashburton River Irrigators Association, Greenstreet Irrigator Society and Rangitata South Irrigation Limited.

¹⁴⁴ Pye Group (PC7-352.3), Blackhills (2002) (PC7-36.5), Greenstreet Irrigation Society (PC7-312.2), RSIL (PC7-235.2), HortNZ (PC7-356.2)

¹⁴⁵ Paragraphs 8.30 and 8.35 of the Section 42A Report.

¹⁴⁶ Statement of Evidence of Mr Hodgson on behalf of HortNZ, paragraph 34.

¹⁴⁷ Industry Statement of Evidence of Ms McClung for HortNZ, paragraph 4.

- 14.12. As already stated, the notified PC7 provisions already provide a consenting pathway for commercial vegetable growing that receives water from an irrigation scheme or principal water supplier that holds a discharge permit under Rule 5.62 and is permitted under Rule 5.41.
- 14.13. To provide a consent pathway for commercial vegetable growing under the existing nutrient management rules, Officers recommended:
- (a) Amendments to Rule 5.42CB to reference the specific CLWRP region-wide and sub-region rules which are appropriate for commercial vegetable growing to be consented under. This specifically excludes permitted activity rules which rely on farm areas greater than the threshold in Rule 5.42CA;
 - (b) A new sub-clause in Policy 4.36A to acknowledge the multiple consenting pathways provided; and
 - (c) Amendments to the notes under the Nutrient Management heading in section 5.
- 14.14. Officers highlight that providing multiple consent pathways for commercial vegetable growers may mean that there is some confusion or uncertainty about how best to authorise an operation. Officers consider that the Council will need to ensure there is implementation support for growers to assist them in understanding the rule framework and allow them to make an informed decision as to how best to consent their activities. However, there are significant benefits, particularly to existing consented growers, in enabling these different pathways.

Land rotation

- 14.15. Many submitters have discussed the land rotation requirements for commercial vegetable growing as a necessity to avoid soil borne diseases. Mr McFarlane, presenting on behalf of MGUS, noted that for growing potato crops, the crop rotation cycle is typically 6-8 years, placing a limit on the area any landholding can sustainably utilise. The length of time before a land parcel can be re-sown in a potato crop increases the amount of land required for potato growing (over the full crop rotation cycle, but not on an annual basis) and is why there is a significant reliance on leased land. Additionally, several growers have discussed the locations of their operations which span across wide areas of Canterbury¹⁴⁸. Officers understand the reasons for the geographic spread include:
- (a) Varied climate (in order to stagger crop growth and reduce risks associated with weather events);
 - (b) Access to appropriate soils; and
 - (c) Access to leased land.
- 14.16. From the evidence presented, submitters remain concerned about the PC7 requirements that constrain growers to a single nutrient management area. MGUS, Pye Group Ltd, and others, seek that the restriction on the movement of growing operations across the region are removed.

¹⁴⁸ Robin Oakley, Pye Group Ltd, Fallgate Farm Ltd.

- 14.17. In light of the evidence, which provides greater context about the constraints faced by commercial vegetable growers, Officers recommend changes to Rule 5.42CB to delete condition 3 and the inclusion of a new matter of discretion that allows for consideration of the total maximum growing area and total growing areas per nutrient management area. Officers consider that the ability to manage the amount of growing area per nutrient management area remains important in order to achieve freshwater outcomes, limits and targets but by including this matter as a matter of discretion rather than as a condition of the rule, some flexibility is provided to manage this on a consent by consent basis.
- 14.18. To provide some direction on the implementation of this, Officers also recommended a change to sub-clause d of Policy 4.36A, to specify that an accounting method is required for the area or nutrient losses where an operation spans across more than one nutrient management area. A resource consent may then, if it is appropriate, set a limit on the growing area or nutrient losses per nutrient management area.
- 14.19. A change is also recommended to the definition of *commercial vegetable growing* to re-instate reference to crop rotation requirements. This amendment recognises the requirement to rotate growing across land parcels to avoid soil borne disease.

Policy direction to recognise the value of commercial vegetable growing to the social wellbeing of Canterbury

- 14.20. During the course of the hearing, many submitters discussed the need for PC7 to recognise the value of commercial vegetable growing to the social wellbeing in the region. Potatoes NZ's submission raises concerns regarding the CLWRP missing an objective to ensure there is an appropriate link back to objectives to enable commercial vegetable growing.
- 14.21. HortNZ's submission highlights the significance of domestic commercial vegetable production to food security and the health and wellbeing of New Zealanders. Horticulture NZ seek a new objective and policy that reflects the importance of primary production for human consumption and supports commercial vegetable growing.
- 14.22. Evidence presented to the Hearing Panel by growers not only highlighted the economic importance of commercial vegetable growing to the local Canterbury economy but also the benefits growing provides for food security, with the Canterbury region playing a significant role with respect to food production nationwide.
- 14.23. As stated in the Section 42A Report, Officers do not consider that a new policy and/or objective is necessary to recognise the benefits of commercial vegetable growing. However, Officers do consider there is merit in amending Policy 4.36A to identify these benefits. This addition supports the tailored approach provided for commercial vegetable growing.

Rule 5.42CE – prohibited activity

- 14.24. Evidence presented by HortNZ and Mr Slater, on behalf of McFlynn Potatoes (with Potatoes NZ), highlighted the challenges of Rule 5.42CE. McFlynn Potatoes does not have a baseline growing area, as the business commenced in 2013. HortNZ also makes reference to growers that have entered the market since the baseline period, that may have purchased land from previous growers. Without a baseline growing area, these submitters state their activities will be prohibited under the current rule framework.
- 14.25. Rule 5.42CE is the prohibited activity rule that completes the rule framework for commercial vegetable growing. As proposed, any new or expanded growing activity that exceeds the lawful nitrogen loss rate or Baseline GMP Loss Rate¹⁴⁹ assigned to the new or expanded growing area is classified as a prohibited activity. The prohibited activity rule is consistent with the nutrient management rules in section 5 and sections 6 to 15 where a farming activity proposes to increase nutrient losses beyond the applicable loss rate or limits. These rules are important for ensuring that catchment nutrient loads are reducing (where required) in order to achieve freshwater outcomes, limits and targets.
- 14.26. In light of the evidence, Officers consider that Rule 5.42CE could be deleted without jeopardising the achievement of freshwater outcomes, limits and targets, which would then enable specific consideration of consent applications made by growers entering the market. Officers have recommended amendments to the rule framework to delete Rule 5.42CE and amend Rule 5.42CD to provide a non-complying activity status where the nitrogen loss rate of a new or expanded commercial vegetable growing activity exceeds the applicable loss rate to the land. A consequential amendment to Policy 4.36A(b) to replace “avoiding” with “constraining” is also recommended.
- 14.27. Officers consider there is sufficient policy direction in the CLWRP that ensures expansion of vegetable growing areas beyond current nitrogen loss limits will continue to be constrained by the need to achieve outcomes, targets and limits.¹⁵⁰
- 14.28. The alternative solution for addressing the issue faced by McFlynn Potatoes and possibly other growers is to amend the baseline years referred to in the definition of *baseline commercial vegetable growing area*. For reasons discussed further below, Officers have not recommended changes to the referenced baseline period.

Capping Commercial Vegetable Growing Areas

- 14.29. Several submitters have noted in their evidence and presentations the potential for future growth in the commercial vegetable growing sector, for both domestic supply and export.¹⁵¹ Submitters have sought that the cap on the total vegetable growing area per operation is removed to enable this growth. Potatoes NZ have sought amendments to the provisions to provide a pathway for expanding potato growing onto land defined by the LUC Index as Class

¹⁴⁹ Recommendation in the Section 42A Report

¹⁵⁰ For example: Policies 4.1, 4.2, 4.7, 4.35.

¹⁵¹ Potatoes NZ, HortNZ

I or Class II. HortNZ have sought an approach which would provide an additional 1000ha of growing area to accommodate the growth required to meet domestic food demands of the forecasted population growth until 2030.

- 14.30. While Officers recognise that additional land area may be necessary to achieve growth aspirations and maintain domestic food production, Officers consider that this must occur within the existing nutrient loss baselines in order to give effect to the NPSFM 2020. Officers consider the information presented by submitters on the ability to accommodate growth or expansion within catchment nutrient limits is best considered on a case by case basis when assessing an individual resource consent application. For example, if as stated by Potatoes NZ that expansion of potato growing onto Class I and II soils will likely have lower nitrogen losses than dairy, dairy support and arable land uses, a discretionary consent pathway is already provided by the proposed rules. If it can be demonstrated that nutrient losses will not increase and any relevant nutrient loss reductions or targets can be achieved, Officers consider that the proposed framework would enable the granting of such a resource consent.
- 14.31. In addition, Officers are uncertain how HortNZ's proposed additional 1000ha of growing area would be implemented. It is unclear how the additional 1000ha of land could be allocated to ensure it meets domestic food needs, preventing the export of those crops and as those food needs (crop types) might change during the term a consent is issued. Officers do not consider that HortNZ's proposed amendments to PC7 would achieve the intended purpose.

Baseline Commercial Vegetable Growing Area Definition

- 14.32. The definition of *baseline commercial vegetable growing area* refers to a baseline period of 1 January 2009 to 31 December 2013. Several submitters seek that this period is amended to refer to a more recent timeframe, for example HortNZ seeks the baseline period is 20 July 2014 to 20 July 2019. HortNZ state there is evidence that commercial vegetable growing has changed location and growers have entered and exited the sector, and these changes would not be captured by the proposed definition resulting in some operations being classified as prohibited activities.
- 14.33. As noted above, Officers have recommended that Rule 5.42CE is deleted to provide a non-complying activity status for the specific situation described by HortNZ, rather than amending the baseline period. The baseline period adopted in the definition is consistent with the baseline period which applies across all farming types in the CLWRP. While there may have been some growers exit and enter the industry, there has been a rule framework in place over this time and although it is the subject of amendment by PC7, it remains that these growing operations were required to comply with the rules at the time they commenced. Officers prefer deleting Rule 5.42CE and providing a consent pathway for unique circumstances, rather than amending the baseline date to address this issue, as it ensures consistency applies across farming activities and will better give effect to the NPSFM 2020.

Rule 5.42CA – Permitted Activity Threshold

- 14.34. Rule 5.42CA provides a permitted activity rule for small scale commercial vegetable growing. The notified version of the rule sets the permitted activity threshold of 0.5ha. The Officers recommendations in the Section 42A Report was to clarify that this allowed 0.5ha of commercial vegetable growing within a property, rather than limiting the property size to 0.5ha.
- 14.35. Several submissions were received on Rule 5.42CA seeking that the area threshold be increased, with many submitters seeking thresholds between 4ha and 10ha. Reasons for increasing the permitted area included there was no evidence vegetable growing from small sites had a more detrimental effect compared to other permitted activities, it is uneconomic to regulate small areas and Overseer provides erroneous results on very small land parcels.
- 14.36. Ms Kikstra states that Rule 5.42CA is inconsistent with other farming activities and Horticulture NZ have sought that the permitted growing area is increased from 0.5ha to 5ha on the basis that “at an area limit of 5ha, the scale of activity is likely to be very small and the water quality related effects negligible.”¹⁵² Additionally, HortNZ reference the NESFW which only applies to properties in horticultural land use which are greater than 5ha.
- 14.37. The evidence of Mr Nation on behalf of HortNZ does provide some indication that increasing the permitted area of commercial vegetable growing to 5ha does not significantly increase nitrogen losses in each sub-region, with the largest increase estimated in the Christchurch – West Melton sub-region (0.25%). Officers note that Mr Nation’s analysis is based on the expansion of operations identified in the NZGAP programme that were under 5ha and assumed that those operations increased to 5ha on LUC 1 and 2 land. This does not consider any additional new operations which would be permitted to establish. Additionally, no evidence has been provided comparing the permitted losses from commercial vegetable growing and other farming activities permitted under the CLWRP.
- 14.38. Officers consider there is insufficient evidence that demonstrates the permitted activity threshold can be increased while still achieving the CLWRP freshwater outcomes, limits and targets as the analysis of Mr Nation has only considered a small number of existing growers.
- 14.39. If the Hearing Panel are of the mind to grant this relief to submitters, Officers do recommend aligning the permitted activity threshold with the NESFW which sets the area limit of the property (not growing area) to 5ha. This would not only be consistent with the NESFW, it would also ensure that 5ha of commercial vegetable growing is not authorised on any property, as an activity additional to other land uses.

Activity status of Rule 5.42CB

- 14.40. HortNZ and Potatoes NZ both seek that the activity status of Rule 5.42CB (restricted discretionary commercial vegetable growing) is amended from restricted discretionary to controlled. Both submitters state that a controlled activity status provides more certainty to

¹⁵² Statement of Evidence of Mr Hodgson, on behalf of HortNZ, paragraph 57.

the industry and will be more efficient and effective for existing growers. Officers have considered the evidence presented and retain the view that a restricted discretionary activity status is appropriate.

- 14.41. The variability in each operation was clear from the evidence of submitters and it was highlighted that, even for lower N leaching crops such as potatoes, it remains important for Council to have oversight over crop rotation cycles and management practices to control leaching losses. For example, the evidence of Mr Conland on behalf of Potatoes NZ was that potatoes were low N leaching but residual N remained in the soil following harvest and it was good management practice to plant particular cereal crops following harvest to absorb this N to avoid increased losses. Where practices are proposed in a consent application that are not consistent with good management, it is important for Council to retain the ability to refuse consent. Where an application adopts appropriate methodologies to manage activities in a way that is consistent with the CLWRP, Officers consider there would be no reason why resource consent would not be granted.

Baseline GMP Loss Rate

- 14.42. The Hearing Panel asked for a specific response from Officers in relation to the recommended inclusion of “Baseline GMP Loss Rate” in Policy 4.36A and Rule 5.42CC(2) and in particular whether this required a commercial vegetable grower to complete an Overseer nutrient budget.
- 14.43. The Section 42A Report provides the rationale for the recommended reference to Baseline GMP Loss Rate as there may be situations where no lawful loss limit applies to land where a commercial vegetable grower is seeking to establish a new growing area either as a new operation, or the expansion of an existing operation (beyond their baseline growing area). For example, where the red nutrient allocation zone, section 5 region-wide land use rules apply, farming is permitted under Rule 5.44 on a property greater than 10ha provided the irrigation area and winter grazing thresholds are met. Therefore, if a grower sought to expand onto a portion of a property permitted under Rule 5.44, there is no nitrogen loss limit that could be used to set the envelope for the commercial vegetable growing operation to operate within.
- 14.44. The Section 42A Report recommendation was to set this benchmark as the Baseline GMP Loss Rate as this is consistent with some other farming land use rules. In order to determine the Baseline GMP Loss Rate, an Overseer nutrient budget would be required for the proposed area of land to be used for vegetable growing. This nutrient budget would model the land use occurring during the baseline period but corrected for GMP. The commercial vegetable grower would then need to demonstrate in a consent process how their new or expanded operation would fit within the envelope provided. As to who would need to complete the nutrient budget, Officers consider this would vary as some landowners looking to lease land may have this information readily available, or alternatively a commercial vegetable grower may need to undertake this modelling as part of the resource consent process.

- 14.45. A possible alternative approach could be to refer to Council’s online NCheck system which is part of the Farm Portal. Farms permitted under the CLWRP do not need to adhere to a nitrogen limit or baseline but are required to register with the Farm Portal and update farm information every 36 months, or whenever a material change in the land use associated with the activity occurs or if any change occurs to property boundaries. When registering with the Farm Portal and using NCheck it is the Officers’ understanding that an estimated nitrogen loss rate can be provided. It may therefore be possible for an estimated loss rate to be determined based on the existing land use (prior to commercial vegetable growing occurring) and for this rate to be used to provide the envelope for the new or expanded commercial vegetable growing operation. This approach would not require an Overseer nutrient budget to be generated but would only be used where no other lawful nitrogen loss rate applies (for example where there is no consented loss rate or permitted loss limit or baseline (Selwyn-Te Waihora, Hinds/Hekeao, South Coastal Canterbury)).

15. Schedule 6 Freshwater Bathing Areas

- 15.1. PC7 Part A proposes several amendments to Schedule 6: Areas on rivers or lakes commonly used for freshwater bathing. These include the addition of 64 new sites, updates to the map references of all existing sites into the map coordinate system NZTM 2000, and minor changes to the description of 13 existing sites to improve clarity around their location.
- 15.2. These Schedule 6 freshwater bathing areas are afforded specific protection through stock exclusion provisions: Policy 4.31 and Rule 5.71 of the CLWRP. Effects on sites listed in Schedule 6 are also a matter of discretion in the following rules associated with fine sediment removal for the sole purpose of habitat restoration:
- Rule 5.146A (Fine sediment removal from rivers)
 - Rule 11.5.46 (Fine sediment removal from rivers within Selwyn Te Waihora sub-region)
 - Rule 15A.5.29 (Fine sediment removal from rivers within South Coastal Canterbury sub-region).

Loch Cameron and Pond at Old Iron Bridge Road

- 15.3. Meridian submitted in opposition to the introduction of two new sites into Schedule 6, namely:
- (a) Loch Cameron: 1364728mE, 5099491mN
 - (b) Pond at Old Iron Bridge Road: 1367794 mE, 5092249 mN
- 15.4. In its submission, Meridian stated the two sites are located within ‘core land’ owned by Meridian which provides for the continued maintenance and operation of the Waitaki Power Scheme. It requested that the two sites be deleted on account of being located within this ‘core land’.
- 15.5. No changes were recommended in the Section 42A Report in response to this submission, as Officers considered the provisions in the CLWRP that refer to Schedule 6 sites (i.e. stock

exclusion and fine sediment removal for habitat restoration) would not meet the definition of ‘renewable electricity generation activities’ in the NPSREG.¹⁵³ Officers noted that PC7 does not introduce any additional controls on activities that would impact on Schedule 6 sites. On this basis, Officers considered the introduction of Loch Cameron and Pond at Old Iron Bridge Road into Schedule 6 would not introduce new restrictions on activities associated with operating the Waitaki Power Scheme.

- 15.6. The freshwater bathing sites Loch Cameron and Pond at Old Iron Bridge Road were introduced into Schedule 6 at the request of the Upper Waitaki Water Zone Committee on the basis that members of the public access and swim at each site during the summer months. The sites are not monitored as part of Environment Canterbury’s recreational health monitoring programme, nor are they mentioned in the River Values Assessment System (RiVAS) report.¹⁵⁴
- 15.7. At the hearing, Mr Feierabend, on behalf of Meridian, further discussed reasons for opposition to the inclusion of Loch Cameron and Pond at Old Iron Bridge Road within Schedule 6. Mr Feierabend noted that both sites are actively managed as part of the Waitaki Power Scheme, and considers that as a landowner and scheme operator, Meridian needs to be able to re-purpose and change the management requirements associated with the sites when and as required, without unnecessary constraint. Mr Feierabend is also of the view that the sites’ inclusion into Schedule 6 adds a formality and sense of public ownership of a private resource which does not exist. Further, it creates potential health and safety obligations on Meridian to ensure appropriate water quality standards exist for bathing, and to provide assistance to the public if a mishap occurred at a site.
- 15.8. The evidence of Mr Feierabend also provides specific details of each site, as well as the types of activities relating to the maintenance and operation of the Waitaki Power Scheme that may take place at each site from time to time.¹⁵⁵
- 15.9. Mr Christensen, in legal submissions on behalf of Meridian, noted that the national significance of the Waitaki Power Scheme (along with the other four largest hydroelectric schemes in the country) has been most recently reflected in the NPSFM 2020. Mr Christensen considers that every effort should be made to give effect to this new instrument, and highlights Clause 3.31(2) of the NPSFM 2020 which requires that:

When implementing any part of this National Policy Statement as it applies to an FMU or part of an FMU affected by a Scheme, a regional council must have regard to the importance of the Scheme’s:

¹⁵³ The NPSREG defines ‘renewable electricity generation activities’ as the construction, operation and maintenance of structures associated with renewable electricity generation. This includes small and community-scale distributed renewable generation activities and the system of electricity conveyance required to convey electricity to the distribution network and/or the national grid and electricity storage technologies associated with renewable electricity.

¹⁵⁴ As set out in section 5.8.1 (page 118) of the Section 32 Report, PC7 introduces updates to Schedule 6 using three key sources of information: Environment Canterbury’s recreational health monitoring programme; the River Values Assessment System (RiVAS) report; and Canterbury Water Management Zone Committee feedback.

¹⁵⁵ Evidence in chief of Mr Feierabend, on behalf of Meridian, paragraphs 47 to 55.

- (a) *contribution to meeting New Zealand's greenhouse gas emission targets; and*
- (b) *contribution to maintaining the security of New Zealand's electricity supply; and*
- (c) *generation capacity, storage, and operational flexibility.*

15.10. In response to the evidence heard and on further reflection, Officers agree with Meridian that it is not appropriate to include Loch Cameron and Pond at Old Iron Bridge Road in Schedule 6. Officers note that the sites are on privately-owned land to which there is no legal public access and public use of them is at Meridian's discretion. In addition, Officers acknowledge that as an owner and operator of the Waitaki Power Scheme, Meridian needs be able to undertake renewable electricity generation activities in these areas without unnecessary constraint, and this may require the public to be restricted on a temporary or even permanent basis.

Pegasus Lake at Motu Quay Jetty

15.11. Templeton Pegasus Limited¹⁵⁶ opposed the introduction of Lake Pegasus at Motu Quay Jetty into Schedule 6 (Areas on rivers or lakes commonly used for freshwater bathing) as they contended that the lake is not designed as a freshwater bathing site and the resource consent for the lake specifies that it is suitable for secondary contact recreation. As such, it sought that reference to Lake Pegasus at Motu Quay Jetty be removed from Schedule 6.

15.12. The Section 42A Report recommended that the site be retained as notified as the site is known to be used for primary contact recreation activities including organised sports events, and the lake is monitored seasonally for recreational water quality for this reason.

15.13. Ms Booker, in legal submissions on behalf of Templeton Pegasus Limited, expanded on the reasons for its opposition to the inclusion of Lake Pegasus at Motu Quay Jetty as follows:

- (a) Pegasus Lake is not designed as a freshwater bathing site, and is a privately owned artificial lake with a primary purpose and function of controlling stormwater. Use for secondary (not primary) contact recreation is incidental and conditions of consent require the quality of the water in the lake to be generally suitable for secondary contact recreation;
- (b) The removal of Pegasus Lake from Schedule 6 would not be contrary to NPSFM 2020 as it is not intended to be a primary contact site; and
- (c) The policies and rules directly associated with Schedule 6 in PC7 are not applicable to the urban environment of Pegasus Lake's Motu Quay Jetty. Provisions relevant to Schedule 6 in the wider CLWRP apply to rivers and would not apply to Pegasus Lake.

15.14. Officers have considered the evidence provided by Templeton Pegasus Limited and note that although a significant function of Lake Pegasus may be to manage stormwater inputs from Pegasus Township, it cannot simply be referred to as a "stormwater retention pond". Existing

¹⁵⁶ As per the legal submissions for Templeton Pegasus Limited (para 2, page 1): the Pegasus Town residual development land was purchased in December 2019 by Templeton Pegasus from Todd Property Pegasus Town Limited. Todd Property Pegasus Town submitted and further submitted on PC7 in relation to Pegasus Lake.

consent conditions¹⁵⁷ state that one of the lake's purposes is for secondary contact recreation. Further, Officers note that Lake Pegasus has been used for primary contact recreation in the past, has a considerable groundwater-fed component, and exists within a historic wetland area with wider hydraulic connections.

- 15.15. Officers acknowledge that the current provisions in the CLWRP that refer to Schedule 6 are not relevant (i.e. stock access and fine sediment removal from rivers), and reiterate the comments in the Section 42A Report on this matter. However, on further consideration, Officers consider that whether current provisions apply is not sufficient reason to delete a freshwater bathing area from Schedule 6, as a future plan change may introduce controls for fine sediment removal in lakes (or other relevant controls).
- 15.16. Given the above discussions, Officers recommend that Lake Pegasus at Motu Quay Jetty be retained in Schedule 6.

Orari River at St Andrews Stream

- 15.17. As outlined in the Section 42A Report¹⁵⁸, Officers agree with the Orari River Protection Group that it would be appropriate to add a new Schedule 6 site located on the Orari River at the confluence of St Andrews Stream. The Section 42A Report recommends a map reference in the immediate vicinity of the stream confluence based on an assessment of aerial imagery given that no map coordinates were provided in the submission of the Orari River Protection Group (i.e. NZTM2000 1454016 mE, 5135121 mN).
- 15.18. In their evidence, the Orari River Protection Group provides map coordinates of the Orari River at St Andrews Stream site. However, the latitude/longitude map coordinates supplied does not fall on the Orari River itself but approximately 150 metres inland of the true-right bank. Their evidence does not state any objection to the map coordinates recommended in the Section 42A Report. Accordingly, Officers consider that the map coordinates recommended in the Section 42A Report for this site accurately describe the location of this site.

Recommendation

- 15.19. In addition to the s42A report recommendation to add five sites¹⁵⁹, Officers recommend removing the following sites from PC7 Schedule 6:
- Loch Cameron (1364728 mE, 5099491 mN)
 - Pond at Old Iron Bridge Road (1367794 mE, 5092249 mN)

16. Schedule 17 Salmon spawning sites¹⁶⁰

¹⁵⁷ Condition 8(b) of CRC210133, CRC210113, and CRC210131

¹⁵⁸ Paragraphs 9.15 to 9.17 (pages 193-194) of the Section 42A Report.

¹⁵⁹ Paragraph 9.28 (page 196) of the Section 42A Report

¹⁶⁰ The planning author for this section is Andrea Richardson and the technical author is Jarred Arthur.

- 16.1. PC7 amends Schedule 17, which identifies salmon spawning sites in rivers and streams that are deemed to be significant to Canterbury’s salmon fishery. PC7 introduces 31 new sites, updates the map references of all existing sites into map coordinate system NZTM2000, and amends the site descriptions for some existing sites. PC7 also amends the CLWRP Planning Map layer of Schedule 17 sites to reflect the proposed changes.

Otukaikino Creek

- 16.2. PC7 introduces the ‘Otukaikino River and tributaries’ into Schedule 17 and Planning Maps B-C05, B-058 and B-059. Some tributaries are partly located within land owned by Isaac Conservation and Wildlife Trust.
- 16.3. Isaac Conservation and Wildlife Trust opposed the identification of the ‘Otukaikino River and tributaries’ salmon spawning site on their property. The submitter stated that large sections of the identified site were ephemeral, dry for the majority of the year and have permanently grassed beds that are understood not to be conducive to salmon spawning.
- 16.4. In response to this submission, the Section 42A Report recommended the deletion of approximately 4km of waterways from the Schedule 17 Planning Map layer of ‘Otukaikino River and tributaries’.
- 16.5. Ms McMurtrie, in her evidence in chief on behalf of Isaac Conservation and Wildlife Trust, provided aquatic evidence to support further amendments so that the upper reaches of Stillwater Creek, Middle Stream and North Boundary Stream are removed from the ‘Otukaikino River and tributaries’ site, such that only the stretch of Stillwater Creek¹⁶¹ is classified as a Salmon Spawning Site.
- 16.6. Expert conferencing occurred between Ms McMurtrie, on behalf of Isaac Conservation and Wildlife Trust, and Council Scientist Mr Jarred Arthur on the existence and extent of salmon spawning habitat within the property owned by the submitter. In the Joint Witness Statement, the aquatic ecology experts agreed that the criteria classifying ‘salmon spawning habitat’ provided in the evidence of Ms McMurtrie was suitable and that the upper reaches of the three tributaries did not meet these criteria.¹⁶²
- 16.7. On this basis, the Officers now recommend amendments to the Planning Maps to remove various sections of the ‘Otukaikino River and tributaries’ Schedule 17 salmon spawning site pertaining to Stillwater Creek, North Boundary Stream and Middle Stream. No changes are required to the description or upstream map reference of the site in Schedule 17.
- 16.8. Ms McMurtrie, in her rebuttal evidence on behalf of Isaac Conservation and Wildlife Trust, sought to remove an upper tributary of Otukaikino Creek known as Stopbank Creek from the

¹⁶¹ Refer Figure 13 of Ms McMurtrie’s evidence as ‘Manage for salmon spawning’

¹⁶² Refer to Annex 1 of the Joint Witness Statement of Ms McMurtrie and Mr Arthur.

PC7 Planning Maps of Schedule 17. This is further to the other tributaries discussed in the Joint Witness Statement. Ms McMurtrie surveyed Stopbank Creek on Isaac Conservation and Wildlife Trust land and contends that the aquatic environment present in this reach of the tributary does not fit the physical habitat criteria consistent with that which supports salmon spawning activity.

- 16.9. Council Scientist Mr Arthur has reviewed Ms McMurtrie’s rebuttal evidence and supplementary evidence which included photographs of the surveyed reaches of Stopbank Creek. Based on this evidence, Mr Arthur considers there is no known documented data of salmon spawning redds in Stopbank Creek, and agrees that the current state of physical habitat in Stopbank Creek on Isaac Conservation and Wildlife Trust land is not consistent with the criteria generally considered to support salmon spawning.
- 16.10. Accordingly, Officers recommend the deletion of the Stopbank Creek tributary on Isaac Conservation and Wildlife Trust land from the Schedule 17 planning map layer of ‘Otukaikino River and tributaries’ as per Ms McMurtrie’s rebuttal evidence in Attachment 1. No changes are required to the description or upstream map reference of the site in Schedule 17.

Recommendation

- 16.11. Remove various sections of the ‘Otukaikino River and tributaries’ Schedule 17 salmon spawning site pertaining to Stillwater Creek, North Boundary Stream, Middle Stream, and the Stopbank Creek tributary, as shown in the revised planning maps.

17. Minor changes

Allocations between surface and groundwater allocation blocks

- 17.1. The two ‘notes’ above Table S9.1 in Schedule 9: Assessment of Stream Depletion Effects are recommended for deletion as they inadvertently duplicate the notes below this table. The operative CLWRP only has the notes below the table. This deletion is considered a minor amendment under Schedule 1, Clause 16(2) of the RMA.

River Engineering

- 17.2. PC7 Part A amends the definition of ‘Defence against water’ to introduce the phrase “or any re-contouring or re-battering” to enable certain activities carried out by or on behalf of a local authority or network utility operator for flood protection purposes, through providing a permitted activity status under Rule 5.138. Activities that could be considered in “any re-contouring or re-battering” include bank erosion repairs, re-battering of the banks, reshaping of the bed, and diversion of water during high flows. The amended definition means that these activities can be considered independent of any structure or equipment designed for flood protection and drainage purposes under permitted activity Rule 5.138.

- 17.3. The purpose of the amendment is to address Council River Engineering concerns that maintenance activities with potentially less than minor effects on the environment currently require consent under the CLWRP. Council consider that the necessity to carry out day to day river engineering maintenance work as a permitted activity was acknowledged by the inclusion of Rule 5.138 in the CLWRP, and that re-contouring and re-battering activities were unintentionally omitted from this rule.
- 17.4. The Ngā Rūnanga submission opposed the PC7 definition of ‘Defence against water’, stating that the addition of the phrase “or any re-contouring or re-battering” makes the scope of works able to be undertaken under permitted activity Rule 5.138 too uncertain. The submitter considers that significant damage could occur to the bed of a river as the Rule does not contain area or volume limits.
- 17.5. In the Section 42A Report, Officers did not recommend amendments to the definition in response to the Ngā Rūnanga submission. Officers considered the risk of significant damage to the bed of a river, due to re-contouring or re-battering, to be minimal on account of the recently updated Code of Practice for Defences Against Water and Drainage Schemes (April 2019), the existing restrictions on activities in Rule 5.138, and new restrictions introduced in PC7 regarding activities in an IFSH.
- 17.6. Ms Davidson, in her evidence in chief on behalf of Arowhenua and Te Rūnanga, reiterated concerns of uncertainty and potentially significant damage to riverbeds due to the amended definition. Ms Davidson suggested that if the wording “any re-contouring or re-battering” is retained in the definition, any re-contouring or re-battering should only be associated with flood control structures or equipment - specifically, the “or” between (a) and (b) should be replaced with “and any associated”. Further, Ms Davidson’s summary of evidence stated that Policy 7 of the NPSFM 2020 is relevant to the relief sought, as it requires that the loss of river extent and values is avoided to the extent practicable.
- 17.7. At the hearing, Mr Simon Hedley, on behalf of Rooney Earthmoving Ltd, raised concerns that the proposed amendments to the definition of ‘Defence against water’ introduces new consenting requirements for re-contouring or re-battering a riverbed (under Rule 5.138) when undertaken as part of gravel extraction activities (under Rule 5.148). Gravel extraction is often undertaken to re-contour the bed to improve flood carrying capacity of a riverbed.
- 17.8. Following review of the evidence, and consideration of the NPSFM 2020, Officers agree with Ngā Rūnanga that the wording “and any recontouring or re-battering” should be deleted.¹⁶³ Officers agree with Ms Davidson that providing for any recontouring or re-battering as a permitted activity without maximum area or volume thresholds would not give effect to Policy 7 of the NPSFM 2020 that states the loss of river extent and values is avoided to the extent practicable. Although the chapeau of Rule 5.138 includes “the associated deposition of substances”, it is considered that amending the proposed wording to “and any associated re-

¹⁶³ Ngā Rūnanga (PC7-423.1)

contouring or re-battering” would widen the scope of works able to be undertaken as a permitted activity.

- 17.9. Officers consider that Clause 3.24 of the NPSFM 2020 supports this recommendation as it anticipates that an activity that may result in (directly or indirectly) the loss of river extent and values, and has a functional need at that location, is considered through a resource consent application rather than a permitted activity pathway. Officers consider that there is a functional need for defences against water at particular locations, and that re-battering and re-contouring could cause the loss of river values. Specifically, Clause 3.24(3) requires:

Every regional council must make or change its regional plan(s) to ensure that an application referred to in subclause (2) is not granted unless:

- (a) the council is satisfied that the applicant has demonstrated how each step in the effects management hierarchy will be applied to any loss of extent or values of the river (including cumulative effects and loss of potential value), particularly (without limitation) in relation to the values of: ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity; and*
- (b) any consent granted is subject to conditions that apply the effects management hierarchy.*

- 17.10. Officers consider that the deletion of the proposed words “re-contouring or re-battering” would also address the concerns raised by Mr Hedley on behalf of Rooney Earthmoving Ltd at the hearing.

Part 4: Submissions on Part B of PC7: OTOP

18. Introduction

- 18.1. The majority of submitters relevant to the OTOP part of PC7 were heard locally, in Timaru. A wide range of evidence was presented, with an understandable focus on the operation of the Opuha Dam system and the Opihi and Temuka catchments, with a focus on quantity and water allocation.
- 18.2. This section of the report follows the same structure as the Section 42A Report – with responses to quality issues, cultural matters, quantity and nutrient management being the substantial parts. A number of matters are also dealt with in the earlier Common Issues section of this report.

19. Quality – Tables 14(a) to 14(f)

- 19.1. As noted earlier in relation to the Omnibus section of this Report, the Hearing Panel requested a table setting out a comparison of water quality statistics; the equivalent attributes in the NPSFM 2020; current state; and relevant submission requests. Initially this represented a large table. This information is attached for Tables 1(a) and 1(b) and Schedule 8 as Appendix D, and the earlier comments in relation to the region-wide tables in section 8 of this Report also apply to Tables 14(a) to 14(f). An extract of Table 14(c), showing the nitrate nitrogen attribute is appended at the end of Appendix D, but for the reasons discussed below, no changes are recommended in response to the NPSFM 2020 changes to the NOF framework.
- 19.2. Again, in relation to Tables 14(a) and 14(f), the Officers note that many submitters seek non-specific changes, such as:
- (a) Ballance request that Table 14(a) be amended to replace the values with those that are robust and provide a measurable environmental outcome in accordance with that sought for OTOP Sub-region rivers - no specific values are requested;
 - (b) Arowhenua and Te Rūnanga consider the proposed plan change provisions could go further and set a clearer direction so all freshwater bodies achieve higher quality beyond, in some instances, just achieving the national bottom lines of the NPSFM 2017; and
 - (c) OWL consider freshwater outcomes that apply in the Opihi FMU are ‘unnecessarily low’ and seek outcomes that reflect current state; and
 - (d) For some outcomes, such as Table 14(a) DOC sought that they be retained in their submission, but presented evidence seeking changes.¹⁶⁴

¹⁶⁴ For example, Page 20 of the submission stated “Retain as notified” for Table 14a. However, witnesses sought various changes to Table 14a in evidence.

- 19.3. Overall, Officers do not recommend changes to try and align OTOP Tables 14(a) to 14(f) with the NPSFM 2020 attributes and measurement statistics. While this recommendation may be different to that made for other parts of PC7, this is for two main reasons:
- (a) The submissions provide limited scope for change, so only very limited proportions of Tables 14(a) to 14(f) could lawfully be adjusted; and
 - (b) For the OTOP zone there are limited mechanisms by which any changed content of Tables 14(a) to 14(f) could be achieved. The primary mechanism for achieving the current Tables 14(a) to 14(f) are the regionwide methods, and other than in limited areas are not proposed to be altered for the OTOP zone. In short, the methods (rules and other management frameworks) to achieve this higher water quality are not included in the OTOP section of PC7.
- 19.4. More specifically, Part B of PC7 introduces new water quality limits and targets in relation to ammonia and nitrate attributes in the OTOP sub-region. These limits and targets are contained within several tables in Section 14. The proposed tables most relevant to this discussion are:
- a. Table 14(c) – Water Quality Limits for OTOP Rivers;
 - b. Table 14(d) – Water Quality Targets for OTOP Rivers;
 - c. Table 14(e) – Water Quality Limits for OTOP Lakes.
- 19.5. Ammoniacal-nitrogen and nitrate-nitrogen limits for rivers and lakes within the OTOP tables have been set at their current state concentrations, where they are better than the national bottom lines in the NPSFM 2017. Water quality targets are set for rivers in Table 14(d) where current state nitrate-nitrogen concentrations within those waterbodies are below the national bottom lines. The targets reflect the national bottom line for nitrate-nitrogen in the NPSFM 2017. These limits and targets were developed and notified in PC7 prior to the gazetting of the NPSFM 2020. Consequentially, some water quality limits and targets are proposed at values which are now worse than the national bottom lines for those attributes in the NPSFM 2020.
- 19.6. In terms of scope within submissions to remedy this issue, DOC highlights concerns with the water quality limits in several of the proposed tables in Section 14, including Tables 14(c), 14(d) and 14(e). It disagrees with some of the attribute limits and targets, including ammoniacal-nitrogen and nitrate-nitrogen, being set at “C Band” equivalent values, or national bottom lines, under the NPSFM 2017. As such, it seeks amendments to Tables 14(c) and (d) to *“ensure limits are set that allow for freshwater outcomes to be achieved”*¹⁶⁵. In relation to Table 14(e), DOC requests that *“appropriate targets are set for ammoniacal nitrogen in Waitarakao/Washdyke Lagoon to align with achieving the outcomes for lakes in Table 14(b)”*¹⁶⁶. Therefore, if the Hearing Panel considers that amendments should be made for consistency with the NPSFM 2020, Officers consider there may be some scope within DOC’s submission to do so.

¹⁶⁵ PC7-160.99. Note that this same relief is requested for Table 14(d) given the explanation within DOC’s submission. However, it did not identify this table in the ‘Plan Provision’ column of their submission, and as such, the relief for Table 14(d) has not been recorded in the SODR or mentioned within the Section 42A Report. DOC support their position on Table 14(d) in their evidence in chief (pages 34 and 35).

¹⁶⁶ PC7-160.100.

- 19.7. However, despite potential scope within DOC’s submission to amend particular OTOP water quality limits and targets in line with the national bottom lines under the NPSFM 2020, the Hearing Panel may want to consider whether methods exist within PC7, and the region-wide provisions in the CLWRP, to provide a pathway to achieve these new limits. Technical work supporting the current approach in PC7 to achieve water quality outcomes in rivers and lakes in OTOP was completed prior to the NPSFM 2020. In general, the submissions do not seek new or enhanced methods that might achieve a revised set of (more stringent) targets. As such, consideration is needed as to whether the setting of targets at the revised national bottom lines is appropriate, when the methods to achieve these revised targets may not be available in the submissions.
- 19.8. Overall, Officers consider that it would be more efficient and effective to undertake a future plan change process to align all of the sub-regional tables and the region-wide tables with the NPSFM 2020 NOF criteria and statistical measures in a cohesive and consistent way, as is required by the NPSFM 2020.

20. Cultural Values

Protection of rock art

- 20.1. In response to submissions, Officers recommended minor amendments in the Section 42A Report to provisions to accommodate stronger, but more focused, protection for rock art sites. This included amendments to avoid (rather than minimise) adverse effects, and to increase the activity status of rules for particular activities that may affect rock art¹⁶⁷.
- 20.2. During the hearing, Ms Symon and Ms Hall presented evidence on the management and protection of rock art sites on behalf of Arowhenua and Te Rūnanga¹⁶⁸. Both witnesses presented evidence on how rock art sites are a culturally significant and unique aspect of New Zealand’s natural heritage. They also stressed the fragility and high sensitivity of rock art to a range of activities, particularly those with potential to change the wider hydrology of the sites.
- 20.3. Ms Hall considered that while the proposed policy direction under PC7 attempts to avoid and mitigate effects on rock art from farming activities, this intent is not adequately followed through in the rules. Ms Owen, on behalf of HNZPT, considers that the sensitivity of rock art to damage and loss are such that only avoidance of adverse effects can ensure protection of rock art.
- 20.4. Concerns were also raised by Arowhenua and Te Rūnanga and HNZPT in relation to rock art being managed solely under an FEP framework. These concerns are primarily related to:
- (a) Rūnanga being excluded from the process;

¹⁶⁷ Amendments to Policies 14.4.5 and 14.4.17 and Rules 14.5.17 to 14.5.19.

¹⁶⁸ Evidence of Ms Symon and Ms Hall was adopted in full by HNZPT [para. 16 of HNZPT legal submissions].

- (b) Farm managers and farm auditors not having the level of expertise required to monitor the conditions needed to effectively protect sites, or necessarily having knowledge of cultural values;
 - (c) Farm audits not being frequently carried out (i.e. only six months or so); and
 - (d) Few repercussions if landowners do not comply with monitoring or mitigation activities under this framework.
- 20.5. Given the concerns with the ability of FEPs to regulate the protection of rock art, Ms Hall supported the relief sought by Arowhenua and Te Rūnanga which would require additional conditions in rules for several activities throughout the CLWRP, including those related to the taking, use, damming, diversion or discharge of water, the discharge of contaminants, and land use activities. These conditions would require that an activity does not occur within a RAMA, otherwise a resource consent would be required.
- 20.6. Evidence from Ms Symon in particular highlights the complexity of protecting rock art sites from both natural and human impacts, and the level of specialist expertise required for their management. By requiring consents for additional activities that occur within a RAMA, there will be opportunity for Rūnanga, and those with appropriate expertise, to be appropriately involved during the consenting process. This will enable the actual and potential effects of activities on rock art sites to be fully considered for any subsequent recommendation and conditions of consent if appropriate.
- 20.7. The Ngā Rūnanga submission requested a number of additions to the regional rules to be included in section 14.5. In the Section 42A Report, Officers questioned the linkage between some of the controls sought, and the potential effects on the rock art sites. While evidence from Ngā Rūnanga did not address this question specifically, Table 1 of Appendix B of Ms Symon’s evidence describes that damage to rock art can result from activities that locally raise the water table; activities that locally lower the water table; activities that change vegetation cover; activities that cause atmospheric contamination; activities that alter, divert, dam, or store surface water; wastewater or dispose of waste; and activities that cause significant vibration. The activity with the most potential to damage art is one that will result in a change in local hydrology.
- 20.8. Officers have reconsidered the changes requested in the submission against Table 1 of Appendix B of this evidence to determine the likely importance and effects of each change requested to the protection of rock art.
- 20.9. Officers reconfirm that the policy direction should be clear in its avoidance of adverse effects on rock art sites. Officers recommend further adjustments to Rules 14.5.17, 14.5.18, and 14.5.19. For these Rules there is no issue as to the scope of PC7. For several of the amendments sought by Ngā Rūnanga, there is a more general matter of control or restriction of discretion added, which is assessed in the Omnibus section of this Report, and officers do not consider a further amendment specifically on rock art is warranted.

- 20.10. There are a number of rules that Ngā Rūnanga seek changes to that are not changed by PC7 or have small changes that are unrelated to this issue. The issue of the scope of PC7 has been addressed at some length in the legal submissions of several parties. If the Hearing Panel considers there is scope to add restrictions for the protection of rock art, Officers recommend this be added to region-wide rules 5.31, 5.33, 5.35, 5.38, 5.66, 5.67, 5.75, 5.82, 5.91, 5.94B, 5.98, 5.99, 5.108, 5.104, 5.113, 5.114, 5.114A, 5.119, 5.135, 5.138, 5.139, 5.142, 5.146A, 5.154, 5.168, 5.171, 5.172, 5.175, and 5.186.¹⁶⁹ As mapped rock art sites are currently limited to within the OTOP sub-region, Officers consider it appropriate to restrict the application of these additional conditions to only activities within mapped RAMAs. This will provide protection of rock art, a unique part of New Zealand’s history.
- 20.11. Officers consider there is still value in requiring landowners to identify and include targets for rock art sites in FEPs as another avenue for protection, in addition to a more comprehensive consenting approach recommended above.

Mātaihai Protection Zone

- 20.12. Several submissions were received on the proposed MPZ for the OTOP sub-region, and the associated provisions which seek to protect freshwater bodies and tangata whenua values within this zone. While some submitters supported the provisions or sought more stringent measures, others opposed the additional requirements for landowners affected by the MPZ. Particular concerns raised in submissions related to uncertainty around the purpose, legality and extent of the MPZ.
- 20.13. Over the course of the hearing, evidence on this matter was primarily heard from two submitters; Federated Farmers and Arowhenua and Te Rūnanga.
- 20.14. Federated Farmers are concerned with how the MPZ reflects the requirement under the RMA to have regard for mātaihai reserves, but only “to the extent that their content has a bearing on the resource management issues of the region”.
- 20.15. Federated Farmers state that they accept that under s66(2) of the RMA, regional councils must consider existing mātaihai reserves in the context of the issues of the region. Further, Federated Farmers acknowledges direction in the CRPS which identifies mātaihai reserves as an important part of Ngāi Tahu tikanga associated with mahinga kai. However, it raises concerns as to whether Council should introduce land use controls to protect mātaihai reserves, given they are primarily recognised and managed outside of the RMA. Federated Farmers also consider that the NPSFM 2020¹⁷⁰ provides for the values of mātaihai reserves to be “integrated into the FMU framework” for OTOP. On this basis, Federated Farmers are of the opinion that the introduction of water quantity and quality limits for FMUs within the

¹⁶⁹ In the absence of a clear finding as to the scope of PC7, these changes are not shown in the Officers’ final marked-up version of PC7.

¹⁷⁰ Federated Farmers identify policies 2, 3 and 5, and clauses 3.4(2), 3.7(1), 3.7(2) and 3.8 of the NPSFM 2020 as relevant provisions for a regional council to consider for mātaihai reserves.

OTOP sub-region under PC7 is a sufficient framework to protect mātaihai reserves, and their values, without the need for a specific protection zone and additional land use regulation.

- 20.16. The evidence of Arowhenua and Te Rūnanga raises concerns about the level of protection that mātaihai reserves receive. Ms Hall’s evidence supports the implementation of the MPZ in PC7. She states that often nearby land and water use activities significantly degrade the quality of freshwater in mātaihai reserves. She notes that mātaihai and wetlands are connected and therefore further protections for mātaihai would satisfy the NPSFM 2020 by avoiding further loss of natural wetlands.¹⁷¹ Ms Hall also seeks separation distances between discharges and fresh water to be established within the MPZ. Mr Henry’s evidence emphasises the cultural importance of mahinga kai and mātaihai reserves.¹⁷²
- 20.17. Legal submissions on behalf of Ngā Rūnanga discuss the RMA and Fisheries Act framework for mātaihai reserves and state that the council does not lack jurisdiction to “control activities, particularly land and water use activities, that effect the management and sustainability of a mātaihai.”¹⁷³
- 20.18. As previously discussed in the Section 42A Report, the proposed MPZ encompasses the existing Opihi Mātaihai Reserve and Waitarakao Mātaihai Reserve. However, the primary purpose is to protect areas with waipuna (springs) that provide habitat for mahinga kai and are taonga to Arowhenua and Te Rūnanga. Existing mātaihai reserves within the MPZ have been identified as a place of importance for customary food gathering and allow for the area to be managed by tangata tiaki/kaitiaki as nominated by tangata whenua. Officers are still of the view that the MPZ delineates an area of additional cultural sensitivity, generally associated with the mātaihai reserves, rather than an area that is solely based on protection of the mātaihai reserves. Despite Federated Farmers’ evidence, Officers consider that additional land use controls in the MPZ (proposed under PC7) are an appropriate measure to protect cultural values.
- 20.19. Officers consider that further clarification of the purpose of the MPZ would resolve confusion around the intent of the MPZ. Therefore, Officers recommend amendments to the introductory text of Section 14 to provide this clarity. Officers also note the request that the area be named the Mātaihai and Waipuna Protection Zone, which would appear to be a logical response to clarify the purpose of the zone.
- 20.20. Federated Farmers also raise concerns with the extent of the MPZ, stating that the Section 32 Report proposed a “2 km zone” but their GIS analysis suggests that the full extent covers an area of approximately 15,737 ha. It considers that the extent of the zone is “excessive”.
- 20.21. Both Federated Farmers and Woodbury Deer Farms identified that the rules for the HRRPZ and the MPZ placed uneven obligations on landowners, as the rules were triggered when only

¹⁷¹ Evidence in chief of Ms Hall, on behalf of Arowhenua and Te Rūnanga, paragraphs 87-97.

¹⁷² Evidence in chief of Mr Henry, on behalf of Te Ngāi Tūāhuriri Rūnanga, Ngā Rūnanga and Arowhenua and Te Rūnanga, paragraphs 60-66.

¹⁷³ Legal submissions of counsel on behalf of Ngā Rūnanga, paragraphs 93-99.

a part of the property was within the respective zones. The example was given for the HRRPZ that a very large property may only have a small part in the HRRPZ however the rule construct would mean that the entire property would be subject to the HRRPZ rules. Having considered the matter further, Officers agree that the more restrictive provisions should only apply to the areas within the zones identified in the planning maps. This may lead to some additional complexity for landowners in that different requirements may apply on different parts of the property. Overall, the obligations are likely to be reduced. These changes have been made in the Officers' final marked-up version of PC7.

Recommendations

- 20.22. Add a description of the Mātaitai and Waipuna Protection Zone to the introduction of Section 14.
- 20.23. Change all references (including on the Planning Maps) to “Mātaitai Protection Zone” to “Mātaitai and Waipuna Protection Zone”.
- 20.24. Amend Rule 14.5.17 to remove the application of rules applying to the High Runoff Risk Phosphorus Zone outside of that Zone.

21. Quantity – General

- 21.1. After hearing the evidence from submitters, and unless specifically set out below, the Officers generally confirm their recommendations in the Section 42A Report and in the answers to initial questions from the Hearing Panel to the effect that: for most water bodies, two stages of reductions are recommended; pro rata partial restrictions are preferred and ought to be implemented as soon as possible; and improvements in the flow regimes generally ought to be brought forward in time.
- 21.2. Officers are of the opinion that while the second stage of improvements in the flow regime may only bring modest further improvements, that may be a result of the incremental nature of the improvements to the flow regime. Officers note that the magnitude and timing of those reductions is likely to be further reviewed when the NPSFM 2020 is fully implemented. However, Officers do maintain their view that those second stages are important improvement to make.
- 21.3. Further, while the timeframes are recommended to be brought forward, the Officers acknowledge that the achievement of the flows set out is very unlikely to occur in line with those timeframes. There are inevitable delays in the making operative of a plan change, and the subsequent resource consent renewals and review processes, which often take several years to complete. Therefore, while an improvement in a flow regime may have a 2025 date, it realistically is likely to be several years after that date before that flow regime is practically in place. This suggests that bringing improvements to the flow regime forward in time rather than pushing them back, as sought by some submitters, is more appropriate.

22. Quantity – Temuka Specific Provisions

- 22.1. Several submitters sought changes to the proposed minimum flows for the Temuka River. In the Section 42A Report, the Officers did not recommend any changes to the minimum flows for the Temuka River at Manse Bridge, as insufficient detail was provided in submissions for any specific relief that would address submitters' concerns.
- 22.2. However, the Officers recommended, as a minimum, that the overlap between the A and B blocks be removed to prevent the flow in the river falling below the minimum flow. This had the effect of increasing the B Block minimum flow. Further, the Officers recommended in the Section 42A Report that the time-staged steps in the environmental flow and allocation regime for the Temuka River be brought forward, and the effective partial restriction regime be implemented immediately.
- 22.3. Dr Drinan, in his evidence presented on behalf of DOC, supported those changes to bring forward the time-staged steps in the environmental flow and allocation regime for the Temuka River. Dr Drinan agreed that more ambitious timeframes will help realise environmental benefits sooner, and will better align with Te Mana o te Wai. Dr Drinan also considered that the recommended immediate implementation of effective pro-rata partial restriction regimes will help to improve environmental flows.
- 22.4. However, Dr Drinan considered that the proposed minimum flows for the Temuka River at Manse Bridge are still significantly less than the interim minimum flow limit of 1.44 m³/s in the draft proposed National Environment Standard for Ecological Flows and Water Levels (based on 80% of MALF for rivers with mean flows ≥ 5 m³/s). Dr Drinan also suggested that the current minimum flows are not appropriate to protect native fish values in the Temuka River.
- 22.5. Dr Drinan has requested that summertime minimum flows for the Temuka River at Manse Bridge be set at flows ≥ 1.4 m³/s to protect native fish values. With reference to the hydraulic-habitat modelling undertaken by Jellyman (2018), Dr Drinan concluded that none of the 22 desirable species/values modelled will achieve their maximum WUA at flows less than 1.4 m³/s. Therefore, Dr Drinan considered that species/values will see habitat availability gains with increasing minimum flows (up to this flow).
- 22.6. Given the above, the Officers agree that, ultimately, further increases to the minimum flows for the Temuka River at Manse Bridge will be required to protect ecosystem values, and ensure that the health and well-being of the waterbody is prioritised. Therefore, Officers consider that the minimum flows for Manse Bridge could be increased to a minimum of 1.4 m³/s, potentially from the 2030 timeframe. Alternatively, a reassessment of flows for the whole system could be undertaken as a part of a future plan change to fully implement the NPSFM 2020. Officers are hesitant to recommend a further substantial increase in the minimum flow (from the current recommendation of 850 l/s (Nov-Mar), rising to 1050 l/s (Nov-Feb)) without a full assessment of the implications for abstractors and the time needed to adjust.

- 22.7. Should the Hearing Panel wish to further increase the minimum flow, Officers consider there is scope to make such changes in DOC's submission¹⁷⁴.

23. Quantity – Opihi Specific Provisions

- 23.1. The actual amount of consented abstraction from the Opihi River and its tributaries was helpfully summarised in the hydrology joint witness statement. A key part of that statement was a table that classified and accounted for the takes from each tributary. That table identified a number of minor, and some significant, differences to the allocations set out in PC7.

- 23.2. Despite those differences, the table also identified that in aggregate, the amount of water abstracted from the system is sobering, being several times the summertime minimum flow for the lower part of the catchment. While it would be possible to insert this table, with the existing consented abstraction being the basis for the allocations in the Plan, given the direction in both the CRPS and the NPSFM 2020, Officers have considered two options for the "A"¹⁷⁵ allocations and "B"¹⁷⁶ allocations. These are:

- (a) Keep the "A" allocations at the allocations anticipated at the notification of PC7; or
- (b) Adjust the "A" allocations (generally increasing them) to match the existing consented amounts in the joint witness statement; and
- (c) Keep the "B" allocations at the allocations anticipated at the notification of PC7; or
- (d) Adjust the "B" allocations (generally reducing them) to match the existing consented amounts in the joint witness statement

- 23.3. Each of these options are set out here:

Table 14(ua): Allocation Blocks in the Opihi Freshwater Management Unit

River	Allocation Limits for AA and AN permits and community supplies (L/s)		Allocation Limit for BA and BN permits (L/s)	
	Option (a) - PC7	Option (b) – match allocations	Option (c) - PC7	Option (d) – match allocations
Opihi River and its tributaries	5600	5591	10205	7014

Table 14(ub): Allocation Blocks for tributaries of the Opihi River

Waterbody	Allocation Limits for AA, AN and BA permits and community supplies (L/s)	Allocation Limit for BN permits (L/s)
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¹⁷⁴ PC7-160.90.

¹⁷⁵ AA, AN and BA allocations

¹⁷⁶ BN allocations

	Option (a) - PC7	Option (b) – match allocations	Option (c) - PC7	Option (d) – match allocations
North Opuha River	243	263	500	20
South Opuha River	634	731	800	200
Upper Opihi River	474	642	800	202
Te Ana Wai River	284	357	800	722
Lake Opuha Tributaries	N/A	39	N/A	254
Lake Opuha ¹⁷⁷	N/A	33	0	0

- 23.4. Given the very substantial amount allocated from this river system, Officers are unable to justify any increase in the “A” allocations above the levels notified in PC7. Further, Officers consider it would lead to a false sense of security, in that when flow and allocation regimes are re-evaluated against the NPSFM 2020 criteria, it is reasonable to assume that the allocation in many tributaries, and for the overall catchment, are likely to need to be reduced.
- 23.5. Reducing the “B” allocation blocks to the levels of existing use does reduce options for the future for existing consent holders, or those wishing to abstract high-flow water. Given the high minimum flows for the “B” allocation, these really are only viable as a take to storage. Overall, Officers consider that any more abstraction from this catchment, even at high flows, is unlikely to give effect to Te Mana o te Wai and accordingly, capping the “B” allocation at the level of current use is the preferred option. This particularly so when higher flows and freshes in this system are a very valuable part of the flow regime. That said, Officers acknowledge the scope for this change relies on more general submission points¹⁷⁸, rather than specific requests for changes to these limits.
- 23.6. Officers note that the joint witness statement has identified a number of significant community supply takes for which no allocation has been set in PC7. Timaru DC clarified that a large part of its water is supplied through the Opuha Dam system, and while the joint witness statement did not attribute these community supplies to the AA block, they do fit rather neatly into the difference between the allocation block and the amount allocated (which is not able to be further granted due to date limitations in the definition). However, Officers accept that community water supplies are likely to be a second-order priority in the NPSFM 2020 framework and whether specific community supply allocation blocks need to be established in future will need to be considered through the NPSFM 2020 planning process.

¹⁷⁷ This row not recommended to be included – see commentary below at paragraphs 22.30-31.

¹⁷⁸ Such as that of Nga Rūnanga and Forest and Bird, and submissions seeking the BN allocation reflects all existing allocations.

- 23.7. Until that time, Officers consider the community supply takes should be included in the A block for catchment accounting purposes even though Policy 4.49¹⁷⁹ allows them to operate without requiring compliance with the limits or minimum flows.

Minimum flows

- 23.8. Following publication of the Section 42A Report, expert conferencing occurred. The Joint witness statement of the ecology experts stated (at paragraph 40):

The experts support the full allocation regime for the Opihi River at Saleyards Bridge proposed by the Adaptive Management Working Group. Proposed increase in flows, particularly for January and February, provide greater support for ecological values than those proposed in PC7.

- 23.9. The experts generally agreed with the “full availability” and “level one” restrictions under the AMWG flow regime, but there was some disagreement on the appropriateness of the “level two” restrictions. On this basis, the Officers now recommend adopting the “full availability” and “level one” restrictions of the AMWG flow regime, and renaming those as “Level 1” and “Level 2” minimum flows as per the Section 42A Report. The “level two” restriction under the AMWG regime is not supported by the Officers and is not recommended to be included.

“Adaptive Management” and “Alternative Management”

- 23.10. A number of submitters and submitter groups spoke at length about the benefits of a more flexible and responsive decision-making process, with variable minimum flows and management of freshes through a semi-autonomous decision-making group. This was generally referred to as “adaptive management” or, more recently “alternative management” of the flow regime. This has occurred in the past through OWL making decisions based on advice from OEFRAG. Officers consider such an adaptive management process has a very wide range of possible hydrological outcomes. It would be possible that a fully informed group of stakeholders can respond to current conditions with management interventions, presumably based on a set of decision-making criteria, that result in the best outcome for the conditions.
- 23.11. However, Officers consider there are risks that adaptive management may not always operate in this way. Within the life of this plan (~10 years) it is likely that personnel will change within the advisory and decision-making groups, and therefore the specification of decision-making criteria and outcomes becomes more important. The difficulty of specifying this in the Plan, and monitoring decision-making and outcomes, are reasons outlined in the Section 42A Report for recommending a more objective and certain process for changing between minimum flow regimes. While Environment Canterbury would be required to retain the

¹⁷⁹ CLWRP Policy 4.49: *Enable the taking of water for a community water supply by not requiring compliance with any minimum or residual flow or partial restriction conditions and the environmental flow and allocation regime or groundwater allocation limit provided a water supply strategy developed in accordance with Schedule 25 is in place and the water supply is so managed as to restrict the use of water from those supplies during periods of low flow or water levels.*

decision-making responsibility, there is much more certainty of the hydrological outcomes which would result from clear rules and triggers determining any change in flow regimes.

- 23.12. This remains the Officers' preferred approach, rather than the Plan enabling an adaptive management approach through consent-holder decision-making with or without an advisory group. Officers recognise that considerable detail regarding the operation of the Opihi River system would still need to be resolved through the resource consent process, potentially through a management plan. However, the fundamental criteria would be set out in the Plan, and some further improvements to the wording of the policies and rules is recommended in the Officers' final marked-up version of PC7.
- 23.13. The Hearing Panel has requested that the Officers discuss an option with Mr Ensor, the planner for OWL and AMWG, for wording for an approach that puts much of the detail to the resource consent process, likely through a requirement for a management plan, that sets out the nature of any discretion and the decision-making criteria. A joint witness statement has been lodged recording possible wording. After consideration, Officers continue to prefer the more certain approach in the Officers' final marked-up version of PC7, including the retention of Table 14(x), and have communicated that to Mr Ensor. Officers confirm that they are not opposed to an operational management plan being part of the resource consenting process, but that it should not go so far as an alternative management approach and removal of trigger-level details from the plan.
- 23.14. Part of the reason for preferring this more certain approach is the complex consenting and compliance monitoring already present in the Opihi catchment. This complexity increases with the flow regimes in PC7, and the flow regime proposed by the AMWG increases the complexity even further. The introduction of triggers for lake level, lake inflows and snow storage requires Environment Canterbury to develop a methodology to evaluate these monthly to assess which minimum flows apply. Increasing the frequency of this from monthly to daily, as sought by AMWG, increases this complexity further. In addition, the abstractors of water released by OWL are operating under their own resource consents, alongside contractual relationships with OWL. As OWL does not hold these subsequent take consents, compliance monitoring and management remains with Environment Canterbury.
- 23.15. As part of this reconsideration, it has been identified that if there was justification for a minor deviation from the flow regime set out in PC7, that would not be possible as such an application would likely be a prohibited activity. Similarly, one of the conditions of the discretionary activity rule is that the existing consents are surrendered at the time the application is made. As the Opuha Dam would continue to operate while replacement consents are being sought, surrender at the time of application is not viable. Therefore, Officers suggest removal of that condition, and a change of activity status from prohibited to non-complying if the conditions are not able to be complied with.

Climate change impact on observed data: inflows to Lake Opuha - question asked of Dr Kerr

- 23.16. The Officers noted that in Dr Kerr’s responses to questions, he commented that there were no statistical trends in climate data. However, in the 2017 report by Dr Kerr (Climate cycles and trends, Upper Opihi, Opuha and Orari) carried out for Environment Canterbury, he reports reducing trends in flow in the Opihi and Orari Rivers and in September snow storage. These trends were deemed to have less than 5% likelihood of occurring by chance. This would be classed as “very likely” under the likelihood scale determined by the Intergovernmental Panel on Climate Change.
- 23.17. If flows in the Upper Opihi River decline, a greater proportion of the flow at Saleyards Bridge will need to be supplied from water stored in Lake Opuha, and if snow storage declines the inflow to lake in spring and early summer is likely to also decline. Both changes in catchment hydrology could mean that triggers to shift between flow regimes in the Opihi at Saleyards Bridge may occur more often. This could lead to extended periods of low flow regimes and lower minimum flows applying, with less water available for flushing flows.

Artificial freshes

- 23.18. Mr Measures, on behalf of AMWG, considers the range of outcomes from, and the way artificial freshes are set out in, PC7 are unrealistic. In his view, artificial freshes are not intended to open the river mouth. It is also unrealistic to expect artificial freshes to be able to prevent periphyton from reaching nuisance levels, but they will be able to reduce the length and severity of blooms. Artificial freshes are most effective at discouraging periphyton growth when released every 20-50 days depending on natural flow variation, and are more effective if released at the time of a natural fresh. However, artificial freshes require a lot of water and so setting a required time interval between flushing events is problematic because it does not take into account potential scarcity of water at certain times of the year.
- 23.19. Artificial freshes become less effective as they move further from the dam. This means that small freshes are ineffective in the lower Opihi River whereas large freshes are effective down the length of the river. Officers agree with the view that PC7 is somewhat optimistic about what can be achieved with artificial freshes. Further minor adjustments to the Policies in PC7 are recommended to recognise this, along with the changes already recommended in the Section 42A Report to reduce the specificity of the artificial fresh regime.

Takes directly from Lake Opuha and transfers to the lake

- 23.20. Taking water directly from Lake Opuha has been suggested as an option that OWL has expressed that they may be interested in progressing further. There is currently 33 l/s of water taken directly from the lake, as reported in the hydrology joint witness statement. Any additional takes from the lake would reduce storage in the lake, in a similar manner to takes from lake tributaries. Provided these additional takes arise from the transfer of existing permits – which enables the Opihi FMU limits to be maintained, and are managed by OWL, the hydrological effects and effects on other OWL shareholders should be minimal.

- 23.21. At present, there is no allocation specifically for Lake Opuha in PC7, and this flexibility is therefore enabled. Including an allocation specifically for Lake Opuha would reduce this flexibility and is therefore not recommended.

Opihi Tributaries – “decoupling”

- 23.22. The term decoupling has been used in two ways throughout the PC7 process and different submitter evidence:
- 23.23. The first way it has been used is in reference to removing the need for mainstem minimum flows from consents on the tributaries. This would manage the tributaries semi-independently, and assumes that by protecting the instream values in the tributary, the mainstem will be protected. If this approach was taken there would be less of a need for any abstractors in the tributaries to hold shares in OWL as a mainstem minimum flow would not need to be met by these abstractors. PC7 does not include this approach, either in the notified or Section 42A Report versions.
- 23.24. The second way it has been used refers to shareholders in the tributaries choosing to sell their OWL shares if they considered that OWL is no longer able to provide them sufficient benefit to justify the cost of their shareholding. This would result in AA permit holders seeking to change to the AN allocation block, and BA permit holders seeking to change to the to the BN allocation block, if BN allocation is available.
- 23.25. Mr Mockford and Mr O’Sullivan for OWL raised the issue of consent holders no longer wishing to remain shareholders in OWL if minimum flows increase, particularly shareholders in the tributaries. Officers understand this risk to OWL would be greatest for AA abstractors who may not experience a large decrease in water availability by becoming AN abstractors. BA abstractors would receive a much higher mainstem minimum flow at SH1, effectively making them a high flow take. If the BN allocation is capped at the current allocation, BA consent holders would effectively be locked-in to their current shareholding arrangements, as there would not be available allocation in the BN allocation block.
- 23.26. Ms Johnson provided some supplementary evidence after the close of the hearing.¹⁸⁰ In this evidence Ms Johnson suggests various changes to allocation block sizes and the specification of separate allocation blocks for all allocations, as opposed to the way that some are combined in the existing planning framework and under PC7. In the Officers’ opinion, this has no hydrological basis, but does have the effect of disincentivising any shareholder from selling their shares. For example, if the table Ms Johnston proposes goes into the plan, the AN allocation will be deemed as full, this will mean that AA abstractors would be unable to transfer to AN without making this over allocated. Further, Ms Johnson proposes stacking the AN allocation block on top of the AA and BA takes, which would decrease the AN water availability and prioritise OWL shareholders without hydrological justification.

¹⁸⁰ Dated 14 December 2020.

- 23.27. AA and AN permits are abstractions which were authorised prior to the construction of Opuha Dam. AN abstractors chose not to purchase shares in OWL and were part of the existing consented environment when the dam was built. The proposal put forward in the supplemental evidence of Ms Johnson¹⁸¹ would make the flow regime for the AN allocation more restricted, and disincentivise AA abstractors from selling their shares. The flow-on effect of Ms Johnson's proposal is reducing the viability of abstractions that were in place prior to the dam being constructed. Officers do not support this proposal or outcome.

Minimum Flow Sites within Mackenzie District

- 23.28. MDC seeks that:

The location of the recorder sites for the purposes of the environmental flow and allocation regime is at a minimum in the same location for all permit holders (AA, BA, KIL, AN and BN).

The location of the recorder sites for MDC water abstraction is within the Mackenzie District in order to provide a direct and visible connection between the community as water users and environmental flows and flow restrictions.

- 23.29. As the Opihi Catchment crosses the Mackenzie District and Timaru District boundaries, the Officers consider that it will be difficult to achieve what MDC is requesting while still maintaining hydrologically suitable and representative minimum flow sites.
- 23.30. The existing minimum flow locations are considered to be suitable monitoring sites and are the locations where the most is known about hydrology and ecology. Moving the minimum flow monitoring sites would require establishing new minimum flows based on ecological values present at the new locations and would need significant time to collect hydrological records at the new locations, this could take many years to collect.
- 23.31. While there may be some benefits of increasing the visibility of minimum flow sites to users in the Mackenzie District, there is not enough hydrological justification to move the minimum flow sites to new location.
- 23.32. The request of MDC for all consents (AA, BA, KIL, AN and BN) to be monitored at the same location would require monitoring of affiliated consents to be moved to SH1 or monitoring of un-affiliated consents to be moved to Saleyards Bridge. Both options would present challenges. To move from SH1 to Saleyards would require calculation of a new unmodified flow. Moving from Saleyards Bridge to SH1 would increase the travel time for water released from Opuha Dam to the minimum flow monitoring location. This would likely have implications for management by OWL. Officers note that OWL (in paragraphs 4.4-4.7 of Ms Crossman's Evidence in Chief) support retaining both the SH1 and Saleyards Bridge minimum flow locations.

¹⁸¹ Dated 14 December 2020.

24. Quantity – Coopers Creek

- 24.1. The evidence presented at the hearing in relation to Coopers Creek was comprehensive and technical in nature, explaining and expanding on points made in submissions.

Justification for an additional sub-catchment for Upper Coopers Creek

- 24.2. A group of three submitters¹⁸² sought a new sub-catchment be established around their properties. In the Officers' opinion this does not have a hydrological or planning justification, as there is no physical reason why water movement would follow the boundary of the three submitters' properties. Managing these three properties and the associated consents in a different way to the other abstractors in the Upper Coopers Creek catchment increases the complexity for monitoring and creates two different allocation blocks for the Upper Coopers Creek with differing water availability.
- 24.3. In the Officers' opinion, treating all the consents in the Upper Coopers Creek catchment in a consistent way with the same minimum flow and allocation is more aligned with the hydrology and water movement within the catchment.

Estimates of 7DMALF for Coopers Creek at SH72

- 24.4. While Environment Canterbury has not calculated the 7DMALF for Upper Coopers Creek in the recent technical work for PC7, an estimate of 7DMALF was made by Burbery and Ritson (2010)¹⁸³ of 53 l/s. As the estimate of Burbery and Ritson was based on a limited number of gauging datapoints and ten years has passed since this estimate, an updated 7DMALF estimate would likely differ from the previous estimate.
- 24.5. Mr McIndoe's evidence recalculated the 7DMALF. An approach similar to that carried out by Mr McIndoe would likely be the method Environment Canterbury would use when extending the short flow record for Cooper Creek. Correlating the flows at SH72 with a nearby longer-term site provides the ability to estimate the 7DMALF with some confidence. Officers consider the 28 l/s in Mr McIndoe's evidence to be a reasonable estimate of the observed 7DMALF at SH72. The natural 7DMALF for this waterbody would likely be greater than 28 l/s.

The need for a minimum flow on Upper Cooper Creek

- 24.6. The submitters have sought management by way of an annual volume, rather than a minimum flow. If stream depleting consents were to be managed using an annual volume limit without a minimum flow, they would be subject to the same management approach as groundwater takes that are not considered to be stream depleting. This approach is not supported by the

¹⁸² M E Mulligan, I J Kerse and N S Kingston (PC7-384).

¹⁸³ Burbery, L., & Ritson, J. (2010). *Integrated study of surface water and shallow groundwater resources of the Orari catchment* (R10/36). Environment Canterbury. (R10/36)

stream depletion assessments that have been undertaken, which indicate a connection between these takes and Coopers Creek. This approach would also conflict with the principles underpinning the Orari Conjunctive Use Zone, a zone within which many of the Upper Coopers Creek consents fall.

- 24.7. Studies completed by Environment Canterbury (Peaver et al., 2017¹⁸⁴ and Burberry and Ritson 2010) highlight the interconnectedness of surface water in the Orari and Coopers Creek catchments. Failing to manage these abstractions at times of low flows ignores any short-term impacts of abstraction on Coopers Creek and only manages the cumulative (longer term) effects with an annual volume, and is therefore not recommended by the Officers.

Analysis of impacts based on actual usage and allocation not full usage

- 24.8. The expert evidence on behalf of M E Mulligan, I J Kerse and N S Kingston presents evaluations of the impacts of the submitters' groundwater abstractions on surface water hydrology and consequently ecology. The evidence of Mr McIndoe and Mr Hickey evaluates the effect of the historic use, not the potential full use, of the water authorised by the submitters' consents. This underestimates the impact that these abstractions could have on Cooper Creek.
- 24.9. There are six bores associated with these submitters' consents, which all have water meters. The length of these records varies, but generally start in the 2011/2012 season. Well K37/0773 has the shortest record.
- 24.10. Water use data for these wells has been aggregated together to indicate the total water abstracted from the Upper Cooper Creek sub-catchment by the submitters. Officers acknowledge that metering data was not available for all bores in the earlier years of this data set, however this is the best available data for water usage in the Upper Coopers Creek.
- 24.11. The sum of water authorised to be taken under the three submitters' consents is 234 l/s. The water usage data suggests that the submitters' usage is much less than their allocated maximum rates. This aligns with other metering data within Canterbury. The water usage reflects a combination of climatic demand, irrigation management and minimum flow restrictions at the time.

¹⁸⁴ Peaver, L., Kaelin, N., & Durney, P. Trewartha, M. (2017). *Groundwater-surface water interaction in the Coopers Creek catchment* (R17/3). Environment Canterbury.

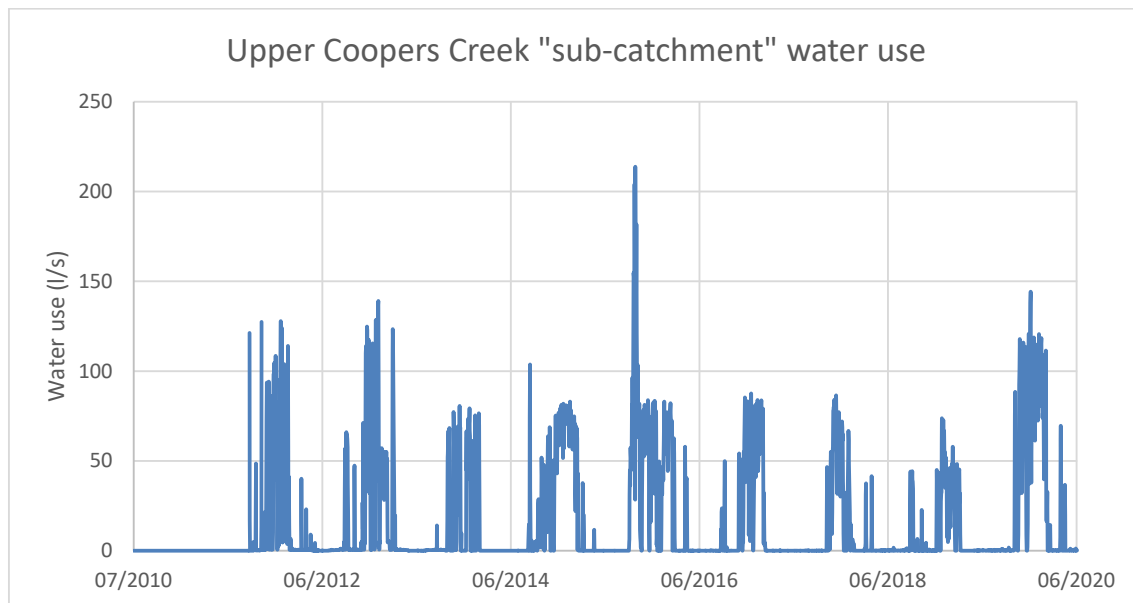


Figure 2. Upper Coopers Creek “sub-catchment” water use.

- 24.12. As water usage is consistently less the allocated amount, the consent holders may be able to increase their usage beyond what has occurred in the past. For this reason, Officers consider it is important that the flow regime is set at a level that ensures instream values are protected if consent allocations are fully used.
- 24.13. The effects of abstraction based on previous usage reported by Mr Hickey and Mr McIndoe are likely to underestimate the possible effects which can occur if consent holders utilise their existing consents in a different way.

Suitability of the minimum flow site for Upper Coopers Creek

- 24.14. Coopers Creek previously had a flow recorder near the spring heads at Mulligan’s weir. This site was removed, and the current recorder was installed at SH72. The site was moved from Mulligan’s weir as this site had ongoing issues, particularly with weed growth affecting the reliability of flow estimates.
- 24.15. Flow records are produced using a relationship between water level at a site and gauged flows, known as a rating. This rating is then used to convert the measured water level record into a flow record. When weeds grow in the channel the relationship between water level and flow changes, as weed in the channel decreases the water velocity and increases the depth.
- 24.16. The site at SH72 is less affected by weed growth and therefore allows for a more reliable flow record than was achievable at Mulligans weir. For this reason, the Officers consider SH72 is a more suitable site for monitoring the minimum flows on Coopers Creek.

Upper Coopers Creek allocation

- 24.17. The Orari Conjunctive Use Zone was created to acknowledge the interconnected nature of shallow groundwater and surface water near to the Orari River. This zone has some area overlap with the Upper Coopers Creek Catchment and the Upper Coopers Creek sub-catchment proposed by the submitters. All takes are within the Orari Conjunctive Use Zone so, by default, are to be treated as directly connected under the PC7 provisions (this element is largely unchanged by PC7, with this framework having been in place for some time)¹⁸⁵.
- 24.18. In the evidence in chief of Ms Johnston, she classifies consent CRC192454 as a having a High stream depletion effect and including 41.48 l/s in the allocation.¹⁸⁶ Treating this as directly connected as per the Orari Conjunctive Use Zone definition, means that the full 78 l/s should be accounted for within the allocation block. While some field assessment of the degree of hydraulic connection appears to have been undertaken in the past, Officers do not consider it meets the threshold of “demonstrated through field testing in accordance with Schedule 9”.
- 24.19. The below table reflects the current consents within the Upper Coopers Creek allocation. The sum of the A allocation for Upper Coopers Creek is rounded to 253 l/s, including 0.94 l/s allocated for community supply.

Table 2. Current consents within the Upper Coopers Creek allocation.

Consent No.	Maximum Rate	Stream depletion effect	Comment	A block (l/s)	Community supply takes (l/s)
CRC981979.1	80	Direct	Combined 80 l/s from K37/0773 and K37/1300	80	
CRC192454	76	Direct	Prior to July 2021 this has a max rate of 35 l/s	76	
CRC194832	78	Direct	Sum of 78 l/s from K37/0668, K37/0656 and K37/0871	78	
CRC962478	13	Direct		13	
CRC031790	5	Direct		5	
CRC970137.3	13	High	Public water supply at DOC camp		0.94
			Total	252	0.94

Implications of removing the Upper Coopers Creek allocation from the Orari Allocation

- 24.20. As Coopers Creek is a tributary of the Orari River, under the CLWRP its allocation is captured within the wider Orari Catchment limit. As PC7 separates the Upper Coopers Creek Catchment

¹⁸⁵ This default assumption is in the definition of the Orari Conjunctive Use Zone. The Officers considered moving this part of the definition to a policy, but there is no submission seeking this kind of change.

¹⁸⁶ Evidence in chief of Ms Johnston, on behalf of M E Mulligan, I J Kerse and N S Kingston, paragraph 38(b).

from the Orari Catchment and sets its own limit, the allocation limit for the Orari Catchment was reduced by the size of the Cooper Creek allocation. This ensures that the Orari Catchment does not become over allocated.

- 24.21. Accounting for the updated Upper Coopers Creek allocation in the table above, the Orari allocation for A consents (in Table 14h)) would become $1400 \text{ l/s} - 253 \text{ l/s} = 1147 \text{ l/s}$.

Request for a new allocation block above the Orari Gorge

- 24.22. In its submission, Rooney Farms Ltd opposed the combined flow recorder site on the Orari River at 'Upstream Ohapi', and sought a separate small A allocation block to accommodate the existing water takes (110 L/s) above the Orari Gorge. The submitter requested that these takes be subject to current consent minimum flow restrictions. Rooney Farms Ltd considered that this separate allocation block would be a fairer and simpler way to achieve the desired objectives of protecting the natural values associated with the Gorge, rather than the whole-of-catchment allocation block and minimum flow site.
- 24.23. Mr Draper and Ms Johnston presented evidence in support of the submission of Rooney Farms at the hearing. The Hearing Panel requested the Officers assess the merits of the submitter's request for a separate allocation block above the Orari Gorge.
- 24.24. Officers do not consider that the evidence presented provided any sufficient hydrological reasoning as to why the upper Orari River catchment should be managed independently of the lower catchment. While the significant values of the upper Orari catchment are recognised with a high naturalness classification, it is not hydrologically separate. Officers consider it would be inappropriate, and inconsistent with Te Mana o te Wai, to set a separate allocation block for the upper catchment by capping the current allocation and retaining historic minimum flows. The discussion the high naturalness classification below at section 26 of this Report is also relevant here. Therefore, Officers retain the position reached in the Section 42A Report¹⁸⁷, and do not recommend adopting the relief sought by Rooney Farms Ltd.

Recommendations

- 24.25. Adjust Table 14(h) to show A Permit allocation limit for the Orari River as 1147 l/s and for Coopers Creek as 253 l/s.

¹⁸⁷ Paragraph 6.55 on page 296 of the Section 42A Report.

25. Efficient Use of Water

- 25.1. PC7 introduces several policies for the OTOP sub-region related to the efficient use of water¹⁸⁸. These policies apply in addition to region-wide policies 4.65 to 4.69.
- 25.2. Policy 14.4.12 directs that the volume and/or rate of water allocated to any replacement water permit for irrigation is restricted to a volume/rate that reflects past use, determined in accordance with Method 1 of Schedule 10. AA, BA and Kakahu permits are explicitly excluded from the application of the Policy.
- 25.3. Federated Farmers submitted in opposition to Policy 14.4.12, as it disagreed with the determination of allocation based on past use records and considered that previous use does not necessarily indicate irrigation demand in a dry year. It requested that the full range of methodologies in Schedule 10 be available, rather than solely Method 1. Other submitters sought the inclusion of a new policy in the Plan, to support the renewal of existing consents, due to their existing investment and reliance on irrigation.
- 25.4. No changes were recommended in the Section 42A Report in response to these submissions, as Officers considered that restricting renewals to past use is an effective and efficient method to reduce overallocation in the OTOP sub-region, primarily through the removal of “paper allocations”. Specifically, in response to Federated Farmers’ concerns, Officers noted that all methods in Schedule 10 of the CLWRP constrain volumes to that required to meet demand in 9 out of 10 years.
- 25.5. Dr Hume, on behalf Federated Farmers, presented evidence on Policy 14.4.12 at the hearing. Dr Hume is of the view that, with regard to effective and efficient use, the most efficient and effective approach is to allocate the amount of water that is actually needed for reasonable use. Further, Dr Hume considers that allocation using any of the methods in Schedule 10 will facilitate reasonable and efficient use and remove “paper allocations”.
- 25.6. In response to the evidence heard, Officers note that the intent of Policy 14.4.12 is to ensure that, by constraining annual volumes to Method 1 of Schedule 10, any water that is un-used will not be re-allocated. Effectively, this means that Method 1 will provide less volume on renewal of water permits where the holder of the permit has been allocated more than is required, or the activity they use water for has changed since the consent was originally granted.
- 25.7. For example, if the permit holder is irrigating the total area authorised under their water permit with 80% efficiency, Method 1 should result in a very similar volume to Methods 2 or 3. However, if a permit holder is irrigating less area than specified in their water permit, or is irrigating a different type of crop, or is essentially ‘sitting on’ unused water, they will be re-allocated a lesser amount.

¹⁸⁸ Policies 14.4.10, 14.4.11 and 14.4.12.

- 25.8. As briefly mentioned in Dr Hume’s evidence, the use of Method 1 has been discussed previously during other CLWRP hearing processes. Officers note that many of those opposed to its use during past hearing processes considered the lack of water use data as being a key limitation. While water use data may have been limited in Canterbury in the early CLWRP hearings, there has been substantial progress on water metering since then. The Resource Management (Measurement and Reporting of Water Takes) Regulations came into effect in 2010 required meters on takes of 20 l/s by November 2012, those over 10 L/s by November 2014 and those over 5 L/s by November 2016.
- 25.9. Therefore, Officers consider that the use of Method 1 should now be the preferred method for renewals under Schedule 10, with the other methods only being used for new takes, takes under 5 L/s or extenuating circumstances.
- 25.10. Given the above, Officers do not recommend any further changes to Policy 14.4.12.

26. High Naturalness Waterbodies

- 26.1. The Bonifacio Family Trust and Springfield Partnership Ltd both submitted on the extent of the proposed boundary for the Milford Lagoon and Orakipaoa Creek High Naturalness Waterbody in Section 14.8.
- 26.2. Springfield Partnership Limited sought to amend the boundary to cover the area “from the mouth of the Lagoon to the confluence of the Orakipaoa and Burke Creek”. It submitted that since Taumatakahu Stream was diverted into the Temuka River and no longer follows this channel, the section between Orakipaoa Island Road and the confluence with Burke Creek is no longer of High Naturalness.
- 26.3. The Bonifacio Family Trust submitted that the upper boundary of the Milford Lagoon and Orakipaoa Creek High Naturalness Waterbody should extend only as far as the Milford Lagoon Road, and not to Orakipaoa Island Road as notified. It considered that the section above Milford Lagoon Road could not be classified as being of High Naturalness. However, no further reasoning was provided by the submitter.
- 26.4. No changes to the extent of the boundary of the Milford Lagoon and Orakipaoa Creek High Naturalness Waterbody were recommended in the Section 42A Report in response to these submissions, as limited information was provided by submitters to support the specific relief requested.
- 26.5. During the hearing, Springfield Partnership Ltd tabled photographs showing the confluence of the Orakipaoa Creek and Burkes Creek. It explained that the Orakipaoa Creek upstream from the confluence is severely overgrown with grass and willows, since the Taumatakahu Stream no longer flows down this channel, and therefore does not fit a “High Naturalness Waterbody” classification.

- 26.6. High naturalness waterbodies are defined in the CLWRP as “...those *hāpua*, wetlands and natural state waterbodies which are considered to have outstanding or significant characteristics...”. Natural state waterbodies are defined in the CLWRP as “...*rivers, lakes and wetlands within land administered for conservation purposes by the Department of Conservation.*” Milford Lagoon is managed as a conservation area under the Conservation Act 1987 and therefore meets the definition of a natural state waterbody.
- 26.7. Section 14.8 identifies Milford Lagoon and Orakipaoa Creek as having the following outstanding and significant characteristics:
- a. high cultural significance to papatipu rūnanga; and
 - b. high ecological and biodiversity values.
- 26.8. Both the Rūnanga Sensitive Area¹⁸⁹ and Statutory Acknowledgement Area associated with the Milford Lagoon and Orakipaoa Creek wetland system do not extend beyond the confluence of Burkes Creek and Orakipaoa Creek. According to Environment Canterbury’s GIS database, there are also no mapped wetlands, identified by DOC or Environment Canterbury, beyond this confluence.
- 26.9. Officers consider that the evidence presented by Springfield Partnership Ltd supports adjusting the inland boundary of the high naturalness waterbody to the confluence of Burkes Creek and Orakipaoa Creek. Given the above, Officers recommend that the boundaries of the Milford Lagoon and Orakipaoa High Naturalness Waterbody in Section 14.8 be amended as per the Officers’ final marked-up version of PC7.
- 26.10. Officers have also further considered the rule framework that was suggested in response to questions from the Hearing Panel on the first day of the hearing to enable the renewal of abstractions from newly created high naturalness waterbodies. Officers now consider that a further simplification could occur through an adjustment to Rule 14.5.4, rather than an entire new rule. Such an adjustment is shown in the Officers’ final marked-up version of PC7. The outcome from the simplification is identical to the new rule proposed earlier.
- 26.11. Rooney Farms Limited also presented evidence on the difficulty of renewing a water permit from a different high naturalness waterbody, due to the clear intent of existing Policy 4.6 of the CLWRP. Officers consider that as this is an existing high naturalness waterbody (it was not added or altered through PC7) and as Policy 4.6 is an existing ‘strategic policy’ of the CLWRP, a comparatively high level of justification should be required. A simple reversal of Policy 4.6 is not recommended. Officers also note that at the time the original resource consent was applied for, the then proposed Natural Resources Regional Plan identified this waterbody as a High Naturalness Waterbody and set a non-complying activity status. Overall, Officers are not persuaded that a simple reversal of this policy or high naturalness status is justified.

¹⁸⁹ Rūnanga Sensitive Areas are included in Canterbury Maps to highlight where there are Ngāi Tahu cultural values that may be sensitive to adverse effects. They are a guide only, but provide some more direction for the public in relation to likely areas of concern. These areas are not mapped or otherwise referenced in PC7 or the CLWRP.

Recommendation

- 26.12. Amend Rule 14.5.4 to not preclude the renewal of existing surface water takes from Milford Lagoon and Orakipaoa Creek High Naturalness Water Bodies.
- 26.13. Amend the inland boundary of the Milford Lagoon and Orakipaoa High Naturalness Waterbody to the confluence of Burkes Creek and Orakipaoa Creek.

27. Out of catchment water

- 27.1. Federated Farmers submitted on Policy 14.4.14 requesting clarification that the intent of the Policy related to the introduction of water from outside of the “OTOP Zone”, rather than between “catchments” within the sub-region.
- 27.2. In the Section 42A Report, the Officers clarified the basis for the policy as the OTOP ZIPA, and their interpretation that the Policy related to water being sourced from outside the sub-region. However, Officers also noted that, although the introduction of water from outside the catchment was discussed as a potential option for the OTOP sub-region, it was never adopted into the final flow and allocation regimes notified in PC7 (which must occur in order for introduced water to be abstracted in accordance with Policy 4.56 of the CLWRP).
- 27.3. Officers noted that if out of catchment water cannot be brought into the sub-region and discharged to a waterbody without another plan change, then Policy 14.4.14 had limited value over and above the guidance already provided in region-wide policies 4.55 and 4.56, with the exception of focussing on the views of tangata whenua. As such, amendments to Policy 14.4.14 were recommended to focus on this, in addition to the matters in Policy 4.55.
- 27.4. Federated Farmers oppose this recommendation. In their evidence, it considers that the primary reason for the Officers’ recommendations for Policy 14.4.14 was based on the view that *“there was, and is currently still not, a reliable and certain proposal to bring out of catchment water into the OTOP sub-region”*¹⁹⁰. Federated Farmers note that the CWMS references the introduction of water into the sub-region from Lake Tekapo, and that there have been specific proposals to do so as recently as 2016¹⁹¹. On this basis, Federated Farmers request a continued reference to the introduction of water from outside the “OTOP Zone”, and that Policy 14.4.14 be retained in amended form as requested in their submission.
- 27.5. In response to Federated Farmers, Officers acknowledge that there have been discussions, and proposals, concerning the introduction of water from outside of the sub-region. However, as mentioned in the Section 42A Report, no such proposals are accounted for in the flow and

¹⁹⁰ Paragraph 4.101 on page 266 of the Section 42A Report.

¹⁹¹ Federated Farmers reference a proposal by the Central South Canterbury Water Steering Group to pipe water from Lake Tekapo for irrigation in South Canterbury.

allocation limits within Part B of PC7, and as such, it is not the intent of the plan change to provide a specific framework for an activity of this kind.

- 27.6. In its submission, Genesis sought the inclusion of a new policy and rule to prohibit the use of water sourced from the Upper Waitaki Catchment, raising concerns with the impacts of out of catchment water transfer proposals on hydro-electricity generation. Dr Mitchell, on behalf of Genesis, considers these provisions are required to give effect to the NPSREG and to maintain the generation output of the Tekapo Power Scheme. While acknowledging Genesis' concerns, given that a plan change would be required to enable such an activity anyway, Officers doubt there is any value in including the requested provisions in the Plan.
- 27.7. Officers do not consider that the Section 42A Report recommendations for Policy 14.4.14 are any more restrictive or limiting of proposals seeking to introduce water from outside of the OTOP sub-region, as any such application would still be subject to the region-wide policies, including Policy 4.56 which would require a plan change to cater for the activity. It is also noted that Ms Davidson, on behalf of Ngā Rūnanga, supports the Officers' conclusions for Policy 14.4.14 in the Section 42A Report¹⁹².
- 27.8. Given the above, the Officers do not recommend any further amendments to Policy 14.4.14.

28. Community Supplies

- 28.1. Barkers Fruit Processing Ltd lodged a submission seeking recognition of their food processing activities as a community supply take through a bespoke definition.¹⁹³ This was considered, and a recommendation was made against this approach, in the Section 42A Report.
- 28.2. At the hearing, the submitter did not pursue this relief, primarily based on an email exchange with Environment Canterbury, to the effect that Environment Canterbury staff considered that the submitter's water take would qualify as a community water supply.
- 28.3. Officers do not necessarily agree with this interpretation, as a critical part of the definition is that the water supply must be "primarily for community drinking-water supply". Officers are unsure of the evidential basis for concluding that the Barkers Fruit Processing water take meets this definition. Ultimately, such a decision will need to be made if and when an application is made under Rule 5.115 and presumably it will be incumbent on the applicant to show how its take fits that definition and thereby that Rule 5.115 is the appropriate rule to consider.
- 28.4. Whether or not the email advice is correct, Officers maintain their view that an industrial/processing water take should still be subject to minimum flows, levels and allocation blocks, as with any other take primarily for commercial process.

¹⁹² Evidence in chief of Ms Davidson, on behalf of Ngā Rūnanga, paragraph 252.

¹⁹³ PC7-391.2.

29. Augmentation of Seadown Drain

- 29.1. A number of submitters appeared and presented evidence relating to connected ground water takes in the vicinity of Seadown Drain, and (among other things) requested the enabling of augmentation of that drain through a supportive policy and rule. Augmentation would have the effect of offsetting the effects of the connected ground water takes, and Officers understood that very little, if any, surface water was taken directly from the drain, and that that would continue to be the case.
- 29.2. Officers agree in principle that augmentation of the drain would be a positive outcome. However, Officers are concerned about the relatively poor quality of the water that discharges from the drain into the Washdyke Lagoon, which is a sensitive and degraded receiving environment. Monitoring data indicates that there is a comparatively high N concentration in Seadown Drain water which is likely to contribute to poor water quality in the lagoon.¹⁹⁴
- 29.3. On this basis, the quality of the water used for augmentation will be important, particularly as the submitters mentioned that irrigation by-wash water may be available. In the Officers' experience, irrigation by-wash water often has a high N load, as well as other contaminants. Officers are supportive of a policy that enables augmentation of the drain, provided the quality of the water used for augmentation is measurably better than the water in the drain, the water is not subsequently abstracted and, as Seadown Drain is part of the Waitarakao Mātaitai, that the views of tangata whenua are respected. Such a policy has been included in the Officers' final marked-up version of PC7.¹⁹⁵ The region-wide rules are likely to classify the activity as a discretionary activity.
- 29.4. The Hearing Panel also requested clarification as to whether the "Ryder Report"¹⁹⁶ was available and considered at the time of setting the minimum flow. Officers can confirm that the Report was available and was considered. While it is possible to use a minimum level, rather than a minimum flow, a minimum flow is the preferred measurement basis for this drain. This is because the level is often affected by the substantial weed growth in the drain, which can artificially increase the level as the flow becomes increasingly impeded – it is possible for the flow to be declining over summer months while the water level is increasing.
- 29.5. Management of the drain will also impact on water availability if a water level is used for triggering restrictions. For example, if drain clearance occurs and the weed is removed the water level may drop to a level which puts abstractors into restriction. Conversely not removing weed from the channel will improve water availability for abstractors. Overall,

¹⁹⁴ Hayward, S., Clarke, G., Dynes, K., Barnden, A., Arthur, J., & Barbour, S. (2019). *Orari, Temuka, Opihi and Pareora Zone: state and trends in water quality and aquatic ecology* (R19/70). Environment Canterbury.

¹⁹⁵ Recommended new Policy 14.4.41A

¹⁹⁶ Goldsmith, R. & Ryder, G., (2016). *Seadown Drain minimum flow requirement assessment*, Ryder Consulting Ltd for Irricon Resource Solutions Ltd.

minimum flow is the more common and preferred management trigger throughout the region.

- 29.6. Officers note that one of the critical elements is the contribution of freshwater from the drain into the Washdyke Lagoon, as the ultimate receiving environment. The contribution from Seadown Drain is important to functioning of the Lagoon, and on that basis, Officers do not support any reduction or risk of reduction of this contribution through a different flow measurement method.

30. Groundwater Specific Provisions

Swap provisions

- 30.1. In the Section 42A Report, the Officers recommended that the T Allocation Block for the Orari-Opihi GAZ, and associated provisions, be deleted on the basis that existing abstraction from this zone already exceeded the plan limits, and the proposed framework would enable further overallocation of groundwater, which would be inconsistent with the NPSFM 2017¹⁹⁷, CRPS and CLWRP.
- 30.2. Evidence in chief from several parties¹⁹⁸ raised concerns with the classification of the Orari-Opihi GAZ as overallocated based on the accounting methodology used by Environment Canterbury at the time, particularly in relation to how stream depleting takes are accounted for. They concluded that the Orari-Opihi GAZ could only be regarded as overallocated if there was double counting of groundwater and surface water allocation occurring, and considered that there was a lack of clarity on this matter in the Section 32 and 42A Reports.
- 30.3. On 23 September 2020, a Memorandum¹⁹⁹ from Mr Clark was filed (the Memorandum), addressing the differences in groundwater allocations in the OTOP sub-region that exist between the OTOP RCI and the ECan Water Data Programme (the new method). The new method was developed to provide a consistent way of reporting water quantity allocation against limits across Canterbury, and has been approved for use as a tool for catchment accounting under the CLWRP across Environment Canterbury.
- 30.4. To briefly summarise, the new method will result in groundwater allocation being available in both the Levels Plains and Orari-Opihi GAZ, both of which were previously deemed as overallocated in the OTOP RCI. Differences in allocation primarily arise from an updated approach to discounting volumes associated with stream depleting groundwater. Current groundwater allocation for OTOP under the RCI and the new method is reported in Table 1 of the

¹⁹⁷ And now the NPSFM 2020.

¹⁹⁸ Including Fonterra, Orakipaoa Water Users and TCG.

¹⁹⁹ *Differences in groundwater allocations between the OTOP RCI and the Water Data accounting tool: Description, implications and possible solutions.* Attached to 'Memorandum of Counsel on behalf of the Canterbury Regional Council (23 September 2020).

Memorandum. For ease of reference, the rows for the Levels Plains and Orari-Opihi GAZs are repeated below:

Table 3. Extract from ‘Table 1: Current allocation as reported in the RCI and using the catchment accounting methodology (27 July 2020)’ of the Memorandum.

GAZ	Existing Allocation Limit	Current Allocation RCI	% Allocated	Current Allocation New Method	% Allocated
Levels Plains	32.90	48.60	147.7	26.13	79.4
Orari-Opihi	71.10	85.20	119.8	64.22	90.3

30.5. Mr Clark sets out three potential solutions in the Memorandum to resolve issues arising from new allocation becoming available in these GAZs. These options are summarised and set out as follows:

- i. **Option 1** – Retain the existing limits for the Levels Plains and Orari-Opihi GAZs. As the new method indicates allocation in these zones is below the existing limits, additional allocation is “freed up”, and could potentially be applied for on a “first in, first served” basis.
- ii. **Option 2** – Cap the Levels Plains and Orari-Opihi GAZ allocation at current abstraction based on the new method, which would prevent any further allocation but would not provide a pathway for the substitution of surface water or stream depleting takes.
- iii. **Option 3** – Retain the total existing GAZ limits for the Levels Plains and Orari-Opihi GAZs but split these into A and T Allocation blocks, with the A Allocation block being the discounted allocation resulting from the new method, and the remaining volume being assigned as T Allocation.

30.6. As this information was filed following the Section 42A Report, previous responses to the Hearing Panel, and initial circulation of evidence, several submitters addressed the updated allocation and the content of the Memorandum in further pre-circulated material and presentations over the course the hearing.

30.7. It is evident from the hearing that, in relation to the issues and potential solutions identified above, submitters now sit in one of two camps – one which supports the management of groundwater under single A Allocation blocks, and another which seeks to retain separate T Allocation blocks where appropriate. However, for reasons discussed below, it is noted that all parties seek similar outcomes.

30.8. Fonterra and DHL sit in the former camp, and consider that the use of single allocation blocks is a more effective management approach. However, rather than opening up the additional allocation in the Orari-Opihi GAZ to any users on a “first in, first served” basis, Fonterra

consider that it would be more appropriate to restrict this allocation to replacement takes, and to takes that surrender a surface water take or stream depleting groundwater take.

- 30.9. Ms Johnston, on behalf of Orakipaoa Water Users and TCG, supports the provision of T Allocation blocks for the Orari-Opihi GAZ. Following questioning at the hearing, the reasons for this position were identified as seeking a pathway for those users with existing stream depleting groundwater takes or surface water takes to swap to deep groundwater, while recognising that this may not be an option for all users due to difficulties in obtaining a reliable deep groundwater source and associated costs. Ms Johnston also considers this approach to be more consistent with the intent of the OTOP ZIPA.
- 30.10. The Hearing Panel subsequently requested that the Officers identify their preferred approach for groundwater allocation within the sub-region in light of the updated allocation.
- 30.11. Following review of the evidence, and consideration of potential options moving forward, Officers are of the view that “Option 3” above, of A and T allocation blocks for the Orari-Opihi GAZs would be the most effective and sustainable management approach. A “T” Block was not proposed in PC7 for Levels Plain, and as the issues in that GAZ are different, a “T” block is not proposed now. Officers agree with the position advanced by Fonterra, that any further abstraction of water from the Orari-Opihi GAZ (within the existing plan limits) should be restricted to replacements of lawfully established takes and those substituting existing surface water and/or stream depleting groundwater takes with low stream depleting takes. However, the Officers consider that from a planning perspective this is most easily and effectively achieved with A and T blocks, rather than a single A block with rules that limit any additional takes from that block, and is a mechanism used successfully in other sub-regions, which enables further Plan consistency. Hydrologically there unlikely to be any difference in outcomes.
- 30.12. Officers consider that retaining a pathway for surface water and/or stream depleting groundwater abstractors to substitute takes for low depleting groundwater is a useful tool for reducing surface water allocation in the over-allocated Temuka catchment.
- 30.13. Despite the Officers’ overall recommendations in the Section 42A Report to delete the groundwater swap provisions (including the associated policies and rules²⁰⁰), the Officers provided an assessment of submissions on these provisions for completeness, particularly in the event that the Hearing Panel chose to retain a framework for swaps within the OTOP sub-region.
- 30.14. As the Officers now recommend this framework be reinstated for the reasoning provided above, the relevant policies and rules which implement this framework are also recommended to be reinstated. The Officers’ final recommendations for these provisions can be found in the Officers’ final marked-up version of PC7.

²⁰⁰ Policies 14.4.7 – 14.4.9 and Rules 14.5.7 – 14.5.9.

Recommendation

- 30.15. Reinstate the T allocation block and associated Policies 14.4.7-14.4.9 and Rules 14.5.7-14.5.8 (with amendments identified above).
- 30.16. Add a new Rule 14.5.7A, in line with other similar rule regimes in PC7, that enables consideration of applications where bore interference effects are ‘unacceptable’, but written approval has been obtained.

Policy 14.4.25 and Orari Conjunctive Use Zone

- 30.17. In its submission, Fonterra considered it unnecessary and inappropriate to apply minimum flow restrictions on groundwater takes with moderate stream depletion effects, as it considered that lag times associated with moderate stream depleting effects are such that applying minimum flow restrictions has little, if any, benefit in protecting ecosystem health at times of low flow. As such, Fonterra sought an amendment to Policy 14.4.25 to refer to the take not having a “*direct or high*” degree of stream depletion effect, rather than “*direct, high or moderate*”.
- 30.18. The Section 42A Report recommended the rejection of this relief, with the reasoning that surface water and groundwater resources in the Orari Conjunctive Use Zone are considered to be overallocated and the ZC process identified that further refinement of the groundwater provisions, including connectedness to surface water would assist in addressing this over allocation.
- 30.19. In light of the evidence from Mr Willis and Mr Thomas on this matter, Officers agree that applying minimum flow restrictions on moderately stream depleting takes will not result in any material benefits to stream flows, or address over allocation, and would be inconsistent with the approach set out in Schedule 9 of the CLWRP, and currently used throughout Canterbury. Therefore, Officers recommend that the relief sought by Fonterra for Policy 14.4.25 be accepted.

Change in stream depletion methodology (30 to 150 day assessments)

- 30.20. At the hearing, Mr Lundie presented comprehensive evidence on the implications the stream depletion rules, and the impacts a subsequent BN consent classification under PC7 would have on his irrigation consent and farming activity.
- 30.21. As discussed in the Section 42A Report, Mr Lundie has identified that under PC7 his take will shift from being an unrestricted groundwater take to a stream depleting groundwater take, and subject to minimum flow restrictions.
- 30.22. Mr Lundie seeks a bespoke rule for those abstractors previously deemed to not be hydraulically connected but affected by the change from the 30-day to 150-day stream depletion assessment.

- 30.23. Mr Lundie’s situation highlights the interaction between having an annual volume which provides some certainty of having sufficient volume for nine out of ten years (as per Schedule 10 of the CLWRP) and that same volume resulting in an allowable average rate of take over 150 days that triggers minimum flow restrictions based on stream depletion effects (under Schedule 9 of the CLWRP).
- 30.24. Officers consider that Mr Lundie could apply to vary the annual volume on his consent, or add a separate 150-day annual volume, which would reduce his stream depletion effect below the threshold which requires a minimum flow. If Mr Lundie wishes to avoid a minimum flow by reducing the annual volume on his consent, and therefore average rate of take and stream depletion effect, he may not have sufficient volume to meet his demand in nine out of ten years.
- 30.25. Physical stream depletion testing may also result in an improved understanding and different degree of connection between Mr Lundie’s take and the Te Ana Wai. This may result in a higher or lower degree of connection with the river. Physical testing and adjusting 150-day volume limits may also be a solution for other newly identified BN stream depleting groundwater takes. Overall, Officers consider there may be ways Mr Lundie can manage this issue that do not need a response in the Plan. As each similarly affected consent holder is in a different position, the options available to each are likely to be different.
- 30.26. The Hearing Panel requested Officers provide wording for a bespoke rule, as requested by Mr Lundie. Wording as requested is set out below. However, Officers generally retain the position reached in the Section 42A Report on this matter. In part, the introduction of bespoke provisions to manage these situations would be difficult to implement in a consenting context due to the variability in existing consents. However, the more significant implication is that many of these waterbodies are overallocated and reduction of overallocation needs to be achieved at every opportunity – creating bespoke rules for each situation may give an unjustified expectation that consents are able to be renewed on essentially the same terms and conditions. The possible bespoke rule framework is an addition to condition 1 of Rule 14.5.9:
1. For stream depleting groundwater takes with a direct or high stream depletion effect, the take, in addition to all existing consented takes does not result in an exceedance of any minimum flow in Tables 14(h) to (za), **except that this condition shall not apply to a take that was granted with moderate or low stream depletion effect under 30-day stream depletion assessments and is reclassified to direct or high under a 150-day stream depletion assessment**; and

Other matters

- 30.27. Mr Willis, in his evidence in chief on behalf of Fonterra, seeks amendments to the groundwater take and use rules to clarify the application of Rules 14.5.9 to 14.5.11 in certain situations. Mr Willis considers that there is a lack of clarity in the drafting of these rules which

may result in confusion for plan users, particularly when determining the correct activity status.

- 30.28. Officers do not agree with Mr Willis’ concerns about these rules, and consider that they are adequately clear for plan users to determine the situations in which certain conditions are applicable, and the appropriate activity status. Therefore, while Mr Willis’ proposed amendments do capture the correct application of the provisions, Officers consider that this relief is largely unnecessary.

31. Quality – Nutrient Management

Fairlie Basin HNCA delineation

- 31.1. The evidence provided by the Upper Opihi-Opuha Catchment Group requested that nitrogen loss reductions not be required in the Fairlie Basin HNCA until the effects of land users farming to GMP (required from 1 July 2020) can be measured, and then only if necessary. Officers acknowledge that the use of modelling to inform regulatory changes is a source of frustration for land users. However, use of modelled data to inform decision making is consistent with the NPSFM 2020 which directs use of the best available information, and avoiding delays in decision-making on the basis of uncertainty. In this instance the provisions have been informed by modelling of the effects of farming at GMP in that area, which indicates that further nitrogen loss reductions will be required for groundwater quality to meet the target nitrogen concentration set in PC7. For this reason, the Officers recommend no changes to the extent of the Fairlie Basin HNCA and associated reductions.

Rangitata Orton HNCA delineation

- 31.2. DHL presented evidence to support their submissions to reduce the spatial extent of the Rangitata Orton HNCA, and in particular the exclusion of the area currently classified as a Green NAZ (meets water quality outcomes) under the operative CLWRP. The Hearing Panel requested that Officers respond to Mr Thomas’ evidence on this matter, in particular Figure 7 in his statement of evidence. This issue was also raised by DHL, Pye Group and RSIL. The technical response to Mr Thomas’ evidence is provided by Mr Rosado, Ms Scott and Ms Hayward in a memorandum at Appendix F of this report. Officers also note that Ms Christensen’s evidence for Fish & Game considers the water quality in McKinnons Creek and agrees that it is appropriate to retain the notified HNCA.
- 31.3. Officers acknowledge that changing from a Green NAZ where the area is zoned as ‘Meets Water Quality Outcomes’ to requiring nutrient reductions is a significant regulatory shift. The NAZs were proposed as part of the notified CLWRP in 2012 and made operative without amendment. The zones were based on the data and technical analysis available at that time. The NAZs were always intended to be progressively replaced by sub-region specific nutrient allocation frameworks as chapters of the CLWRP were reviewed. This process is detailed in section 2.7 and Policy 4.9 of the CLWRP. In the intervening years monitoring has continued in

the Rangitata Orton area, which informed the provisions and HNCA map delineation in PC7. In the Officers' opinion, the 2012 NAZs should be given low weight in informing the nutrient allocation framework established by the PC7 process. Instead, it is appropriate to rely on current monitoring and technical advice²⁰¹ which identifies a need for the notified Rangitata Orton area to make N reductions to meet water quality targets.

31.4. Officers recommend that the Rangitata Orton HNCA is retained as notified.

Levels Plain HNCA delineation

31.5. Timaru DC requested expansion of the Levels Plain HNCA to include specified CDWPZs beyond the north western corner of the proposed HNCA. Ms Galbraith and Mr Harper provided evidence to support this, and Ms Galbraith answered questions from the Hearing Panel on the matter. Officers note that the CDHB also requested this expansion of the Levels Plain HNCA in their submission but did not provide expert evidence or speak at the hearing. Neither submitter supplied a suggested boundary for the HNCA as part of their submissions or evidence.

31.6. In her evidence Ms Galbraith expressed particular concern with the nitrate-nitrogen levels recorded in community drinking supplies near Pleasant Point, and groundwater quality monitoring well J38/0242. The location of the wells and the nitrate-nitrogen monitoring data are attached to Ms Galbraith's evidence as Appendices 1 - 4. Ms Galbraith suggests that extending the HNCA to include the CDWPZs would provide additional protection for the community drinking supplies, which have both shown exceedances of half MAV.

31.7. The memorandum at Appendix F of this report includes two options for extending the Levels Plain HNCA. Given the conclusions that expansion of the HNCA just to include the CDWPZs (option 1) would not provide adequate improvements for water quality in the protection zones in question, Officers recommend that the HNCA is retained as notified.

31.8. While outcomes could be achieved by further expanding the HNCA to include more of the upgradient land use (option 2), Officers consider that this is beyond the scope of the change requested by submissions. The technical reports and development material clearly explain that the Levels Plain HNCA was developed to address water quality concerns in Washdyke Lagoon and Seadown. Officers consider that because the extension requested has a different intent than what the proposed HNCA was intended to achieve, affected landowners have not been "on notice" that an amendment of this nature might be introduced. Moreover, affected landowners have not been consulted and would have no opportunity for recourse at this stage in PC7 proceedings.

31.9. Officers consider that the issues raised by Timaru DC would be more appropriately addressed in a future plan review and note the requirement for Regional Councils to publicly notify a freshwater planning instrument which gives effect to the NPSFM 2020 by 31 December

²⁰¹ Clause 1.6 of the NPSFM 2020.

2024²⁰². Officers also suggest that in the shorter term the South Canterbury Zone Team at Environment Canterbury could work with landowners to identify and implement any non-statutory actions which could help to address the concerns raised by Timaru DC.

HNCA Nitrogen Loss Reductions – Farming Land Use

- 31.10. Numerous submitters at the hearing discussed the dates in Table 14(zc), specifically requesting an extension or deletion of the second (2035) stage of nitrogen reductions. This was discussed in most detail by Ms Sullivan in her evidence for DairyNZ and in her comments at the hearing. Ms Sullivan requested that the second stage only be required if water quality targets have not been met by 2035.
- 31.11. Officers do not recommend that the relief sought is granted. There is a possibility that if reductions are made beyond or sooner than required in consent conditions, and water quality targets successfully met before 2035, consents would only hold land users to the 2030 loss rates and not the rates which occurred to meet the water quality target. When targets have been met and second step reductions declared not applicable, land use may re-intensify to consented rates.
- 31.12. The Officers further note that determining that the targets are "met" would likely require consistent monitoring data below the target N concentration throughout the whole HNCA, for a period of time that would enable statistical confidence that the targets had indeed been met. In the event that this happened before 2035, a further planning process will have been undertaken by that date and adjustment could be made.
- 31.13. Concerns were raised in Ms Leslie's evidence for DairyNZ that the second stage of nitrogen reductions will be harder to achieve, but have half the time allowed to achieve it. In the Officers' opinion, extending the 2035 reductions to 2040 would prolong the time it takes to achieve environmental outcomes and to meet water quality targets in the HNCAs. Additionally, extending the timeframes for reductions would be inconsistent with the order of priorities in the NPSFM 2020 and Te Mana o te Wai.
- 31.14. Arowhenua and Te Rūnanga, and other submitters, requested faster actions to meet water quality targets. This is also supported at paragraph [144] of Ms McArthur's evidence for DOC. In the Officers' opinion, bringing forward the date of the first step for reductions would also address concerns about the comparatively shorter time period to achieve the second step of reductions and give better effect to national direction.
- 31.15. For the reasons above and in the Section 42A Report it is recommended that Table 14(zc) be further adjusted so that the first step be amended to 1 January 2028, and the second step be retained as notified (1 January 2035). Other changes recommended in the s 42A report for clarity are retained, and the content of the footnotes switched so they apply to the appropriate column of Table 14(zc).

²⁰² RMA s 80A(4)(b)

- 31.16. Mr Kelly provided evidence on behalf of Raumea Farms explaining the reason for the alternate wording submitted for clause (b) of Policy 14.4.20. The wording provided establishes the “GMP Loss Rate” as the only nitrogen loss calculation for consideration, and uses the GMP Loss Rate as the starting point for the reductions in Table 14(zc). Mr Kelly’s reasoning is that setting the “current Overseer Baseline” as the starting point for reductions is unfair to farmers who have historically operated within GMP and minimised nitrogen losses. The Officers consider that the relief sought is already provided for in PC7’s nutrient management framework, and provide the following clarification:
- 31.17. The reductions in Table 14(zc) are percentage reductions from the Baseline GMP Loss Rate (as defined in section 2 of the CLWRP), which is the loss rate requested by the submitter. Only properties in an HNCA (as shown on the Planning Maps) will be required to make the reductions in Table 14(zc). This means that in the scenarios provided in Mr Kelly’s evidence (Dairy Farmer A and Dairy Farmer B), both would be expected to achieve the same nitrogen loss rate if they have the same Baseline GMP Loss Rate and are both in an HNCA. Policy 14.4.20 provides a pathway to exceed the Baseline GMP Loss Rate in limited circumstances (this effectively replicates region-wide Policy 4.38C and includes an additional requirement for properties in a HNCA). The notified wording of Policy 14.4.20 clause (b) is important for achieving environmental outcomes as it limits nitrogen losses from such farms by still holding them to the lesser of two nitrogen loss calculations.
- 31.18. The Officers recommend no changes to Policy 14.4.20 beyond the amendment in the Section 42A Report to delete redundant phrasing.
- 31.19. The Officers retain the s 42A report recommendation to delete Policies 14.4.20B and 14.4.20C as duplications of regionwide Policies 4.38D and 4.38E. Ms Sullivan’s evidence on behalf of DairyNZ includes a suggestion at paragraph [48] to include a note clarifying that those regionwide policies apply in addition to the policies in section 14. The Officers note that many of the regionwide nutrient management policies in section 4 of the CLWRP still apply to the OTOP sub-region, for example Policies 4.38B, 4.40 and 4.41. Listing only two policies in a note might imply that unlisted regionwide Policies do not need to be given consideration. The Officers do not recommend inclusion of a note.

Consent Duration

- 31.20. Ms Sullivan’s evidence on behalf of DairyNZ raised concerns with the deletion of clause (b) of Policy 14.4.19 in the Section 42A Report recommendations on PC7. She noted that the part about only imposing one reduction below Baseline GMP Loss rate per consent term was not retained in the amalgamation of Policies 14.4.18 and 14.4.19. Officers consider that how the notified policy would be given regard to in consent processes is not entirely clear. It contained direction to limit the consent to no more than ten years, and only impose one reduction in Table 14(zc) in the consent term. This means that consents processed between 2025-2030 would either be very short term to be fully consistent with the clause, or the 2035 reductions could be delayed. If the recommendation above to accelerate the first step of reductions is

adopted this issue with the notified clause remains, but for a shorter period, 2025-2028. Meeting the dates in Table 14(zc) is important for achieving environmental outcomes in the HNCAs. Overall, the Officers consider the recommendation in the Section 42A Report should be retained to promote consistent requirements for nitrogen reductions and guidance on consent durations throughout the life of the plan.

Policy 14.4.20A

- 31.21. Ms Sullivan provided evidence on behalf of DairyNZ responding to the Officer's Section 42A Report recommendations on Policy 14.4.20A. Her evidence included a request for the Policy to be amended to enable existing consent holders to apply for an extension of time in which to achieve the nitrogen loss reductions in Table 14(zc). The majority of submissions on this Policy requested similar relief. Officers consider that this is already provided for through Policy 14.4.20A as the term "application" may include applications to renew a consent.
- 31.22. The Section 42A Report recommended considerable amendments to Policy 14.4.20A, relying on Page 2 of the HortNZ submission as scope for the change. In Part 2, paragraph 6.10(b) of the Section 42A Report Policy 14.4.20A is incorrectly described as "identical" to a region-wide Policy as an explanation for why the amendments were considered appropriate.
- 31.23. In the document *'Responses to Questions of Hearing Commissioners on Council s42A Report dated 28 May 2020, and additional questions dated 16 June 2020'* legal counsel provided the following statement on scope in response to a different matter: "For an amendment to be within the scope of a submission, the amendment must be fairly and reasonably within the general scope of an original submission or the plan change as notified or somewhere in between." Having reviewed the submissions received on Policy 14.4.20A, and the evidence received opposing those changes and also seeking additional changes, the Officers are concerned about the scope to make amendments, as they are going beyond clarification and simplification. Consequently, it is recommended that the only amendment to Policy 14.4.20A is deletion of clause (c), as sought by Forest and Bird, and deletion of redundant wording in clause (b).
- 31.24. However, having considered the implementation issues raised by CCC on the equivalent policy in Section 8 (proposed Policy 8.4.27), the evaluation of that submission in the Section 42A Report (Part 5, paragraph 8.209), and the evidence of Ms Sullivan, if the Hearing Panel considers there is scope to make further amendments to Policy 14.4.20A, the Officers provide the following evaluation and amendments for the Panel's consideration:
- 31.25. The amendments to the chapeau would be consistent with the changes recommended in Policy 8.4.27. Officers consider this stricter requirement for considering extensions to the nitrogen loss reduction timeframes would better give effect to the NPS-FM 2020. Reducing the number of farming activities which can be granted extensions will also partially address submissions from Arowhenua and Te Rūnanga and others (including Forest & Bird) that the framework proposed by PC7 does not go far or fast enough to address water quality issues in the HNCAs. Consequential amendments to clause (c) would be necessary to make the phrasing

compatible with the chapeau. Acknowledging that meeting all of the clauses is necessary to be considered for an extension, the Officers consider that deletion of clauses (d) and (e) is appropriate so that the Policy is not overly restrictive.

- 31.26. Regarding Ms Sullivan’s evidence on clause (b) the Officers agree that it will be difficult for many farmers to present records of mitigations implemented during the Baseline period. Moreover, limiting the period within which voluntary mitigations beyond GMP must have occurred to be considered for an extension is counterintuitive as it presents no incentive for recent, current or future mitigations to be instigated/continued. The Officers do not agree that this amended wording of the clause requires demonstration of the effectiveness of mitigations at minimising nitrogen losses on farm. Rather, the mitigations must have generally been demonstrated to be effective and have been implemented on the farm. Further amendments are shown to clarify this:

14.4.20A Where an application for a land use consent for a farming activity demonstrates the nitrogen loss rate reductions required by Policy 14.4.20(c) are unable to be achieved by the dates specified in Table 14(zc), ~~only consider granting an any~~ application for an extension of time to achieve those reductions ~~where will be considered having regard to:~~

- a. ~~the Baseline GMP Loss Rate and the level of any an~~ enduring nitrogen loss ~~rate~~ reduction below the Baseline GMP Loss Rate has already ~~been~~ achieved; and
- b. ~~the nature and extent of any~~ mitigations ~~implemented during the nitrogen baseline period~~ that are ~~more effective better~~ than Good Management Practice, ~~and the extent to which these have been effective in at~~ minimising nitrogen losses ~~have been implemented~~; and
- c. ~~an extension is necessary to maintain a farming activity’s financial viability by spreading the capital and operational costs of achieving the nitrogen loss rate reductions and the benefit (in terms of maintaining a farming activity’s financial viability) of spreading that investment over time.; and~~
- d. ~~the nature, sequencing, measurability, effectiveness and enforceability of any steps proposed to achieve the nitrogen loss rate reductions; and~~
- e. ~~progress made towards achieving nitrate-nitrogen limits and targets in Tables 14(a) to 14(g).~~

Baseline exemption for selected RSIL shareholders

- 31.27. RSIL request that Section 14 include a definition of ‘Nitrogen Baseline’ which provides an alternative baseline period for fifteen shareholders. These shareholders intensified or expanded when the RSIL scheme delivered water in 2014 (following the baseline period) and do not qualify for existing exemption clauses. To support the submission, expert evidence was provided by Ms Ruston (planning), Mr Everest (farm consultant), and Dr Treweek (soil science). Some of the affected shareholders also provided evidence about their farms.

- 31.28. Officers note that granting the alternative baseline period sought would not exempt the shareholders from the reductions in Table 14(zc), but it would change the starting point

(possibly substantially) from which reductions would start for those properties. If the relief was granted, the higher baseline loss rate would have immediate effect, and be more permissive than the current framework. Even with the second step reductions applied in 2035 consented loss rates might remain higher than under currently operative provisions. As an example, paragraph [24] of Ms Grant's evidence provides the example of N discharges from their Home Block under the different baseline periods. Presuming the block is currently operating at Baseline GMP loss rates this number would immediately increase from 22 kg N/ha to 51 kg N/ha, and with additional reductions at 2035 it would be 46 kg N/ha. Given the Rangitata Orton HNCA has been identified as an area where nitrate-nitrogen concentrations in groundwater needs to reduce by 36% to meet the target of 5.65 mg/L,²⁰³ allowing any properties in the area to increase nitrogen losses is not recommended.

- 31.29. If the Hearing Panel is minded to grant relief to these RSIL shareholders, Officers consider that it would be more appropriate to retain the current baseline period but provide a pathway for exemption from the nutrient reductions in Policy 14.4.28 and Table 14(zc). This would achieve better environmental results than the exemption sought as it would hold all land users to current consented nitrogen loss rates rather than allowing immediate intensification. Officers do not recommend this relief is granted as it will diminish the effectiveness of the staged reductions in Table 14(zc) and delay progress to achieving water quality targets.
- 31.30. Proposed Policy 14.4.20 already provides an exemption for farming operations which lawfully intensified after the baseline period. Officers consider that this adequately provides for operations which invested in lawful conversion/expansion before the end of the baseline period. The policy does not provide for activities that expanded, but without a legal basis to do so. Expanding exemption opportunities would negate the effectiveness of the operative plan and the framework proposed in PC7 seeking to reduce nitrogen in groundwater. As discussed below, this would be inconsistent with the policy direction in PC7, the CLWRP and the NPSFM 2020, and outcomes these instruments seek to achieve.
- 31.31. In his evidence Dr Treweek contends that the technical work informing PC7 over-estimated N loss rates from farms in the RSIL scheme. Therefore, he considers that adopting the alternative baseline period in the submission would not increase N losses beyond what was modelled in the original technical work, thus the environmental consequences are not beyond what PC7 is already designed to accommodate and it will not delay progress to meeting the outcomes.
- 31.32. Dr Treweek's evidence uses the Matrix method to model nitrogen losses for the RSIL command area. The Matrix method was subject to a thorough evaluation process to determine if it was equivalent to Overseer for the purpose of estimating nitrogen losses in the area specific to the original application. RSIL has not submitted an application to Environment Canterbury to use the Matrix method in the RSIL command area. Such an application would be expected to include additional information to that provided in this evidence in order for the Council to carry out the equivalence assessment. Without this additional information there has been

²⁰³ Target set in Table 14(g), reduction from Rosado, C. (2019). *Groundwater technical report to support the Orari-Temuka-Opihi-Pareora limit-setting process* (R19/T2). Environment Canterbury (page 11).

insufficient opportunity to evaluate the Matrix method in terms of its suitability for modelling nitrogen loads within the RSIL command area. For these reasons the Officers' continue to rely on the Council's assessment in Rosado (2019)²⁰⁴.

- 31.33. If the Hearing Panel are minded to grant the alternative baseline period sought by RSIL, Officers agree with the evidence of Ms Ruston in her supplementary statement on 10 December 2020, that it would be most appropriately incorporated into the plan as a definition in section 14 of the CLWRP.
- 31.34. The Officers do not recommend the alternative baseline period or any exemption be adopted for the RSIL shareholders as it would be inconsistent with the outcomes PC7 seeks to achieve. Proposed Policies 14.4.17 and 14.4.18 show clear intent for water quality to be improved in the OTOP sub-region. PC7 should also give effect to the strategic policies in the plan, including Policies 4.1, 4.2, 4.5 and CRPS policies 7.3.6, 7.3.7 all of which show the same direction. The NPSFM 2020 also has clear direction in Objective 1(a) that the wellbeing of waterbodies must be prioritised first, and Policy 3 gives consideration to the effects of land use on receiving environments. Allowing a selection of farming enterprises in the Rangitata Orton HNCA to increase nitrogen losses would, in the Officers' opinion, inevitably slow progress to achieving the water quality target and reduce the effectiveness of PC7.

HNCA Nitrogen Reductions – Industrial Discharges

- 31.35. Mr Willis provided evidence on behalf of Fonterra to change the word "losses" to "load" in Policy 14.4.28. This language is consistent with Fonterra consents and consequently would assist with interpretation of the Policy. On further consideration the Officers agree with the reasoning provided by Mr Willis and recommend this change be made to Policy 14.4.28. For consistency within Section 14, and clarity about how the provisions should be interpreted for other consents, the Officers recommend that the same change is made to the equivalent Policy 14.4.41 which applies to the Levels Plain HNCA.
- 31.36. At the hearing Ms Wilkes clarified the intent of the changes sought by Ravensdown to Policy 14.4.41. Ms Taylor also provided evidence in support of the submission. The Officers do not consider that the wording provided in the submission would ensure that a collective 30% reduction of industrial nitrogen discharges would be achieved throughout the HNCA, as was discussed at the hearing. The changes sought would provide leniency for consent holders to request a reduction smaller than 30%, but no mechanism to require higher reductions from other consent holders to make up the difference. Officers do not recommend these changes to Policy 14.4.41 be made.
- 31.37. Evidence was provided by Mr Ensor supporting the submission from Synlait for an exception from industrial discharge reductions (Policies 14.4.28 and 14.4.41) where the farming activity nutrient reductions in Table 14(zc) also apply. Synlait has an industrial discharge consent

²⁰⁴ Rosado, C. (2019). *Groundwater technical report to support the Orari-Temuka-Opihi-Pareora limit-setting process* (R19/72). Environment Canterbury.

(CRC210111, replaced in November 2020 by CRC210167) to discharge whey on to various farms in the Rangitata Orton HNCA. This consent does not have a N loss/load limit, so the loading rates are calculated on-farm and incorporated into those farms' nutrient budgets. Mr Ensor's position is that this would result in "double counting" for farms which would need to accommodate the industrial discharge reductions and farming land use reductions required by Table 14(zc).

- 31.38. The intent of these policies was to have all contributing sectors reduce nitrogen losses, not just farms. The Officers consider that there is no double counting as the industrial discharge policies apply to the limit set in the industrial discharge consent, not how it is applied on farm. Synlait have identified an implementation issue as the policies apply to their consent. This could be addressed by the plan establishing a baseline N loss/loading rate for such industrial discharge consents and requiring the reduction from that amount. This would ensure reductions are made by the industrial consent holder rather than a third party.
- 31.39. However, there are no environmental gains from requiring nitrogen reductions from industrial or trade waste nitrogen disposal activities where the application to land is part of a separate consent which includes a nutrient budget. If the industrial by-product available to farms decreases, they will likely make up the difference by applying other nitrogen fertilisers. Having considered Mr Ensor's statement and evidence, Officers agree with the relief sought in his 'Response to Questions' statement dated 25 November 2020 and recommend those amendments to Policies 14.4.28 and 14.4.41.

Part 5: Submissions on Part C of PC7: Waimakariri

32. Introduction

- 32.1. The majority of submitters relevant to the Waimakariri part of PC7 were heard locally, in Christchurch, during weeks 1, 4 and 5 of the plan hearing. A wide range of evidence was presented, with a focus on the requirements to reduce nitrogen losses from farming activities within the NPA.
- 32.2. This section of the report generally follows the same structure as the Section 42A Report – with responses to nutrient management issues being the most substantial part. A number of matters are also dealt with in the earlier legal and Common Issues sections of this report and are not repeated below.

33. Surface water quantity – minimum flows and allocation

Table 8-1: Ashley River/Rakahuri and tributaries Environmental Flow and Allocation Limits

Saltwater Creek minimum flow site

- 33.1. M Eder and GD Morriss have set out in their evidence the implications of different minimum flow sites in the Saltwater Creek SWAZ on their takes. They state that the flow increases between Topping Road and Factory Road, and have supported this with flow gaugings. These gaugings corroborate patterns of flow increase seen in previous gaugings and can be considered a reasonable reflection of actual conditions. Because of the increasing flow in this reach of the creek, a minimum flow site located at Factory Road would improve the reliability of their takes.
- 33.2. Factory Road would not be an appropriate minimum flow site for the whole SWAZ, as this would enable the take of an increased volume and rate of water in locations which do not have the same increasing flow conditions as observed around the Eder and Morriss properties. This would have negative impacts on the health of the creek, which is currently over-allocated. Reduced flows can increase stress on aquatic fauna, reduce flushing of the stream bed, and potentially reduce fish passage in shallow areas.
- 33.3. M Eder and GD Morriss have asked that Factory Road be included as an additional minimum flow site in PC7. Officers acknowledge that having a different minimum flow site for these two takes (only) would assist with the abstractors reliability of supply, and based on the information presented at the hearing, Officers consider it is unlikely to change the effect of the flow and allocation regime on the ecology of the river.
- 33.4. Policy 4.62 of the LWRP provides for additional flow monitoring points to apply to only some abstractors, should the hydrology of the surface waterbody justify it. It is the Officers' view

that setting an additional flow monitoring point for Saltwater Creek SWAZ that applies to abstractions located downstream of Factory Road is likely to be appropriate in this instance, as the hydrology of the waterbody justifies having this site.

- 33.5. While having two minimum flow sites may be appropriate for the Saltwater Creek SWAZ, Officers note that there are additional matters that will need to be resolved prior to including a second site in Table 8-1, including the location of the flow gauge, the monitoring and recording of that flow and how pro-rata restrictions are to apply. Officers therefore do not recommend that Table 8-1 is amended to include a second flow site. Despite this recommendation, Officers note that the provisions in Section 8 do not prevent a consent applicant applying for a water permit with a different minimum flow site should that be preferred by the consent applicant.

Taranaki Creek minimum flow site

- 33.6. For completeness, Officers note Table 8-1 contains an error regarding the map reference for the Preeces Road minimum flow site at Taranaki Creek. As such, Officers recommend that the map reference is updated to reflect the correct location of the site. Although no submissions were received seeking changes to this map reference, Officers consider this relief will correct a minor error in the Plan, and will improve the implementation of the provisions. As such, Officers recommend that this amendment be made under Clause 16(2) of Schedule 1 of the RMA.

Table 8-2 Northern Waimakariri Tributaries Environmental Flow and Allocations Limits

Cam River/Ruataniwha

- 33.7. Table 8-2 includes a minimum flow for the Cam River/Ruataniwha of 1,000 l/s and an A allocation of 350 l/s. Submitters provided evidence supporting amendments to both the proposed minimum flow and the allocation limit.
- 33.8. The submission from R Stalker queries the appropriateness of the 350 l/s allocation limit for the Cam River/Ruataniwha. This matter is addressed in Section 34 of this report, as part of the Mahinga Kai allocations.
- 33.9. At the hearing, Mr C McIntosh presented his submission on the proposed Cam River/Ruataniwha minimum flow, where he requested that the minimum flow be amended to 750-800 l/s, noting the current irrigation restrictions that are placed on his consent. Bowden Environmental also seeks that the minimum flow for the Cam River/Ruataniwha is lowered. The evidence of Mr Talbot (on behalf of Bowden Environmental) notes that the Cam River/Ruataniwha is currently managed by a minimum flow of 1,000 l/s and highlights a 2009 report “Minimum Flows and Aquatic Ecological Values of Lower Waimakariri River Tributaries” (Golder Associates, 2009), that uses the RHYHABSIM methodology with a recommended minimum flow for the Cam River/Ruataniwha of 890 l/s. Mr Talbot requests that the best science is used for the Cam River/Ruataniwha minimum flow and seeks justification for why

the most recent scientific evidence has not been considered when setting the Cam River/Ruataniwha minimum flow.

- 33.10. In the Section 42A Report, the Officers state that submissions seeking a reduction in the minimum flow to 890 l/s has some merit in regard to providing sufficient habitat availability for instream fauna²⁰⁵. Officers also noted that a minimum flow of 800 l/s (as per the request from Mr McIntosh) falls short of this mark and does not provide sufficient protection of habitat for trout. Any reduction in flow will further exacerbate other water and habitat quality issues within the river.
- 33.11. In the evidence of Mr McIntosh the reliability of Cam River/Ruataniwha is raised as an issue. Mr McIntosh provided flow data for the 2014-2015 irrigation season, and evidence of a Notice of Non-Enforcement issued by Environment Canterbury to allow Mr McIntosh to use water from a neighbour's consent. Officer's analysis of the Cam River/Ruataniwha flow record shows that the 2014-2015 irrigation season was the driest summer in record. It is therefore representative of dry conditions, rather than typical conditions.
- 33.12. The existing minimum flow and allocation block (if fully allocated) would allow consent holders to take their maximum consented rate once the river flow is above 1,700 l/s. This situation occurs 15 % of time in an average year. Between 1,000 l/s and 1,700 l/s consent holders would be able to use a decreasing percentage of their maximum consented rate.
- 33.13. The flow management regime proposed in PC7 proposes that consent holders would be able to take their maximum consented rate once the river flow is above 1,525 l/s. This situation occurs around 25 % of the time in an average year.
- 33.14. Water availability in the Cam River/Ruataniwha is limited under both the current and proposed flow management regimes, however the PC7 regime improves the availability of water to consent holders, should the block be full allocated. The intent of the proposed PC7 regime was to protect the limited availability currently experienced and minimise the effect of further uptake of the allocation block. To improve water availability further either the minimum flow would need to be reduced, or consents granted within the block would need to be reduced so that the remaining consented water has a better availability. Comments are provided below regarding the ecological effects of a lower minimum flow.
- 33.15. While Officers acknowledge that the current and proposed minimum flow for the Cam River/Ruataniwha is higher than the minimum necessary to provide sufficient habitat availability for instream fauna, the recommendations contained in the Cultural Health Assessments and Water Management report for an appropriate cultural flow is much higher than 890l/s, on the basis that the flow needs to be sufficient to sustain the full range of native fish species²⁰⁶. Taking into account the evidence presented at the hearing, the technical

²⁰⁵ Paragraph 6.102, page 454 of the Section 42A Report.

²⁰⁶ Representatives of Te Ngāi Tūāhuriri and Tipa, G. (2016). *Cultural Health Assessments and Water Management for the Rakahuri-Waimakariri Zone*, Page 60.

information supporting PC7 and the requirement to give effect to Te Mana o te Wai, the Officers recommend that the proposed minimum flow is retained.

Cust River

33.16. Several submitters raise concerns with the proposed environmental flow and allocation regime for the Cust River.

33.17. Mr Talbot, on behalf of Bowden Environmental stated in his evidence that it is unclear what the Cust River A block limit of 290 l/s is based on and there appears to be no assessment of whether this limit is still appropriate²⁰⁷. The proposed 290L/s A allocation for the Cust River is the same as the current allocation limit in WRRP. The current consented allocation from the river exceeds the allocation limit (i.e. the river is currently overallocated). The Waimakariri ZC took two approaches to setting allocation limits:

1. Where the river is currently overallocated the existing allocation limit is to be kept and efforts should be made recover the over-allocation;
2. Where the river is currently under-allocated the new allocation limit will be set at the sum of the existing allocation.

33.18. The first approach was adopted when setting the allocation limits for the Cust River. The evidence from Mr Talbot refers to two different numbers reporting the total allocation of current consents (being 366 l/s and 394 l/s). Officers note these numbers relate to the estimate of current allocation and show the scale of over-allocation to be recovered. The ecological recommendation for allocation from the Cust River is 20 l/s²⁰⁸, which is substantially lower than the 290 l/s allocation limit.

33.19. Given the substantial over-allocation from the Cust River, Officers are unable to justify any increase in the “A” allocations above the levels notified in PC7. Further, Officers consider that when flow and allocation regimes are re-evaluated against the NPSFM 2020 criteria, it is reasonable to assume that the allocation will likely need to be reduced.

33.20. In its submission, Te Ngāi Tūāhuriri Rūnanga opposed the B Allocation block for the Cust River and sought its removal. In the Section 42A Report, the Officers recommended that this relief be rejected on the basis that removing the B block entirely would have too large an impact on existing abstractors. Ms McIntyre, on behalf of the submitter, disagrees with this recommendation, and considers that prioritising the impact on abstractors above ecological and cultural needs does not give effect to the statutory direction.

33.21. On 30 November 2020, the Hearing Panel acknowledged the issues raised by Ms McIntyre for the Cust River B Allocation block and requested further information from the Officers on existing takes from this block.

²⁰⁷ Evidence in chief of Mr Talbot, on behalf of Bowden Environmental Ltd, dated July 2020, at paragraph 27 page 8.

²⁰⁸ S32 Report: Table 15.5-3 'A' allocation options for Northern Waimakariri Tributaries, on page 400

33.22. At page 391, the Section 32 Report explains that only one consent has been granted for B Allocation water in the Northern Tributaries FMU, which is from the Cust River. It also states that, typically, B allocations are inappropriate for spring-fed streams on the basis that they have smaller surface water catchments and very flat topography which limits the speed and rate of runoff into the stream channel. However, given the Cust River is a hill-fed river, B allocation can generally be supported as these rivers are able to quickly convert rainfall to runoff, and therefore, stream flow. Therefore, the Section 32 Report concludes that having a B allocation block for the Cust River is “sustainable”²⁰⁹.

33.23. The proposed flow and allocation regime for the Cust River is described in the Section 32 Report²¹⁰. It confirms that a B allocation is proposed for the Cust River, and is capped at the current consented allocation of 131 l/s. The existing water permits which make up this allocation are identified in the Waimakariri RCI²¹¹ as follows:

Table 4. Existing B water permits for the Cust River (Vattala, C. 2019).

Consent No	Maximum Rate (L/s)	Water Use	Expiry	Annual Volume (m ³ /yr)	Minimum Flow Conditions
CRC144593	30.9 ²¹²	Irrigation	26/06/2024	326,575	Yes
CRC175324	100	Storage and irrigation	9/09/2033	3,153,600	Yes

33.24. Bowden Environmental Ltd requested that the C allocation limit of 1,000l/s be provided for the Cust River, to provide an opportunity to store water during high flows, typically during winter. Mr Talbot, on behalf of Bowden Environmental Ltd, states in his evidence²¹³ that the opportunity to provide for reliable water supply through the use of storage is particularly important with the proposed increase to the A minimum flow and could be restricted to A consent-holders to compensate for decreased reliability. Mr Talbot notes that the Cust River often floods during winter and flood flows can be large. Mr Talbot suggest a C block limit of 1,000 l/s when flows are “large” (i.e. greater than 3 cumecs) may not detract from the ecological values of the River.

33.25. Analysis of water availability in an extended B block was undertaken in 2019. No analysis of a C block, as proposed by Mr Talbot, was undertaken. The B block analysis showed that, as Mr Talbot suggests, there is water present (i.e. high flows associated with floods) which could be taken in the form of a water harvesting operation. The B block analysis undertaken considered minimum flows in the order of 300-600 l/s at which level a 500 l/s allocation block was

²⁰⁹ Page 395 of the Section 32 Report.

²¹⁰ Page 395 of the Section 32 Report.

²¹¹ Appendix 4, Table SW12: Cust River (664040) of the *Resource Consent Inventory For Waimakariri Land and Water Solutions Programme (Version 2)* (Vattala, D. 2019).

²¹² CRC144593 authorises a maximum rate of 82 L/s which comprises a maximum rate of 30.9 L/s from the B Allocation block, and 51.1 L/s from the A Allocation block.

²¹³ Evidence in chief of Mr Talbot, on behalf of Bowden Environmental Ltd, paragraph 28.

assessed; Mr Talbot suggested a C block of 1,000 l/s with a minimum flow in the order of 3,000 l/s. A flow of 3,000 l/s would be exceeded 10-15% of the time on Cust River. Whether the volume of water available is sufficient to support a water harvesting scheme would be dependent on the design of that scheme.

- 33.26. Taking into account the above hydrological analysis, Officers note that the existing level of A block allocation in the Cust River catchment is high by ecological standards and has detrimental effects on the frequency of flushing flows in the river. This means there is a higher reliance on infrequent flood flows to provide river ecosystem functions such as bed turnover and sediment flushing. Further allocations of water in B or C blocks will hamper the occurrence of such functions.
- 33.27. Officers recommend that the flow and allocation limits proposed for the Cust River are retained as notified.

Eyre River

- 33.28. The submission of Bowden Environmental notes that the allocation for the Eyre River SWAZ is listed as “no surface water allocation” and states that it is unclear what this means. The submission seeks that the Eyre River line is deleted from Table 8-2. At the hearing, Mr Talbot, on behalf of Bowden Environmental, clarified that he did not have any concerns that there is no allocation available for direct abstractions from the Eyre River (on the basis that there are none currently), but is concerned about the management of stream depleting groundwater abstractions. Mr Talbot noted that connected groundwater takes are managed in the allocation regime for the surface water body, and that it should be made clear that the Eyre River has no restrictions or alternatively, remove the line from the Table²¹⁴.
- 33.29. Officers agree with Mr Talbot it is unclear how hydraulically connected groundwater abstractions are to be managed, and note there are 33 groundwater abstractions classified as stream depleting within the Eyre River SWAZ (with a combined stream depletion rate of approximately 542 l/s). Including the “no surface water allocation” in Table 8-2 for the Eyre River was not intended to restrict hydraulically connected groundwater abstractions²¹⁵, and an amendment is required to clarify how hydraulically connected groundwater abstractions are to be managed in this SWAZ. Also of relevance is the direction set out in Schedule 9 which sets out how stream depleting groundwater permits are to be apportioned. For takes with a direct, high or moderate stream depletion effect, a portion of the take is allocated to the surface water block.
- 33.30. Officers consider that an alternative amendment to the relief proposed in the submission from Bowden Environmental (to delete the Eyre River from Table 8-2) could be to include a note below Table 8-2 explaining that the stream depleting groundwater abstractions are not

²¹⁴ Evidence in chief of Mr Talbot, on behalf of Bowden Environmental Ltd, pages 17-18.

²¹⁵ Megaughin, M., & Lintott, C. (2019) *Waimakariri Land and Water Solutions Programme Surface Water Quantity Options and Solutions Assessment*. Environment Canterbury (page 48).

counted in the surface water allocation for the Eyre River SWAZ. Officers also recommend a consequential amendment to Schedule 9 to include an additional statement to explain how stream depleting groundwater permits are to be apportioned where no surface water limit exists. Officers recommend that Table 8-2 and Schedule 9 are amended accordingly.

Ohoka Stream minimum flow site

- 33.31. For completeness, Officers note that Table 8-2 contains an error regarding the location of the minimum flow site at Ohoka Stream. The minimum flow site included in PC7 states 'Island Road' but should read 'Kaiapoi River Confluence'. This error relates to the text only and not the corresponding map reference.
- 33.32. Although no submissions were received seeking changes to this change, Officers consider this relief will correct a minor error in the Plan, and will improve the implementation of the provisions. As such, Officers recommend that this amendment be made under Clause 16(2) of Schedule 1 of the RMA.

34. Cam River/Ruataniwha A Allocation and Mahinga Kai Allocation

- 34.1. In relation to the proposed mahinga kai allocation for the Cam River/Ruataniwha, the Hearing Panel requested clarification from the Officers on how this allocation fits in with the rest of the Cam River/Ruataniwha regime. Specifically, the Hearing Panel questioned whether the mahinga kai allocation of 175 l/s for the Cam River/Ruataniwha, as set out in Table 8-3, applied in addition to the A allocation of 350 l/s in Table 8-2, and whether they are effectively subject to the same regime given they are bound by the same minimum flows.
- 34.2. The Officers confirm that the regimes for the Cam River/Ruataniwha SWAZ in Tables 8-2 and 8-3 are intended to work together, as per note 1 under Table 8-3, i.e. the total A allocation from the Cam River/ Ruataniwha equals the sum of the limits set out in Tables 8-2 and 8-3, giving a total allocation limit of 525 l/s for the Cam River/Ruataniwha SWAZ. When adopted with the proposed minimum flow of 1,000 l/s consent holders would be able to make full use of their consented rates once the river flow exceeds 1,525 l/s. This occurs approximately 10 % of the time, and therefore Officers accept Mr Stalker's concern regarding water availability.
- 34.3. The combined allocation limit of 525 l/s is justified on the basis that a reduction in the SWAZ allocation (from 700 l/s to 525 l/s) has been proposed. Reducing the combined allocation limit from 700 l/s to 525 l/s reduces the potential impact on reliability should the full allocation be taken up. Officers note that the combined allocation limit is higher than the recommended ecological allocation of 311 l/s.
- 34.4. Should consents be granted to take water from the Mahinga Kai allocation then this would reduce the reliability of other consent holders in the A allocation block and Mahinga Kai allocation block. However, this reduction would be less than that experienced should the current A block allocation be taken up.

- 34.5. Officers recommend retaining the proposed allocation limits and minimum flows for the Cam River/Ruataniwha, set out in Tables 8-2 and 8-3 on the basis that the proposed A allocation provides for existing users, and additional opportunities will be provided for mahinga kai enhancement setting aside the unallocated water within the current allocation limits.

35. Groundwater Allocation Limits

- 35.1. Table 8-4 sets groundwater allocation limits for six GAZs within the Waimakariri sub-region and includes limits for both A Permits and Transfer Permits. Mr Talbot, on behalf of Bowden Environmental, set out his concerns regarding how the groundwater allocation limits have been set, stating that he does not consider the limits meet the statutory test of “sustainable management”, with reference to Section 5 of the RMA²¹⁶.
- 35.2. Mr Talbot describes in his evidence why he considers that groundwater level analyses from long-term monitoring bores do not portray declining trends, despite significant increases in total abstraction in recent years. He also states in his opinion that original groundwater allocation limits should be retained and not reduced to an “arbitrary” existing consented allocation plus 10%. The submission from Bowden Environmental states that further reductions are not based on resource management assessments and may result in unnecessary restrictions on economic growth and prosperity in the Waimakariri District.
- 35.3. Officers note the intention behind setting the allocation limits and the technical information supporting those limits is set out in the Section 42A Report, the supporting technical documents and the recommendations contained in the Waimakariri ZIPA. In the Section 42A report, Officers noted that amendments to Table 8-4 would be required to set groundwater allocation limits that provide for existing users and a new abstraction (being an additional 10% above that which is currently allocated). Officers also noted that the Council was undertaking a project to determine the consented allocation of all water allocation zones within Canterbury, which would assist in determining an accurate and appropriate A Permit Allocation Limit that provides the head room envisioned by the ZC²¹⁷.
- 35.4. Officers provided an update to the Hearing Panel on the results from this project in “*Responses to Questions of Hearing Commissioners on Council s42A Report dated 28 May 2020, and additional questions dated 16 June 2020*”, where the estimate of consented allocation was different to that used to determine the proposed allocation limits for groundwater²¹⁸.

²¹⁶ Evidence in chief of Mr Talbot, on behalf of Bowden Environmental Ltd, paragraphs 18 and 20.

²¹⁷ Section 42A Report at paragraph 7.36 pages 466-467.

²¹⁸ The method is described in the Section 42A Report and supporting technical reports; the rationale for the proposed limits is described in paragraph 7.31, page 465 of the Section 42A Report.

- 35.5. The Environment Canterbury memo “Consented Allocation – ECan Catchment Accounting Method” dated 04/05/2020²¹⁹ provides information on the water accounting method used by the Council. The memo notes that:

A minority of consents have a site-specific aquifer parameter that can be used to derive SD. For most GW permits, a desktop method has been used for the assessment (Appendix 2 of main memo). This method is built on a number of assumptions (e.g. aquifer parameters), and therefore the results have a greater uncertainty than using the site-specific aquifer parameters.

- 35.6. Note that the practice of removing some or all of the allocation for a stream-depleting groundwater take from the groundwater allocation tally and including it in the surface water allocation is referred to as “discounting” in the Environment Canterbury method.

- 35.7. The memo also states:

any assessment based on the desktop assessment should not be subject to discounting, until the site-specific information is available (e.g. aquifer test information). This approach is proposed in Plan Change 7 by incorporating an additional note to Schedule 9 of the LWRP. If the following site-specific information exists, the LWRP GW discounting method can be applied:

- a) A minimum flow restriction on the consent (i.e. applicant must have carried out some assessments at the site to determine SD effects of his water take); or*
- b) provided site-specific aquifer parameters through comprehensive aquifer testing.*

- 35.8. The Environment Canterbury memo considers that a desktop stream depletion assessment is likely to overestimate stream depletion and that a consequence of the conservative estimation of stream depletion is that the surface water allocation blocks may appear more utilised than will be the case in reality.

- 35.9. Knowing that stream depletion estimates are subject to uncertainty, and being aware of potential biases in the data, the groundwater allocation limits proposed in PC7 were calculated with full discounting of stream-depleting water allocation from the groundwater allocation tally. This differs from the method used by Environment Canterbury to tally groundwater allocation, which only discounts the groundwater allocation when site-specific aquifer parameters are available (as described above)²²⁰. The discounting used for the proposed Table 8-4 allocation limits means that the proposed allocation limits are much lower than the allocation tally calculated by the Environment Canterbury. The outcome of this is that Environment Canterbury’s allocation assessments will show that there is no water available for allocation, and the proposed additional 10% allocation is unlikely to become available until

²¹⁹ Environment Canterbury, 2020. Consented Allocation – ECan Catchment Accounting Method. Memo dated 04/05/2020.

²²⁰ This method is now also provided for in the amendments proposed by PC7 (Part A) to Schedule 9 of the CLWRP.

a large proportion of the groundwater takes in the zone are renewed and reassessed for stream depletion.

- 35.10. The rationale for the approach used to determine the proposed PC7 allocation limits was to avoid a situation where more than 10% new water is made available for allocation following a future revision of the groundwater and surface water allocation estimates, which would likely result in a higher proportion of stream-depleting groundwater being allocated to surface water. Officers recommend including a second set of groundwater allocation blocks for the Ashley, Cust, Kowai, Loburn and Lees Valley GAZs with the block sizes being equal to 10% of the estimated current groundwater allocation. The allocation limits proposed in PC7 would remain in place for existing groundwater takes and are expected to remain low enough to prevent allocation of new water beyond the proposed 10% for the foreseeable future. Officers consider that this option provides certainty regarding the availability of new water for allocation.
- 35.11. Officers therefore recommend the addition of a new “B” allocation limit for the Ashley, Cust, Kowai, Loburn and Lees Valley GAZs in Table 8-4, and consequential amendments to condition (2) of Rule 8.5.14.

36. Efficient use of water

- 36.1. At the hearing, Federated Farmers presented evidence to support their submission on Policy 8.4.24²²¹. This policy requires the consideration of records of past water use when determining an efficient allocation for the replacement of a lawfully established water permit using Schedule 10.
- 36.2. Federated Farmers submitted that the determination of reasonable allocation should not be confined to consideration of previous use because previous use (i.e. Method 1 of Schedule 10) does not necessarily indicate need in a dry year.
- 36.3. Officers note that Federated Farmers sought similar amendments to Policy 14.4.12 in Part B of PC7. The assessment of the evidence in relation to this policy is set out in Part 4, Section 7 of this report, and also applies to Federated Farmers’ request to Policy 8.4.24. For the reasons set out in Section 25 of this report, Officers do not recommend any additional changes to Policy 8.4.24.

37. Transfer of Water

- 37.1. Several submitters raised concerns about proposed Rule 8.5.17 in their evidence. M Eder and GD Morriss clarified at the hearing that their concerns were that if a property changes hands that the consent transferred is subject to these provisions. For the record, Officers would like

²²¹ Evidence statement, Dr Hume, Mr Grant and Mr Henderson, on behalf of Federated Farmers, dated 26 November 2020, at paragraphs 64-68

to clarify that an application to transfer a consent to new owner or occupier of the site is not subject to the proposed provisions in Section 8.

38. Freshwater Outcomes, Water Quality Limits and Targets

Table 8a: Freshwater Outcomes for Waimakariri Sub-region Rivers

- 38.1. In its evidence, DOC requested that DO outcomes in Table 8a are set as a concentration limit rather than a minimum percent saturation²²². Officers agree that the outcome for DO could be represented as a concentration consistent with the requirements of the NPSFM 2020 Table 17 (Appendix 2B – attributes requiring action plans), rather than a percentage saturation. However, as there is no scope in submissions to make this change, Officers do not recommend the DO outcome is amended.
- 38.2. Similarly, DOC provided evidence²²³ to support the chlorophyll-a outcome being lowered to 120 mg/m² for hill-fed lower river types. Officers note that while DOC supported Table 8a and sought its retention, the submission from Fish & Game²²⁴ provides scope for this change. In the Section 42A Report²²⁵, Officers note that under the NPSFM 2017, the proposed freshwater outcome for Chlorophyll-a is reflective of the C band (above the National Bottom Line), while the proposed change sought by Fish & Game is reflective of the B band. This statement is also true for the NPSFM 2020. The Officers noted in the Section 42A Report that without technical information to support the change sought by Fish & Game, Officers were unable to assess whether the amendment would better achieve the objectives of the CLWRP or give effect to the NPSFM 2020.
- 38.3. Officers note that a number of hill-fed lower rivers already exceed the national bottom line for Chlorophyll-a (200mg/m²), and that in such cases retaining the proposed outcome is still appropriate in terms of working towards an improvement in ecosystem health. The proposed outcome references that maximum Chlorophyll-a in a river should not exceed 200 mg/m². The NPSFM 2020, however, contains numeric attribute states for Chlorophyll-a according to the 92nd percentile of samples collected for a river over the minimum of 3 years of monitoring. No analysis has been completed to examine how the maximum and 92nd percentile metrics for Chlorophyll-a concentrations of 200 mg/m² and 120 mg/m² in Canterbury hill-fed lower rivers. It is therefore difficult to ascertain whether the NPSFM Band B outcome would be more consistent with the proposed DO and MCI outcomes as per the DOC evidence.

Table 8-b: Freshwater Outcomes for Waimakariri Sub-region Lakes

- 38.4. DOC provided evidence at the hearing in support of changes to Table 8b Freshwater Outcomes for Waimakariri Sub-region Lakes to set a planktonic cyanobacteria outcome of >0.5 and ≤1.0

²²² Evidence in chief, Ms McArthur on behalf of DOC, paragraphs 149-150.

²²³ Evidence in chief, Ms McArthur on behalf of DOC, paragraph 152.

²²⁴ PC7-95.54

²²⁵ Page 400, paragraph 3.29

mm3/L biovolume (for total cyanobacteria) for Tūtaepatu Lagoon. Officers note that there is no scope in submissions to make this change.

- 38.5. While acknowledging there is no scope, Officers note that the request included in DOC's evidence would set the Outcome at a level consistent with NPSFM Band B for potentially toxic species, and Band C for all cyanobacteria, and would recognise the cultural values of the waterbody and its potential as a mahinga kai gathering site.

Table 8-5: Water quality limits and targets for rivers

Dissolved Oxygen

- 38.6. The evidence from DOC notes that there are no DO concentration limits for point source discharges in Table 8-5. Ms McArthur suggests the absence of a DO concentration is an omission²²⁶, as *"Table 8-5 replaces the region-wide limits but fails to provide for DO concentration limits in the Waimakariri sub-region"*. She considers that limits for DO below point source discharges should be set consistent with the relevant management unit/river type in Schedule 8. It is also Ms McArthur's preference that DO concentration attributes apply to all rivers, whether they are set as limits or outcomes.
- 38.7. The Officers note there is limited scope in submissions for the inclusion of a DO limit in Table 8-5 and therefore do not support its inclusion.

DIN and Nitrate-nitrogen

- 38.8. During the presentation of evidence from CCC, the Panel requested Officers explain the relationship and interaction between the proposed DIN and nitrate-nitrogen limits and targets in Section 8 of the CLWRP. Using the top row of Table 8-5 as an example, the Hearing Panel noted the nitrate-nitrogen limit for hill fed upland streams to be much higher than the DIN limit. Officers were asked to explain why the nitrate-nitrogen limit was higher than the DIN limit (given nitrate is a component of DIN), the utility of the nitrate-nitrogen limit and how both sets of limits are intended to apply in practice.
- 38.9. The submission of DOC describes this issue in their submission against Table 8-5²²⁷, where they note that it is difficult to see how the DIN and the nitrate-nitrogen limits will work in tandem as the DIN limit in all cases is less than the nitrate-nitrogen limit.
- 38.10. The nitrate-nitrogen limits in Table 8-5 reflect those recommended by the Waimakariri ZC, as set out in the ZIPA. After the drafting of the ZIPA, the current state data (5-years of data between 2011-2016) was used to determine appropriate limits for DIN. Typically, nitrate-nitrogen is used to manage for toxicity effects on aquatic fauna, while DIN limits are used to manage periphyton and aquatic plant growth.

²²⁶ Evidence in chief, Ms McArthur on behalf of DOC, dated 17 July 2020, paragraph 150

²²⁷ Page 17 of DOC's original submission.

- 38.11. The 1-year (Nitrate-N) versus 5-year (DIN) metrics measure the medians over different time-scales and are important differences between the two N limits. This is because the different metrics account for yearly fluctuations in environmental conditions in different ways and therefore year-on-year compliance with N limits. The metrics are also consistent with the general approach in the NPSFM 2020 for setting toxicity attributes based on annual metrics (nitrate and ammonia) and setting river eutrophication attributes based on 5 year datasets (e.g. DRP).
- 38.12. At the time the limits for Section 8 were drafted, it was not considered appropriate to use the draft ZPA nitrate-nitrogen limits to determine limits for DIN, on the basis that the ZPA nitrate-nitrogen limits were not consistent with the current state of the streams. Rather, the ZC recommendations were based on modelled concentrations that were/are expected to occur – usually based on increasing trends. The DIN limit was set to be consistent with the requirement to “maintain or improve” water quality.
- 38.13. To resolve this issue, using only one of the limits is a valid suggestion. Nitrate-nitrogen limits of 1.0 mg/l or less could be removed (because toxicity impacts are no longer being managed at these “low” concentrations) and DIN limits retained for those sites where DIN limits have been proposed. The Officers note that nitrate toxicity is an attribute identified in Appendix 2A of the NPSFM 2020 as relevant to the compulsory value of “ecosystem health”, and therefore must be included in a regional plan, along with a target attribute state. However, where DIN limits have been set at less than 1 mg/L, these implicitly impose limits on nitrate nitrogen concentrations at Attribute State A for nitrate toxicity. Despite this, Officers recommend retaining the nitrate-nitrogen limits for surface water bodies on the basis that it is consistent with the direction set out in the NPSFM 2020.

DRP

- 38.14. The evidence of Ms McArthur (on behalf of DOC)²²⁸ suggested that the dissolved nutrient limits/targets should be set at the thresholds proposed by Matheson et al. (2012 and 2016) of 0.018 mg/l DRP in order to meet periphyton outcomes and be closer to achieving macrophyte outcomes. The submission from Fish & Game provides scope for this amendment.
- 38.15. Where the proposed DRP limits in Table 8-5 are higher than 0.018mg/L, Officers support reducing these to 0.018mg/L, based on the information presented in DOC’s evidence. Officers note that there are proposed methods in Section 8 of the CLWRP that will assist in achieving this limit.

NPSFM 2020: National objective framework and national bottom lines

- 38.16. Several submitters requested amendments to the nitrate-nitrogen limits and targets in Table 8-5 that would better provide for human health and ecosystem health. Suggestions put

²²⁸ Evidence in chief of Ms McArthur on behalf of DOC, dated 17 July 2020, at paragraph 166

forward include a nitrate-nitrogen target of <1.0mg/l²²⁹ to a “30% precautionary reduction in the notified N mg/l limit”²³⁰. As described in Section 4 of this report, it is the Council’s position that the provisions in PC7 should be amended to give effect to the NPSFM 2020 as much as possible, where there is scope to do so.

- 38.17. Section 3.11 of the NPSFM 2020 sets out the actions that the regional council must undertake in setting target attribute states. Section 3.11(4) states that if the baseline state of an attribute is below any national bottom line for that attribute, the target attribute state must be set at or above the national bottom line.
- 38.18. While Environment Canterbury has not yet been through the appropriate process to fully understand how Te Mana o te Wai applies to waterbodies for the Waimakariri sub-region²³¹, or to set the long term visions for each FMU²³², the NPSFM 2020 (and its objectives and policies) are a relevant consideration for decision-makers, and it is therefore appropriate to set the nitrate-nitrogen limit at a value that gives effect to the objective of the NPSFM (where scope exists to do so). As such, Officers recommend that where the nitrate-nitrogen targets proposed in PC7 are below the new NOF national bottom lines, that they are amended so that those targets meet the national bottom line²³³. This includes the nitrate-nitrogen concentrations for Courtney Stream, Cust Main Drain, Silverstream (Harpers Road), Silverstream (Island Road) and Ohoka Stream.
- 38.19. On 9 November 2020, Officers submitted a response to a question from the Hearing Panel that describes what the nitrogen loss reductions in the Waimakariri Zone would look like to achieve the new bottom line requirements. The implications of including lower instream nitrate-nitrogen targets are discussed in paragraph 39.45 of this report.
- 38.20. The NPSFM 2020 has introduced a number of other significant changes from the previous iterations of the NPSFM, including some differences in how freshwater outcomes are described, and the meaning and application of the terms “limit” and “target” (which are also to be used in regional plans). In the case of PC7, the terminology used in describing freshwater outcomes, limits and targets is different to that prescribed in the NPSFM 2020 on the basis that it is consistent with the rest of the CLWRP, which was developed and amended via various plan changes under the NPSFM 2011, NPSFM 2014 and the NPSFM 2014 (amended 2017). Despite criticisms from Dr Freeman²³⁴ (which do not relate specifically to any relief sought in the primary submission or in the evidence), Officers do not consider it appropriate to change the references to freshwater outcomes or water quality limits and targets to align with the NPSFM 2020 ahead of the council giving full effect to the NPSFM 2020 as part of a wider review of the CLWRP.

²²⁹ Forest & Bird PC7-472.122

²³⁰ Fish & Game PC7-95.47

²³¹ Clause 3.2 of the NPSFM 2020

²³² Clause 3.3 of the NPSFM 2020,

²³³ Forest & Bird PC7-472.122

²³⁴ Evidence in chief of Dr Freeman, on behalf of As One Inc., dated 15 July 2020, pages 22-23.

- 38.21. In its submission, Templeton Pegasus Limited opposed the setting of water quality limits and targets for Lake Pegasus in PC7, stating that it is unclear whether scientific and technical capabilities would exist to meet such limits. It also highlighted its inability to control groundwater inflows into the lake as a significant issue for meeting any future set limits and targets. As such, it sought that limits related to Lake Pegasus be removed from Table 8b and Table 8-6, or alternatively that these relevant limits be set as targets.
- 38.22. Mr Webster, in his evidence on behalf of Templeton Pegasus Limited, considers that the primary purpose and function of Lake Pegasus is for stormwater management. Officers have responded to this evidence at paragraph 14.14, where it is noted that the lake “cannot be simply” be considered a stormwater retention pond.
- 38.23. Although it was not actively discussed during the Waimakariri ZIPA process, Officers understand water quality limits and outcomes were included for Lake Pegasus given that it is clearly an “artificial lake” present within the Waimakariri sub-region, and it was considered appropriate to set limits for its management.
- 38.24. Officers highlight that Table 1b of the operative CLWRP includes a region-wide lake management unit for ‘Artificial Lakes – others’ with freshwater outcomes. Further, Schedule 8 of the CLWRP sets region-wide water quality limits for artificial lakes. Therefore, the CLWRP clearly provides for water quality limits and targets to be set for artificial lakes where appropriate (as has occurred within the Waitaki sub-region²³⁵).

Tables 8-7 and 8-8 Nitrate-nitrogen Limits for Groundwater and Drinking Water Supplies from Groundwater

- 38.25. Officers have read and considered the evidence of the experts called by various submitters²³⁶ regarding elevated concentrations of nitrate-nitrogen in drinking water, the associated health risks (including increased risk of colorectal cancers) and the costs to mitigate those risks (including reducing N losses to groundwater or treating the drinking water source). Officers understand from this evidence that a Ministry of Health investigation of the health impacts of nitrate-nitrogen in drinking water was undertaken in 2020, with the result of the project expected by the end of that year. At the time this reply report was prepared, the results were not made available either publicly or submitted as evidence for PC7. It is understood from the verbal responses at the hearing given by Dr Humphries, that it may take years before a position is reached by the WHO and IARC on the MAV for nitrate-nitrogen in drinking water, and that the Ministry of Health will likely take direction from the WHO and IARC before amending the drinking water standards to change any MAV.

²³⁵ Table 15B(d) of the CLWRP.

²³⁶ The evidence presented by Dr Chambers (on behalf of CCC); Dr Black (on behalf of WIL); D A Rankin and the verbal presentation of evidence presented by Dr Humphries, acting on behalf of Orari River Protection Group

- 38.26. In the verbal presentation from Dr Humphries, it was suggested that ahead of any changes to the drinking water standards, it would be appropriate to apply the precautionary principle as a community to ensure our N levels do not continue to rise. Environment Canterbury counsel presented a summary of the need to adhere to the precautionary principles for drinking water standards in the second response to questions from the Hearing Panel from Day 1 of the hearing.
- 38.27. Taking into account the principles of the precautionary approach and its application under the RMA as developed by caselaw²³⁷, Officers agree with the position set out in the rebuttal evidence of Ms Sullivan²³⁸, that should there be an amendment to the MAV for nitrate-nitrogen, then it is most appropriately incorporated into the CLWRP by a plan change. Given the present uncertainty about whether the DWSNZ will be amended to reduce the MAV for nitrate-nitrogen concentrations in drinking water, and if they are amended, what the likely MAV would be, Officers do not consider it appropriate to include lower nitrate-nitrogen limits for groundwater in PC7 in advance of a review of the DWSNZ.
- 38.28. As detailed in section 4 of this report, Officers note that a comprehensive plan review will be required for the Council to give effect to the NPSFM 2020, and that the anticipated timeframes for WHO to provide direction on the MAV and the corresponding amendment to DWSNZ will either correspond with this plan change, or at the very least, be ahead of the 10 year plan review that will be required for the Waimakariri sub-region.
- 38.29. Several submitters²³⁹ also sought amendments to the nitrate-nitrogen limits in the plan to protect stygofauna ecosystems. G D Fenwick presented evidence on the ecosystem function of stygofauna and microbes in groundwater and the potential implications for managing groundwater quality and water levels. It is the Officer's view that prioritising the health and well-being of the groundwater ecosystems is required by the NPSFM 2020 (Objective 2.1), noting that Te Mana o te Wai is relevant to all freshwater management, including groundwater.
- 38.30. From the evidence presented at the hearing, it appears there is very little Canterbury specific information available about the stygofauna and microbial ecosystems in Canterbury's groundwater and spring-fed streams. Several submitters have sought amendments to the nitrate-nitrogen concentration limits and targets in groundwater to protect the groundwater ecosystems, however it appears the limits requested are based primarily on the evidence and information presented at the WCO hearing for Te Waikoropupū Springs. It is also understood that the nitrate-nitrogen limits considered through this WCO process took into account existing low concentrations of nitrate-nitrogen and the uncertainty whether higher limits

²³⁷ Page 2, Second set of Responses to Questions of Hearing Commissioners from the First Hearing Day (29 September 2020), dated 13 October 2020

²³⁸ Statement of Rebuttal Evidence of Ms Sullivan, on behalf of WIL, dated 18 September 2020, paragraph 8.

²³⁹ R English, Te Kōhaka o Tūhaitara Trust, D A Rankin, G D Fenwick

would protect the outstanding characteristics of the springs²⁴⁰. It is unclear to the Officers if this information is applicable to Canterbury.

- 38.31. Taking into account the significant restrictions on farming land use activities that would be required to achieve a nitrate nitrogen limit of less than 1 mg/l²⁴¹, Officers are unable to justify setting nitrate-nitrogen limits for groundwater for the purpose of providing for the health and well-being of groundwater ecosystems, without sufficient information that those limits will appropriately provide for those ecosystems. The health and well-being of all aspects of freshwater (including groundwater and its ecosystems) will need to be addressed when undertaking a full review of the CLWRP to give effect to the NPSFM 2020.

39. Methods for achieving water quality limits and targets

Nitrate modelling

- 39.1. Several submitters (DairyNZ, WIL and As One Inc.) discuss the differences between modelled and measured nitrate-nitrogen concentrations and trends inferred from measured nitrate-nitrogen data.
- 39.2. Dr Rutter, on behalf of DairyNZ noted in her evidence: *“I compared measured and modelled nitrate-N concentrations for various WDC bores, as an indication as to whether the model outputs were consistent with measured data. There are considerable discrepancies between most measured and modelled values”*.
- 39.3. However, Officers note that Dr Rutter did not use lag times or recent land use change as a screening criteria for comparing modelled and measured data. Officers know that significant land use intensification has occurred over the last few decades. Officers also know that the average age of water in many of the wells tested via age tracer analysis in the Waimakariri zone is several decades or longer. It is not reasonable to expect a steady state groundwater model to replicate nitrate-nitrogen concentrations in wells that are unlikely, based on the average age of their water and relatively recent land use intensification in their catchment areas, to have reached steady state (i.e. equilibrium) with respect to current land use.
- 39.4. Mr Sanson considers in his Summary of Evidence dated 17th July 2020 that the groundwater model used to evaluate nitrate-nitrogen concentrations does not appear to be calibrated to actual nitrate-nitrogen concentrations. He refers to Figure 3-11 from Kreleger and Etheridge (2019) which shows modelled and measured concentrations for 14 shallow bores. He states:

²⁴⁰ Special Tribunal Recommendation Report on Application for Water Conservation Order Te Waikoropupū Springs and associated water bodies. March 2020.
https://www.epa.govt.nz/assets/FileAPI/proposal/NSP000042/Boards-decision/WCO_Te_Waikoropupu_Springs_Recommendation_report_Final_ERRATUM_20_March_2020.pdf Paragraph 266

²⁴¹ As described in Appendix G

“This figure shows that the model underpredicts nitrate concentrations for seven bores. This is used as justification for the model doing a good job at predicting nitrate concentrations in the Waimakariri Zone (Paragraph 44 of the JWS). 5. It appears that the ECan scientists have only been able to identify seven bores where the modelled results are lower than the measured data. I have tried to find out how many wells had higher modelled nitrate concentrations and how many wells had lower modelled nitrate concentrations, compared with measured concentrations within the Waimakariri Zone. Unfortunately, this information does not appear to be available in any of the ECan technical reports”

- 39.5. The evidence from Mr Sanson does not recognise that modelled concentrations in the other seven wells in the 14 well set presented in the figure he refers to were lower than measured concentrations, nor does he note that the average model nitrate-nitrogen concentration for the 14 wells shown in Figure 3-11 is 5.1 mg/l; the average measured concentration is 4.9 mg/l. Model and measured results in these shallow wells, with limited lag effects, are therefore similar.
- 39.6. Page 50 of the Kreleger and Etheridge (2019) report explains that these shallow wells were selected for their locations in areas where recent land use intensification has been minimal. This coupled with their shallow depth (hence relatively young water ages) means that this set of data provides a more reasonable basis for comparison of modelled and measured results than those referred to by Dr Rutter. It would not be useful to compare modelled and measured data in every well in the Waimakariri zone, as suggested by Mr Sanson, without first filtering out those wells with recent land use intensification in the upgradient area and short lag times.
- 39.7. Ms Drummond, on behalf of WIL, notes that statistically significant decreasing trends in dissolved inorganic DIN and NNN have occurred at three spring-fed stream sites (Cust Main Drain, Ohoka River and Cam River). These sites have a relatively short MRT, as discussed in paragraph 18, and therefore the improving trends are indicative of land use impacts (and improvements) in recent years
- 39.8. Officers note that this explanation does not consider the broader context of the nitrate-nitrogen trends. Nitrate-nitrogen monitoring was initiated in Ohoka Stream in 1999, at the end of a severe two-year drought. The declining trend in Ohoka Stream is a function of the high concentrations at the start of the monitoring period, which may relate to climatic conditions at that time. Officers also know that irrigation race bywash is discharged to the Cust Main Drain and that this has been providing a source of dilution for nitrate-nitrogen in the stream since the irrigation scheme began.
- 39.9. Dr Freeman explains in his Evidence in Chief that *“it has been recognised for many years that increased irrigation in some situations can result in a decrease in groundwater nitrate concentrations because of the potential for dilution.”*
- 39.10. The irrigation efficiency of the WIL scheme is known to have been low due to the poor reliability of the Waimakariri River take. This has led to a precautionous approach to irrigation, referred to as “just in case”. The combination of dilution from inefficient irrigation, irrigation

bywash discharges to surface water and groundwater and climatic variability mean that the declining trends seen in some locations do not provide a robust indication of future trends, especially given that WIL has recently made significant investments and efforts to improve irrigation efficiency. These improvements have the potential to reduce nitrate-nitrogen dilution and could therefore result in higher nitrate-nitrogen concentrations in some areas. Officers have observed nitrate-nitrogen concentration increases in other parts of the region following conversion of low efficiency border dyke irrigation to high efficiency spray irrigation. The model results account for higher irrigation efficiency whereas the measured data do not because the effects of this are not yet manifested in the measured data.

- 39.11. As outlined above, a key theme in the evidence presented by the groundwater experts and lay submitters were concerns about the uncertainty associated with the modelling, including the underlying assumptions and data relied upon. Officers note that Section 32(2)(c) of the RMA requires the Council to take into account the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions. At pages 327-328, and 349 of the Section 32 Report, it was concluded that despite the limitations and uncertainties of the modelling, there is sufficient information and direction for action to be taken to set nitrate-nitrogen limits and targets, and to include methods to achieve them. The report concludes that there is minimal risk of acting, however the greater risk lies with retaining status quo, where the risk would be that water quality degrades further and freshwater outcomes are not achieved.
- 39.12. Section 1.6(1) of the NPSFM 2020 sets out the requirements to use the best information available at the time, including complete and scientifically robust data. Section 1.6(2) goes on to provide guidance on how to proceed in the absence of complete and scientifically robust data. In particular, the best information may include information obtained from modelling, as well as partial data, local knowledge, and information obtained from other sources. The proposed water quality outcomes, limits and targets and the associated nutrient management provisions in Part C of PC7 are based on modelled outputs, on the basis that there was a need to understand what the likely concentrations of nitrate-nitrogen would be in groundwater and surface water bodies under steady state conditions, acknowledging there was significant and recent land use intensification in some parts of the Waimakariri sub-region area, that the effects of improvements in irrigation efficiency on nitrate-nitrogen concentrations is uncertain and that the travel times between the land surface and the receiving groundwater and/or surface water bodies can be very long²⁴².
- 39.13. Section 1.6 of the NPSFM 2020 states that in the absence of complete and scientifically robust data, local authorities must:
- (a) *prefer sources of information that provide the greatest level of certainty; and*
 - (b) *take all practicable steps to reduce uncertainty (such as through improvements to monitoring or the validation of models used).*

²⁴² Kreleger and Etheridge 2019 page 25

- 39.14. Two key areas of uncertainty with respect to setting nitrate-nitrogen targets and limits are the ultimate nitrate-nitrogen concentrations in surface water and groundwater within the Waimakariri zone when these equilibrate with current land use and management and the transport of nitrate-nitrogen from the Waimakariri zone to the Christchurch aquifer system.
- 39.15. Section 3.2 (p 6) of Etheridge and Hanson (2019)²⁴³ explains that these questions could not be readily answered with simple analytical models or expert judgement. The technical team concluded that development of a numerical groundwater model coupled with a collaborative science process to collate expert knowledge and to translate this knowledge into the format required for application to a numerical model was the best approach. They undertook a three-year collaborative groundwater model development programme with the aim of providing a robust scientific tool for use in the Waimakariri Land and Water Solutions Programme. Further information on the process undertaken to reduce uncertainty to the greatest degree possible by undertaking additional field investigations and monitoring, undertaking multiple modelling iterations and implementing a parallel expert judgment assessment of connectivity between Waimakariri and Christchurch is provided in Section 3.2 – 3.4 (p 6 - 11) of Etheridge and Hanson (2019). The model validation process with respect to modelled and measured nitrate-nitrogen concentrations is discussed in paragraph 39.6 above.
- 39.16. Section 1.6 clause (3) of the NPSFM 2020 states that a person who is required to use the best information available at the time:
- (a) *must not delay making decisions solely because of uncertainty about the quality or quantity of the information available; and*
 - (b) *if the information is uncertain, must interpret it in the way that will best give effect to this National Policy Statement.*
- 39.17. After reviewing the evidence presented by the submitters' experts and the response from the Council experts (Ms Kreleger and Mr Etheridge), Officers support the conclusions set out on page 328 of the Section 32 Report regarding the risk of acting or not acting in the face of uncertain information. The approach adopted by Environment Canterbury here is consistent with the direction set out in Section 1.6 clause (3) of the NPSFM 2020, where the modelled outputs have been interpreted in a way that will give best effect to the NPSFM 2020.

Errata

- 39.18. Officers have identified that the information used in the two memoranda prepared in response to questions from the Hearing Panel has a minor error that requires correcting. These memoranda include a description of the reductions required to achieve the new NPSFM 2020 national bottom lines for nitrate toxicity and the types of corresponding land uses²⁴⁴. The error relates to the annual average N loss rate assumed for lifestyle blocks. These

²⁴³ Etheridge Z. and Hanson M. 2019. *Waimakariri Land and Water Solutions Programme Numerical Groundwater Model conceptualisation, design, development and deployment* (R19/77). Environment Canterbury.

²⁴⁴ Dated 28 October 2020 and 9 November 2020.

memoranda used a figure of 21.8 kg/ha/year (based on Table 17, Lilburne (2019)). Mr Mojsilovic (Land Resources Scientist at Environment Canterbury and co-author of the Lilburne report) has confirmed this is an error in that report and the N loss rate for lifestyle blocks should be 5-6 kg/ha/year.

- 39.19. The two memoranda that relied on this data have been corrected (with corrections highlighted as tracked changes) and are attached in Appendices G and H.

Update to S-Maps and implications for modelling

- 39.20. Manaaki Whenua Landcare Research updated soil parameters in their S-map tool in September 2020. Evidence presented by Mr Hawkins on behalf of As One Inc. suggested that the change in modelled N losses using Overseer as a result of the change in S-maps is up to 20% in the Waimakariri sub-region.
- 39.21. Officers note that Overseer Limited have carried out testing with the new S-map parameters on the analyses which currently exist within Overseer, undertaking over 32,000 farm analyses from across New Zealand. The results of the testing indicate that 78% are likely to see a change of their N loss per hectare results between minus 10% to plus 10%. Within that group only 16% of farms see no change to their results²⁴⁵.
- 39.22. Etheridge et al. (2018)²⁴⁶ documents the process used to assess the uncertainty around modelled nitrogen loss rates for the Waimakariri zone science work. Errors associated with soil mapping were considered by the panel of nitrogen modelling experts, along with the broader sources of modelling error and uncertainty. The uncertainties estimated by the experts were included in the modelling and are therefore part of the modelled nitrogen concentration uncertainty range (e.g. 5th percentile, median and 95th percentile) presented in the technical reports (e.g. Kreleger and Etheridge, 2019).
- 39.23. The estimated uncertainty range for dairy farms on light soils associated with environmental input values (i.e. soil type and climate zone) range from -20% to +20% for the 5th and 95th percentile values respectively as shown in Figure 3 below. The average 22% reduction in N loss calculated by Mr Hawkins associated with the soils data update therefore falls within the modelled uncertainty range and has therefore been accounted for, to some degree, as part of the broader evaluation of nitrogen modelling uncertainty. Furthermore, Mr Hawkins' presentation shows that dairy farming on Very Light soils represents 58% of the total mapped dairy farm area. The modelled N loss rate for dairy farming is 1,953 t/y for the Final ZIPA

²⁴⁵ Overseer Release Notification "Effect of August 2020 changes to S-maps on Overseer FM results" dated 21 August 2020. <https://support.overseer.org.nz/hc/en-us/articles/900002195483-Effect-of-August-2020-changes-to-S-maps-on-OverseerFM-results>

²⁴⁶ Etheridge, Z., Fietje L., Metherell A., Lilburne L., Mojsilovich O., Robson M., Steel K., Hanson M. 2018. *Collaborative expert judgement analysis of uncertainty associated with catchment-scale nitrogen load modelling with OVERSEER®*. In: *Farm environmental planning – Science, policy and practice*. (Eds L. D. Currie and C. L. Christensen). <http://flrc.massey.ac.nz/publications.html>. Occasional Report No. 31. Fertilizer and Lime Research Centre, Massey University, Palmerston North, New Zealand. 14 pages.

modelling results shown in Table 17 of Lilburn et al. (2019),²⁴⁷ which comprises 45% of the total N load (4,329 t/y) for the Waimakariri zone. The overall error associated with the soil mapping update is therefore $22\% \times 58\% \times 45\% = 5.7\%$, which is not a significant proportion of the total modelled nitrogen loss rate. The Officers therefore do not propose to revise the nitrogen loss reduction requirements on the basis of the information which has been usefully provided by Mr Hawkins about the recent update the S-Map data.

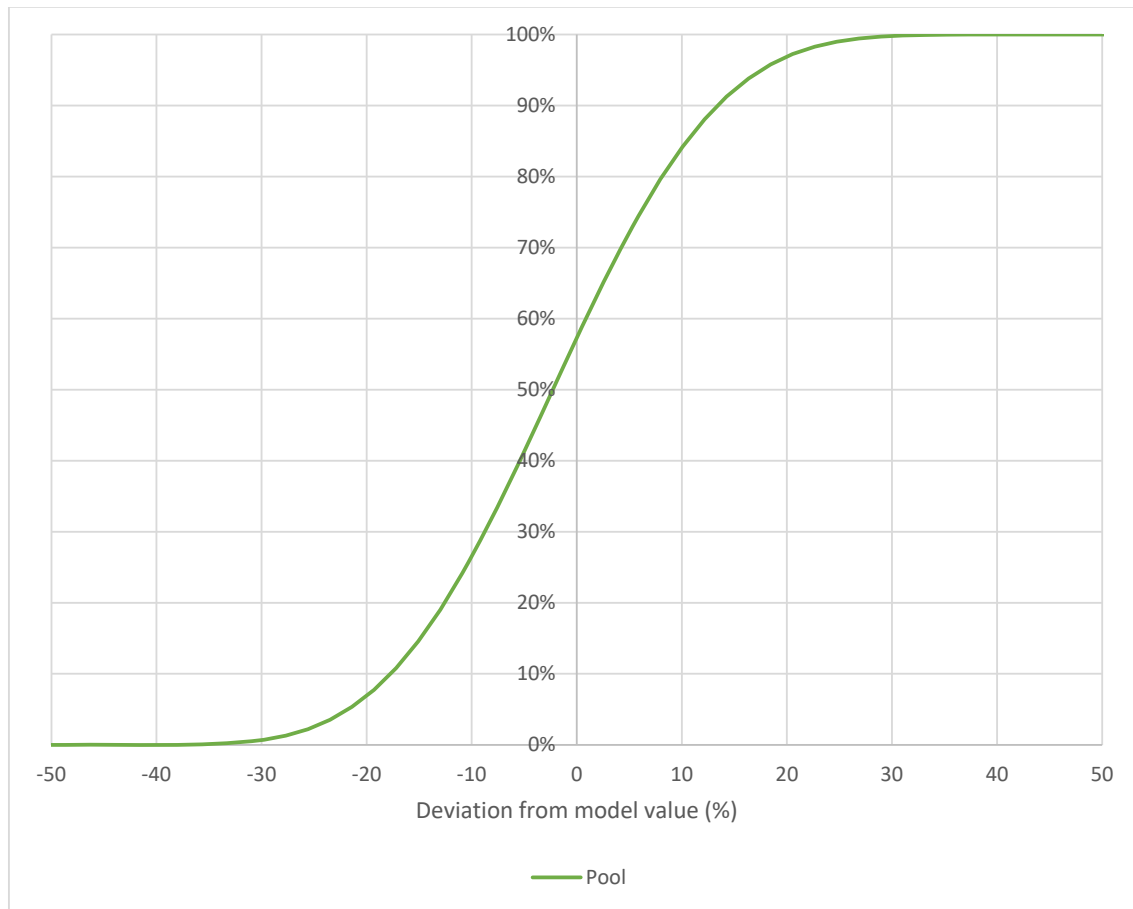


Figure 3. Estimated uncertainty range for modelled nitrogen loss rates associated with environmental input data from dairy farms on light soils.

Extent of the Nitrate Priority Area

39.24. Several submitters presented evidence to support changes to the boundaries of the NPA. CCC sought that the NPA boundaries are amended to include the whole of the Christchurch aquifer recharge area. Several other submitters presented evidence that suggests it would be appropriate to amend the NPA to include the ‘heavy soil’ area to the north/north-east of the NPA.

²⁴⁷ L. Lilburne, H. North, M. Robson-Williams, O. Mojsilovic (2019). *Preparation of land use and nitrogen-loss data for the Waimakariri Zone limit-setting process*. Landcare Research New Zealand.

- 39.25. The submission from As One Inc. states that catchment areas have been excluded from the NPA without adequate justification. As described in the technical material that was notified with PC7, surface water catchments that were unlikely to drain toward groundwater, where runoff contaminants are having the greatest impact and where nitrate toxicity effects are limited, were excluded from the NPA. Generally, this excludes all the surface waters north of Burgess Creek from the NPA (with exception of Silverstream). This does not mean that there are no nitrogen loss reductions beyond GMP required to achieve the outcomes for these surface water bodies. The groundwater recharge area for the Cust Main Drain²⁴⁸ and Ohoka Stream are (partly) included in the NPA and fully included in the extended NPA. Officers propose that farms within these groundwater recharge areas inside the NPA reduce their nitrogen losses to groundwater to enable a reduction in nitrate-nitrogen entering these spring-fed streams. It would be inappropriate to align the NPA boundary with catchment boundaries, as catchment boundaries are defined by surface water sources and not groundwater recharge areas.
- 39.26. DHL's submission includes a request that the boundary of the NPA be amended to the terrace/existing green zone boundary. The submitter states that one of their properties is located along the Waimakariri River and is divided between upper and lower terrace areas. They state that the lower terrace areas clearly has surface and groundwater flows towards the river rather than back into the Zone²⁴⁹. The submitter reiterates this issue in the evidence of Mr Glass²⁵⁰ but does not provide any additional evidence to support this request. The Officers agree that the lower terrace area is located in a "Green" NAZ under the CLWRP, and under PC7, is located within the NPA.
- 39.27. DHL consider that the NPA is either in error, or an inappropriate change has been made to the boundary to capture some of the lower terrace area. They consider that it makes no sense for this area to be subject to reductions as they believe that all water clearly flows in the opposite direction. At the hearing, Mr Williams, legal counsel for DHL, noted that in the absence of detailed explanation of why this area is included in the NPA it's DHL position that there is no apparent reason why it should be hydrologically connected to the rest of the NPA that it should remain as a Green Zone.
- 39.28. At the hearing²⁵¹, the Hearing Panel asked Mr Williams about the statement in the DHL submission that the waterbodies with water quality issues are located "quite some distance" from DHL's operations²⁵², and how this measures up with the NPSFM 2020 for setting environmental outcomes by FMU's, noting that the NPSFM 2020 does not contemplate the achievement of environmental outcomes "property by property". Mr Williams noted that at the time of preparing the submission, they were not aware of the relationship between farming on this property and the improvement in the water quality of lowland waterbodies. Mr Williams noted that DHL is happy to contribute to be part of the WIL solution and

²⁴⁸ In the technical assessments the Cust Main Drain is identified as the modified form of the lower Cust River.

²⁴⁹ Paragraph 14.14 of DHL's submission.

²⁵⁰ Paragraphs 67-71 of the Evidence in chief of Mr Glass, on behalf of DHL, dated 17 July 2020

²⁵¹ Day 3 of the Hearing for Plan Change 7 to the CLWRP, 1 October.

²⁵² Paragraph 14.7 of DHL's submission.

acknowledges that this occurs in an FMU process, but expressed a desire that land use controls reference the outcomes that are being sought through that FMU process.

- 39.29. Officers note that the only part of the previously Green NAZ under the CLWRP included within the NPA is an area along the northern bank of the Waimakariri River, across from Sheffield. This is due to the alignment of the southern boundary of the NPA with the new southern boundary of the Waimakariri sub-region. The justification for the adjustments of the Sub Region boundary was presented in the technical material that was notified with PC7²⁵³. The first paragraph of this memorandum states:

“The southern boundary of the Waimakariri Sub-Region section of the LWRP (Section 8) needs to move closer to the Waimakariri River to incorporate intensified land use just north of the river. This is to give effect to the Zone Committee’s recommendations for managing nitrate losses from farming adjacent to the river because of the potential to impact Christchurch aquifers and or contribute to observed elevated nitrate concentrations in the Waimakariri River itself.”

- 39.30. Given that the rationale for including these previous “green” NAZ properties in the NPA is to assist in achieving the water quality thresholds for the Waimakariri River and the Christchurch aquifers, Officers recommend retaining the proposed southern boundary of the NPA.
- 39.31. The submission from CCC requests that the NPA boundary is amended to include the full Christchurch aquifer recharge area²⁵⁴. The evidence of Ms Carter and Mr Thorley, on behalf of CCC, reiterates this position²⁵⁵. The delineation of the NPA has been explained in the technical material that was notified with PC7 and in the Section 42A Report. The adopted approach was that heavy and poorly drained soils within groundwater recharge zones would not contribute to nitrate-nitrogen leaching towards groundwater. This means that a relatively small part of the Christchurch Aquifer recharge zone (8.5 km² of 275 km², which is approximately 3%) is excluded from the NPA (generally around the Oxford area). Most of this excluded land is included in the extended version of the NPA as presented in the technical material that was notified with PC7. Considering the additional area is very small, the contribution to achieving any faster improvements will be negligible.
- 39.32. The CCC submission also seeks to include the area to the north of the Waimakariri River²⁵⁶. The areas highlighted by CCC are modelled as draining into the Waimakariri River, rather than the Christchurch aquifers. In the technical work undertaken to support PC7, the technical team explored the possibility of applying beyond GMP N loss reductions to the Waimakariri River

²⁵³ Kreleger, A. (2019). *Changing the southern Waimakariri Sub Region Boundary, step by step overview*. Environment Canterbury Technical Memorandum.

²⁵⁴ Pages 2 and 18 of the CCC submission, submission point number PC7-337.113

²⁵⁵ Evidence in chief of Ms Carter, on behalf of CCC, dated 17 July 2020 at paragraph 27; and the evidence in chief of Mr Thorley, on behalf of CCC, dated 17 July 2020, at paragraphs 123, 136 and 146-147

²⁵⁶ As shown in Figure 15, page 62 of Mr Thorley’s evidence in chief, on behalf of CCC, dated 17 July 2020.

catchment²⁵⁷. Officers note that the rationale for not proposing N loss reductions (beyond GMP) in these areas was that we would not be able to show that reducing nitrogen loss rates would improve freshwater outcomes in the river on the basis that the Waimakariri zone load makes up a small proportion of the overall river load. Officers note that reducing the load in the area identified by CCC would be unlikely to make a significant difference to nitrate-nitrogen concentrations in the Waimakariri River, but the corresponding cost to landowners would be significant²⁵⁸.

- 39.33. Several submitters note there are other farming properties located outside the NPA that are located on land that feeds into drains and tributaries of water bodies in the NPA, such as Cust River, Cust Main Drain and Eyre River. The evidence of Dr Freeman, on behalf of As One Inc.,²⁵⁹ discusses the exclusion of the heavy soil area and the recharge area of other receptors. While no specific relief has been sought to extend the NPA to include all of those recharge areas, the primary submission from As One Inc. requests consequential or alternative relief to amend (amongst other things) the “planning maps, overlays, policies and rules which limit land use, where it is shown the modelling has relied on inaccurate or inappropriate assumptions or information”²⁶⁰.
- 39.34. Similarly, the evidence and presentation from Mr Wells, on behalf of Carleton Dairies, states that dairy farms in the NPA are being unfairly targeted with long-term nitrogen loss reductions, when there are many other dairy farms that are in the run-off priority area (i.e. land that is outside of the NPA) that only need to meet GMP. Mr Wells goes on to state that these catchments include a lot of swamp land that has been drained that feeds into drains and tributaries of waterbodies in the NPA²⁶¹.
- 39.35. Mr Wells, on behalf of Carleton Dairies, included a map of the drainage area in a presentation he gave to the Hearing Panel. The nitrogen loss reductions beyond GMP required for farms within the NPA focus on nitrate-nitrogen leaching towards groundwater. In the delineation of the NPA, Council Officers excluded land from where drainage to ground was generally assumed not to occur. This includes some land around Oxford, including that identified in the maps presented by Mr Wells. The extended NPA, as presented in the technical material that was notified with PC7, does include (most of) these areas. This means that even though the technical assessments supporting PC7 have assumed nitrate-nitrogen is less likely to leach toward groundwater here, any nitrogen loss reductions beyond GMP in this area, under the extended NPA, would help to achieve better outcomes for surface water quality by reducing nitrate-nitrogen in surface run-off.

²⁵⁷ Etheridge, Z et. al. (2018). *Nitrate assessment for the northern Waimakariri River tributaries catchment* Section 5.7

²⁵⁸ Etheridge, Z et al (2018). *Nitrate assessment for the northern Waimakariri River tributaries catchment*. (Section 5.7)

²⁵⁹ Evidence in chief of Dr Freeman, on behalf of As One Inc., dated 15 July 2020, paragraphs 126-130.

²⁶⁰ PC7-387.9

²⁶¹ Evidence in chief of Mr Wells, on behalf of Carleton Dairies Ltd, dated 17 July 2020, paragraph 7.10.

- 39.36. Extending the NPA to include the heavier soils will likely result in improvements in water quality (both groundwater and surface water quality) in the Ohoka/Cust area sooner than using the notified NPA. This scenario and the timeframes to achieve the outcomes was presented in the technical material that was notified with PC7. Due to the low density of dairy farming and other farming activities in the area, the staged reductions will only be reduced by one or two 10-year stages: Cust Main Drain and Ohoka Stream would still require five 10-year staged reductions instead of six, private wells in the private well supply area (PWSA) of Ohoka would still need one 10-year stage reduction instead of two (shallow wells) and three stages instead of four (deep wells) and the Cam River would require four 10-year reduction stages under the extended NPA whereas under the proposed NPA this receptor would not be able to reach their nitrate-nitrogen concentration target.
- 39.37. Officers do not recommend extending NPA to include the heavy soil area or drainage area near Oxford, noting there is both limited scope in submissions to do so, and limited information available about the likely improvement in water quality. Without this information there is uncertainty about the number of staged reductions necessary for the landowners in the area and Council will not be able to complete a full assessment of the environmental, cultural, social and economic costs and benefits of such an extension. Officers also note that identifying the extended area at this point of the process, and including that area in the planning maps, raises concerns about natural justice for landowners within that area and their ability to participate in the public hearing process for changes that may impact them.

Delineation of the NPA sub areas

- 39.38. Several submitters provided evidence at the hearing outlining their concerns about the methods used to delineate the NPA sub-areas.
- 39.39. Several submitters²⁶² raised concerns in submissions and subsequent evidence that the differentiation in five NPA sub areas creates inequalities for affected farmers. Carleton Dairies noted in their verbal submission that lines on a map “*create winners and losers*”, Waimakariri NGF note that concerns that the sub-areas will create a “them and us” division amongst the farming community²⁶³.
- 39.40. Officers recognise the submitters’ concerns regarding the inequity in the fact that some farmers within the NPA require more nitrogen loss reductions on their farm than others, sometimes even neighbouring farms. Officers note and reiterate that the five sub-areas serve an important purpose – they highlight that the zone is not homogenous and that different receptors require a different approach. They also highlight that reductions in one sub-area can only benefit specific receptors and that for all receptors to benefit from the proposed provisions, nitrogen loss reductions need to be taken there where it matters. Aggregating the required nitrogen loss reductions across the NPA (with no sub-areas) introduces a risk that any efforts to reduce losses will be focused in areas where they are more easily achieved,

²⁶² WIL, Carleton Dairies.

²⁶³ Evidence in chief of Ms Ruston, on behalf of Waimakariri NGF, paragraph 8.3(a).

benefitting only a few receptors. This is a possible risk given that a large number of properties within the NPA are WIL shareholders, and can be managed under one resource consent for the irrigation scheme. Therefore, Officers recommend retaining the proposed NPA sub-areas, as notified.

- 39.41. Waimakariri NGF submit that the sub-areas should be removed on the basis that there is no direct link between the sub-areas and the relevant water quality limits. At paragraph 9.8 of the evidence presented by Ms Ruston, on behalf of Waimakariri NGF, she states:

“Without a clear linkage between the two, it is difficult to determine when further nitrogen loss reductions in a particular Nitrate Priority Sub-area are no longer needed and therefore do not need to be implemented.”

- 39.42. Ms Ruston goes on to note that the provisions in PC7, in combination, are the “formula” for meeting the water quality limits, which relies on modelling and assumptions and therefore the reliability of the formula diminishes the further into the future that it applies.

- 39.43. While the points made by Ms Ruston are relevant to the delineation of the NPA into sub-areas Officers respond to these points in the following section of this report.

Reductions in N loss beyond 2040

- 39.44. A number of submitters seek that Table 8-9 is amended to only include the staged reductions that will be required for the life of the plan (i.e. up until 2030 or 2040). Some submitters request that the reduced Table 8-9 is combined with a reliance on MAR or TSA, and a robust monitoring regime. Several submitters support the package of provisions put forward by WIL (often referred to as the WIL solution, or WIL solution package).

- 39.45. Officers have considered the evidence presented by submitters on this matter, and continue to support the intent to lock in the reductions required to achieve the water quality improvements in groundwater and surface water bodies, with an understanding that the methods set out in the plan provide plan users and the community with the road map for meeting freshwater outcomes. In order to achieve the proposed water quality limits and targets in Table 8-5, 8-6, 8-7 and 8-8, the required reductions in N losses from farming properties within the NPA are significant, and the notified provisions send a very clear signal regarding the extent of the changes required to meet the water quality targets.

- 39.46. In the time since PC7 was notified, a new NPSFM (2020) was promulgated that includes different national bottom lines for nitrate-nitrogen concentrations in rivers (one of the most relevant water quality attributes for N losses from farming activities). Officers presented to the Hearing Panel an analysis of the significance of the change in the national bottom line in a memorandum dated 9 November 2020. The analysis showed that the national bottom line of 2.4mg/l of nitrate-nitrogen in surface water is unlikely to be achieved for some waterbodies by relying on reductions in N losses set out in Table 8-9, with some NPA sub-areas requiring more than 100% reduction in N losses beyond the baseline GMP loss rate. Taking into account

the new regulatory framework set out in the NPSFM 2020, including more stringent national bottom lines for nitrate toxicity, it is the Officers' view that locking in staged reductions up until 2080 is no longer the most appropriate policy approach for achieving freshwater outcomes, in the knowledge that these methods will not achieve the new national bottom line.

- 39.47. The Officers therefore recommend adopting the staged reductions in N losses up until 2040, along with strong policy describing that additional (significant) reductions in N loss will be required to achieve the water quality outcomes, and in many cases, require land use change. This new approach acknowledges that the methods set out in Section 8 are not sufficient to achieve the new national bottom line, but also acknowledge that the methods in PC7 are steps to start making immediate improvements, and that additional mechanisms (which may include the additional restrictions necessary to achieve water quality outcomes) will be identified via future plan processes. The new policy approach is similar to the solution package presented by WIL.
- 39.48. Ravensdown, WIL and Waimakariri NGF raised concerns about the relationship between the reductions for farming activities and the corresponding water quality limits and targets. The evidence of Ms Taylor (on behalf of Ravensdown), clearly summaries the issue by stating that *"the potential for further reductions beyond this initial stage, need to be clearly linked, in policy provisions, to the need to contribute to the achievement of the relevant water quality limits and the associated findings of monitoring"*.²⁶⁴
- 39.49. Each of these submitters have proposed amendments to Policy 8.4.25 to resolve their concerns.²⁶⁵ In addition to amendments to Policy 8.4.25, WIL also propose the following new policy is included in Section 8.²⁶⁶

Improve water quality in the Waimakariri Nitrate Priority Area to achieve the target nitrate toxicity levels set out in Table 8-5 for Hill-fed Lower and Spring-fed Plains surface water bodies, and nitrate-nitrogen limits for drinking water set out in Table 8-7 by:

- a. reducing the discharge of nitrogen from farming activities by 1 January 2030, as set out in Table 8-9;*
- b. if water quality outcomes are still not being met or on the pathway to being met by 1 January 2030, by providing for further nitrogen reductions from farming activities by 1 January 2040, as set out in Table 8-9;*
- c. encouraging the implementing of catchment water quality interventions, including managed aquifer recharge and targeted stream augmentation; and*
- d. undertaking monitoring and review of water quality in fulfilment of Policy 8.4.35.*

²⁶⁴ Evidence in chief of Ms Taylor, on behalf of Ravensdown, dated 17 July 2020, paragraph 3.36, page 13.

²⁶⁵ In response to the Section 42A Report, Ms Taylor proposed revised amendments to Policy 8.4.25 on page B11 of her evidence in chief, which are different to the amendments sought in their submission. Ms Ruston proposed amendments to Policy 8.4.25 in supplementary evidence to reflect the submission of Waimakariri NGF, in response to questioning from the Hearing Panel. The supplementary evidence of Ms Ruston, on behalf of Waimakariri NGF, is dated 25 November 2020, with the relevant amendments set out at paragraph 3.3.

²⁶⁶ Evidence in chief of Ms Sullivan, on behalf of WIL, dated 17 July 2020, paragraphs 39-42.

39.50. Officers have considered the amendments proposed by the submitters and consider that there are merits of each approach that are appropriate. In particular, Officers consider that it is important to provide a link between any reductions in N loss to beyond 2040 to the water quality limits and targets in Tables 8-5, 8-7 and 8-8, so that landowners understand that additional reductions are likely to be necessary for some sub-areas. Officers agree with submitters that this link may act as an incentive for landowners in the NPA to implement other on the ground actions to improve water quality (such as MAR/TSA).

39.51. Given the likelihood that additional reductions will be necessary to achieve the water quality targets, Officers also consider that it is appropriate to link further reductions to monitoring and modelling, in accordance with Policy 8.4.35. Ms Sullivan (WIL) suggests addition of the following clause to Policy 8.4.25:

...

[New clause]

requiring, within the Nitrate Priority Area, further reductions in nitrogen loss from farming activities (including farming activities managed by an irrigation scheme or principal water supplier) by 1 January 2040 in accordance with Table 8-9, if the nitrate nitrogen limits and targets in Tables 8-5, 8-7 or 8-8 are not being met or on the pathway to not being met by 1 January 2030.

39.52. This clause would allow for further reductions to cease if water quality targets are on the pathway to being met. Officers consider that the proposed wording may inadvertently allow farmers to stop reducing N losses if the water quality is improving without the confirmation that the water quality target will actually be met. Officers prefer the wording proposed by Ms Ruston in her supplementary evidence, but suggest it is more appropriate to include this in the policy itself and not as a note.

39.53. Despite the Officers' recommendation to now remove the reductions beyond 2040 in Table 8-9 for this plan, there is a need to retain the sub-zones for the reasons set out in paragraph 39.39 of this report.

39.54. Several submitters generally seek that Part C of PC7 requires faster reductions in N losses to achieve the water quality outcomes sooner. Te Ngāi Tūāhuriri Rūnanga express concern about the timeframes to achieve the water quality outcomes, but support Table 8-9 nonetheless and do not seek any specific changes to the provisions to achieve the outcomes sooner. Similarly, Waimakariri DC and the various Community Boards seek that the timeframes to achieve the water quality limits are amended to 2040 (compared to 2080). Evidence presented by several experts on behalf of WIL, DairyNZ and Waimakariri NGF indicates that reductions beyond the first 2 stages (i.e. 30% below the Baseline GMP Loss Rate for dairy farms, and 10% below Baseline GMP Loss Rate for other farming activities) is difficult while maintaining profitability for existing farms.

- 39.55. Officers agree with submitters that there are likely to be significant costs for land-owners to reduce N losses, this information was available at the time PC7 was notified and was considered in the s32 assessment. Officers consider that the approach of PC7 to spread the cost of reductions in N loss over a period of time is still appropriate and is consistent with the provisions in the NPSFM 2020 related to achieving target attribute states and the timeframes for achieving them.
- 39.56. Clause 3.3 of the NPSFM 2020 provides for the setting of “long-term visions”, where clause 3.3(2)(c) states that long-term visions must identify a timeframe to achieve goals that is both ambitious and reasonable (for example, 30 years after the commencement date). Clause 3.11 of the NPSFM 2020 sets direction for setting target attribute states and the timeframes for achieving them. Clause 3.11(6) states that timeframes for achieving target attribute states may be of any length or period, but if they are ‘long term’, then they must include interim target states set for intervals of not more than 10 years.
- 39.57. These extracts from the NPSFM 2020 indicate that it is anticipated that, in some instances, it may take several decades to achieve the targets attribute states. Officers note that the guidance material for the NPSFM 2020 published by the Ministry for the Environment in October 2020 and December 2020 do not provide any further guidance on timeframes.
- 39.58. While Council is yet to give effect to the NPSFM 2020 (including the setting of long-term visions), it is the Officers’ view that the timeframe to achieve the water quality outcomes must take into account the direction set out in Clause 3.3 (2). The terms “ambitious but reasonable” have been used to provide direction for the setting of goals, and the timeframe to achieve those goals. Clause 3.3(2)(b) qualifies “ambitious but reasonable” as being “difficult to achieve but not impossible”²⁶⁷.
- 39.59. The evidence presented to the Hearing Panel on the ability of farmers to achieve the first stage of reductions generally acknowledges that further nitrogen loss reductions of 15% for dairy farming and 5% for other farming activities, by 2030, should be achievable²⁶⁸, with Mr Ford (WIL) stating that it is manageable for the average dairy farm²⁶⁹. It is the subsequent reductions that are more difficult to achieve, and in some cases, may require a change in land use. Officers understand from evidence presented by submitters, that the current N loss from some dairy farms is already below the baseline GMP loss rate (i.e. below the starting point for N loss reductions)²⁷⁰. Various submitters that were also WIL shareholders indicated that their Overseer N loss number is lower than what was allocated to their property from WIL using the MRB model. Based on this information, it is the Officers’ view that the first stage of reduction could be amended so that it is more ambitious, without being unreasonable. Amending the reduction in N loss required by 2030 for dairy farms to 20% responds to requests from

²⁶⁷ Officers note that the Hearing Panel asked submitters at the hearing about their understanding of these words. This is commented on in the Legal section of this report.

²⁶⁸ Evidence in chief of Ms Taylor, on behalf of Ravensdown, dated 17 July 2020 at paragraph 3.36.

²⁶⁹ Evidence in chief of Mr Ford, on behalf of WIL, dated 17 July 2020, at paragraph 43.1

²⁷⁰ Evidence in chief of Mr Ford, on behalf of WIL, dated 17 July 2020, Tables 1 and 2, at pages 6 and 7.

submitters to give effect to Te Mana o te Wai and direction in the NPSFM 2020 for Council to set goals and timeframes that are “ambitious but reasonable”.²⁷¹

Methods available to achieve N targets

39.60. The current modelling suggests that reductions in nitrogen losses alone are not sufficient to reach the new National Bottom Lines, meaning that there will need to be work undertaken in the next decade to determine what other actions/methods are feasible to achieve the water quality targets. Given the need to give effect to Te Mana o te Wai, and the submissions from Ngā Rūnanga to “do more, sooner” there is scope to increase percentage reduction in N losses for the first stage of reductions for dairy farming, from 15% to 20% change. While this change will result in an incremental improvement in water quality sooner, it does not resolve the underlying issue that reduction in N loss alone will not achieve the water quality outcomes for the Waimakariri sub-region, based on the information, modelling and technology we have available today.

39.61. The submission from WIL put forward an alternative solution package which comprises the following five key components²⁷²:

- (a) *achievable reductions in nitrogen leaching from land-use activities (although it is emphasised that achieving, especially the 2040, reductions will still be challenging);*
- (b) *increased use of managed aquifer recharge and targeted stream augmentation;*
- (c) *localised indigenous habitat improvement initiatives;*
- (d) *a much improved monitoring programme to better inform future planning decisions;*
and
- (e) *all WIL shareholders being treated on an equal basis with reductions contemplated (only) out to 2040.*

39.62. WIL submit that the proposed nitrate-nitrogen concentration limits can be reached if MAR and TSA are part of the solution together with two stages of required nitrogen loss reductions (i.e. total of 30% for dairy farms and 10% for other farming activities). Officers agree that certain ‘on the ground actions’ could support the PC7 provisions to achieve the limits faster, but there remains much uncertainty around the effectiveness of MAR and TSA. In their evidence WIL states there is enough water available, on top of the requirements for their shareholders, to be able to reach the proposed limits²⁷³. Officers note there are more than 40 receptors (streams and drinking water supply wells) in the Waimakariri sub-region that would need to benefit from this excess water, and it remains unclear how this water will be distributed, which receptors would benefit, and when positive effects might be observed.

39.63. Given the uncertainty associated with the effectiveness of MAR and TSA, and whether or not it will proceed, Officers do not consider it is appropriate to set a planning regime that assumes

²⁷¹ Clause 3.3(2)

²⁷² As set out in paragraph 3.5 of legal submissions of counsel on behalf of WIL, dated 11 November 2020.

²⁷³ Summary of evidence of Mr Sanson, on behalf of WIL, paragraph 12, page 3.

these mitigations are undertaken. If these on-the ground actions do go-ahead, and are successful, the rules can then be adjusted in a future plan change or plan review process.

- 39.64. The WIL solution package requires very targeted and detailed monitoring to assure that any changes at the receptors can be linked to specific MAR and TSA measures applied upgradient. The monitoring plan proposed by WIL does not include the detail required to support this approach.
- 39.65. Officers note there is the potential for significant adverse effects from MAR and TSA, such as flooding, if not managed well. While the WIL solution has not assessed the risks for negative side effects, the proposed policy and rule framework for these activities (in Part A and Part C of PC7) should appropriately manage these effects.

On-going monitoring

- 39.66. A key new policy proposed for Section 8 is 8.4.35, which sets out the information that Council will take into account for future plan reviews. While the policy generally reflects the requirements of section 35 of the RMA, it provides a statement of intent from Council, to provide the community with certainty that the necessary on-going monitoring and investigations will take place. The submission from WIL includes a request for a “much improved monitoring system” to inform future plan review processes.
- 39.67. Other submitters have also sought amendments to Policy 8.4.35 to better enable the Council to work with stakeholders to implement a robust monitoring programme in the sub-region. The Hearing Panel asked Ms Ruston, on behalf of Waimakariri NGF, whether it is appropriate for a regional plan to commit the Council to working in a partnership with stakeholders to monitor the environment (as a policy). In supplementary evidence from Ms Ruston, she notes that Waimakariri NGF “has moved from seeking a new policy and method in PC7 to form such a partnership (as identified in their submission), to seeking a non-regulatory commitment from the regional council”. The Officers support the revised position of Waimakariri NGF, and note that Policy 8.4.35(c) enables Environment Canterbury to consider “any trends observed”; “any assessments of downstream impacts on the Waimakariri River and Christchurch deep aquifers; and the results of any relevant investigations carried out in relation to the groundwater system;”, which includes information provided by external parties.
- 39.68. As One Inc. sought the inclusion of a new policy that required property level monitoring. Taking into account the evidence presented at the hearing, Officers remain of the view that property level monitoring may be useful for future processes, however it is not a requirement to achieve the water quality outcome. Officers do not recommend that the provisions are amended to require property level monitoring.
- 39.69. Officers have taken into account the information presented by the submitters at the hearing and for the reasons set out above, do not wish to change the Section 42A Report recommendations for Policy 8.4.35.

Starting point for the reductions in N loss

- 39.70. A common theme raised in submissions, and in evidence during the hearing, is the appropriateness of longer term nitrogen loss reductions in Table 8-9. Many submitters seek that Table 8-9 is either deleted in its entirety, or amended to remove the staged reductions beyond 2040.
- 39.71. Ms Wright, on behalf of DairyNZ, supports the proposed reductions for 2030 (i.e. 15% for dairy) as an appropriate “first goal post”. Ms Wright considers that a 15% reduction is challenging but manageable for most farmers, and highlights work undertaken by DairyNZ²⁷⁴ with farmers in the Selwyn and Hinds sub-regional areas which suggests, based on anecdotal evidence, that most farms in these catchments are on-track to meet 30% reductions by 2022.
- 39.72. During questioning of Ms Wright at the hearing, the Hearing Panel noted that the maximum required reduction for dairy in the Waimakariri sub-region under Table 8-9 by 2040 is 30%. Given the case studies discussed by Ms Wright, the Hearing Panel suggested that this evidence would indicate that 30% reductions in N-loss are achievable on real farms and can happen in a relatively short order of time. In response, Ms Wright stated that while this may appear to be the case, it is her understanding that the starting points for reductions differ between Waimakariri (under PC7) and Selwyn and Hinds (under the CLWRP). Therefore, Ms Wright suggests that farmers in Waimakariri are required to get to Baseline GMP first, and as such, the amount of reduction to achieve Baseline GMP needs to be considered in addition to the relevant reductions required in Table 8-9.
- 39.73. The Hearing Panel requested that the Officers clarify the starting point for reductions between these different sub-regions to see if “apples are being compared with apples”. Officers note that, in most cases, N loss reductions within the Selwyn, Hinds and Waimakariri sub-regions must be made from a farm’s baseline land use at “good management practice”. However, the definition of good management practice differs between these sub-regions.
- 39.74. In the Selwyn and Hinds sub-regions, reductions are made from the “good management practice loss rate” for a farm’s baseline land use. In accordance with Policy 11.4.15 for Selwyn and Policy 13.4.15 for Hinds, a farm’s good management practice loss rate is determined by:
- a. The type of farming activity; and
 - b. The drainage characteristics of the soil; and
 - c. The climatic conditions and topography of the property; and
 - d. The type of irrigation system used (if any); and
 - e. Whether the practices set out in Schedule 24 (Selwyn) or Schedule 24a (Hinds) have been fully adopted.
- 39.75. This minimum level of good management practice is applied to the farm’s land use over the baseline period, and the modelling of the property’s baseline (i.e. in Overseer) must reflect

²⁷⁴ As part of the DairyNZ “Meeting a Sustainable Future” work programme.

this. The key adjustment to Overseer files often required to meet good management practice in these areas is related to irrigation. Schedule 24 states irrigation application needs to reflect use of soil moisture monitoring, a soil water budget, or an irrigation scheduling calculator. This version of good management practice is often referred to as “little GMP” by Environment Canterbury, and the majority of farmers would have already been operating in accordance with these practices over the baseline period. Any reductions specified in consent conditions are then required from this starting point.

- 39.76. However, within the Waimakariri sub-region under PC7, reductions are made from the “Baseline GMP Loss Rate”, as per the region-wide nutrient management provisions introduced under PC5. The Baseline GMP Loss Rate is defined as the average nitrogen loss rate below the root zone, as estimated by the Farm Portal, for the farming activity carried out during the nitrogen baseline period, if operated at Good Management Practice. “Good Management Practice” in this context means the practices described in the document entitled “Industry-agreed Good Management Practices relating to water quality” - dated 18 September 2015. These practices, when translated into Farm Portal proxies, are more stringent than those set out in Schedule 24 (Selwyn) or Schedule 24a (Hinds).
- 39.77. While PC5 introduced this definition for “Good Management Practice”, it does not apply in the Selwyn or Hinds sub-regional areas, as those sub-regional provisions prevail over the region-wide provisions. Ms Wright suggests that farmers in Waimakariri will need to reach a median N loss reduction of 22% to first reach their Baseline GMP Loss Rate. Officers note that compliance with Baseline GMP Loss Rate was required from 1 July 2020, and consider that a 10 year period to achieve the next reduction in N loss provides farmers with sufficient time to make the necessary adjustments in farm practices.

MRB – matrix method in place of using Overseer

- 39.78. The evidence of Ms Sullivan, on behalf of WIL, describes their concerns about the nutrient management provisions as they relate to irrigation schemes, and in particular, Policy 8.4.29. Ms Sullivan states that it is unclear from the current wording of Policy 8.4.29 and Table 8-9, when considered alongside the definition of Baseline GMP Loss Rate and Equivalent Baseline GMP Loss Rate, whether the use of an equivalent model to Overseer can be approved in Waimakariri. Ms Sullivan states that she expects this was not intended and suggests this is clarified.
- 39.79. Officers consider that amendment to Policy 8.4.29 is not needed to allow for the use of an equivalent model to Overseer, as the LWRP provisions allowing for Equivalent GMP Loss Rates already provide for it. If the Farm Portal is unable to generate a GMP Loss rate (which is likely to be the case when using a baseline nitrogen loss number that is estimated using other models, like the MRB matrix method), the Equivalent GMP Loss Rate can be used.

Nitrogen floor

- 39.80. The Waimakariri ZC recommended Environment Canterbury investigate and implement a nitrogen “floor” of 20 kg N/ha/yr to exclude low nitrogen emitters from having to make further reductions in nitrogen loss beyond Baseline GMP within the NPA²⁷⁵. Part C of PC7 did not adopt a 20 kg N/ha/yr “floor” as recommended in the Waimakariri ZIPA, but instead included policy direction to halt further reductions in nitrogen loss if the reduction would be less than 3 kg N/ha/yr for dairy or 1 kg/ha/yr for all other farming activities.
- 39.81. At page 340, the Section 32 Report explains that the deviation from the 20 kg/ha/yr “floor” is primarily to address implementation issues associated with including fixed, absolute nitrogen loss thresholds in a plan when a key tool for measuring compliance with that limit (i.e. Overseer) is subject to regular updates and subsequent version changes. It states that Overseer version changes may cause significant changes to the estimated losses from a farm, meaning that a 20 kg N/ha/yr was no longer “fit for purpose”.
- 39.82. Ms Ruston, on behalf of Waimakariri NGF, raised concerns that these provisions (which deviated from a fixed number) adopt a “sinking floor” with respect to nitrogen loss reductions.
- 39.83. Officers have reviewed the plan provisions in light of Ms Ruston’s evidence and agree that that the “floor” (i.e. the 3 kg N/ha/yr for dairy farming and 1kg N/ha/yr for other land uses) is indeed “sinking”, which is not intentional. Officers agree with Ms Ruston that it does not reflect the recommendations of the Waimakariri ZC and does not achieve the intent of ‘protecting’ the viability of low emitting farms. A key issue with the “floor” is that the relationship between the reductions per stage and the time it takes to reach the floor of 20 kg N/ha/yr is not linear. Despite this, there are no submissions seeking amendments to Note 3 of Table 8-9, nor the corresponding Policy 8.4.25, to amend the reference to the nitrogen “floor” so that it works as envisioned by the ZC.
- 39.84. Officers note that the issues associated with the sinking floor will only become apparent after the 2030 reductions, which may become an issue for landowners who currently have low N losses and obtain resource consent for the maximum duration provided for under Policy 8.4.36 (which promotes a common expiry date of 1 July 2037). It is the Officers’ view that amending the “floor” so that it works as intended is unlikely to meet the requirements of Schedule 1, clause 16 of the RMA.
- 39.85. Beef + Lamb raised concerns about the nitrogen floor in their submission, however rather than suggesting amendments to the notified framework, they sought that the nutrient management framework be deleted in its entirety, and replaced with a new framework. In their submission, Beef + Lamb state:

“Table 8-9 essentially sets a ‘floor’ of 10kgN/ha/yr leaching rates for non-dairy systems and 30kgN/ha/yr for dairy systems by stipulating that the required reductions for land uses that are captured by the percentage reductions in that table do not need to be made if the reductions are equal to or less than 1kgN/ha/yr and 3kgN/ha/yr respectively.”

²⁷⁵ Recommendation 3.10 of the Waimakariri ZIPA.

39.86. The hearing statement of Ms Phillips, on behalf of Beef + Lamb, reiterates their concerns about this matter. While not related specifically to relief sought by the submitter, the Officers would like to clarify that there are no differences in the nitrogen floor for dairy farming activities and for all other activities, which both equate to 20 kg N/ha/year, as described on page 5 of the Council's third set of responses to the Hearing Panel's questions from Day 1 of the Hearing²⁷⁶. No changes to the provisions are recommended to the provisions in response to the concerns raised by Beef + Lamb regarding the nitrogen floor.

Permitted activity threshold for winter grazing

39.87. Several submitters raise concerns about the reduced winter grazing permitted activity thresholds in the Waimakariri sub-region. Generally, submitters state that requiring resource consent for these types of activities will not assist with achieving water quality outcomes.

39.88. Mr Wells, on behalf of Carleton Dairies, opposes the proposed winter grazing thresholds and considers that they are impractical, will result in the subdivision of more productive land, will increase compliance costs, and will restrict land use options or low emitters. Mr Wells considers that the winter grazing thresholds in Waimakariri should be aligned with the thresholds in the NESFW for consistency and fairness. Mr Stokes also raises concerns with the impacts of reduced winter grazing thresholds on farm flexibility and decision-making.

39.89. Dr Metherell, on behalf of Melbury Limited, considers that there is no substantial reasoning for the lower winter grazing thresholds in the Ashley River/Rakahuri FMU specifically as he considers that nitrate-nitrogen concentrations, and toxic cyanobacteria levels, for the Ashley River/Rakahuri are unlikely to change significantly under the proposed provisions.

39.90. Officers wish to reiterate that the rationale for additional restrictions on winter grazing are set out in the technical assessments that support PC7. Modelling indicates that closer management of high-risk farming activities (such as winter grazing) is warranted so that nutrient losses are further limited and water quality limits and targets in Tables 8-5 to 8-8 are met. Officers consider there is sufficient technical information to support the inclusion of more stringent provisions in the Waimakariri sub-region to reduce the risk of further water quality degradation, particularly in sensitive water bodies²⁷⁷.

39.91. In terms of the consistency between the provisions of PC7 and the NESFW, Officers note that this matter has been addressed in paragraphs [48] to [56] of Council's opening legal submissions at the hearing. On this basis, Officers do not recommend any changes to align these provisions with the NESFW.

²⁷⁶ Kreleger, A and Etheridge Z. Proposed Plan Change 7 to the Canterbury Land and Water Regional Plan: Third set of Responses to Questions of Hearing Commissioners from the First Hearing Day (29 September 2020). Dated 9 November 2020.

²⁷⁷ Etheridge, Z & Whalen, M. (2019). *Waimakariri Land and Water Solutions Programme Technical Assessment Overview*. Environment Canterbury.

- 39.92. In response to Dr Metherell, Officers wish to clarify that the purpose of the lower permitted threshold for winter grazing in the Ashley River/Rakahuri FMU is to reduce the risks to the Ashley Estuary (Te Aka Aka), and to ensure its protection from eutrophication. The proposed winter grazing thresholds are expected to reduce the potential for an expansion of the extent and density of macroalgae and degradation of the Ashley Estuary (Te Aka Aka) when compared with the region-wide allowances for winter grazing²⁷⁸.
- 39.93. Given the above, Officers do not recommend any changes to the provisions in response to the submitters' evidence on these matters.

Cam River/Ruataniwha Protection Zone

- 39.94. In its submission, Te Ngāi Tūāhuriri Rūnanga sought a new protection zone for the Cam River/Ruataniwha and its tributaries adjacent to the Tuahiwi marae and reserve MR873, similar to that proposed under PC7 for Te Aka Aka. The extent of the zone was sought to include the area within the Cam River, North Brook, South Brook and Middle Brook SWAZs that are shown as wetland on the Black Maps. To implement the zone, Te Ngāi Tūāhuriri Rūnanga also sought a policy and rule framework that restricts the use of land for intensive farming, and any activity that increases *E. coli* in waterbodies that are used, or historically have been able to be used, for mahinga kai within the area.
- 39.95. The Section 42A Report recommended rejecting the relief sought from Te Ngāi Tūāhuriri Rūnanga on the basis that, in the absence of any specific proposed provisions, or technical analysis, it would be difficult to evaluate the viability of a new protection zone.
- 39.96. Ms McIntyre, on behalf of Te Ngāi Tūāhuriri Rūnanga, addresses the Section 42A Report conclusions in her evidence. While acknowledging that the submission does not include specific provisions, or a map of the requested zone, Ms McIntyre considers that the description of the intended area is sufficiently clear in the original submission. However, for the avoidance of doubt, Ms McIntyre has included a map of the proposed zone extent in her evidence.
- 39.97. Furthermore, Ms McIntyre states that it can be reasonably inferred from the submission that the requested zone would be based on, and have equivalent provisions to, the Ashley Estuary (Te Aka Aka) Coastal Protection Zone. Despite the absence of a specific technical analysis, Ms McIntyre considers there is already sufficient justification for establishing the requested zone in existing cultural health assessments²⁷⁹ which recommend stronger management of water quality and high risk activities in the area to provide for Te Ngāi Tūāhuriri Rūnanga kaitiakitanga responsibility.
- 39.98. Given that Te Ngāi Tūāhuriri Rūnanga have requested a zone with equivalent provisions to the Ashley Estuary (Te Aka Aka) Coastal Protection Zone, Officers have assessed the implications

²⁷⁸ Page 344 of the Section 32 Report.

²⁷⁹ Te Ngāi Tūāhuriri Rūnanga and Tipa & Associates. *Cultural Health Assessments & Water Management for the Rakahuri - Waimakariri Zone*. October 2016.

that this framework would potentially have for properties within the requested Cam River/Ruataniwha protection zone.

39.99. Rule 8.5.24 states that the use of land for farming on a property greater than 5 hectares in area is a permitted activity, provided that certain conditions are met. For most properties, this includes requirements to register with the Farm Portal, prepare a Management Plan, and meet thresholds for irrigation and winter grazing. If an activity is unable to comply with these conditions, it becomes a restricted discretionary activity under Rule 8.5.26.

39.100. However, for properties located within the Ashley Estuary (Te Aka Aka) Coastal Protection Zone that directly join a river or coastal lake, no irrigation or winter grazing is permitted. If an activity is unable to comply with this condition, it becomes a controlled activity under Rule 8.5.25. The following table demonstrates the implications of this framework for a proposed Cam River/Ruataniwha zone.

Table 5. Comparison of farming land use rules proposed in Part C of PC7 for properties located within, and outside of, the Ashley Estuary (Te Aka Aka) Coastal Protection Zone

PA conditions in Rule 8.5.24	Land use adjacent to Cam River and tributaries	Land use within Te Aka Aka (adjoining river or coastal lake)
Farm Portal	Must be registered	Must be registered
Schedule 7A Management Plan required?	Yes	Yes
Winter grazing	Total area is less than or equal to: 5 ha for property <100 ha; 5% for property between 100 and 1000 ha; or 50 ha for property >1000 ha	None on any part of property
Irrigation	Only 10 ha above that which was irrigated at 20 July 2019, provided ≤ 50 ha	None on any part of property

39.101. Applying the equivalent rules as the Ashley Estuary (Te Aka Aka) Coastal Protection Zone in the area requested by Te Ngāi Tūāhuriri Rūnanga would mean that the permitted activity threshold for winter grazing and irrigation on properties above five hectares in area would be reduced to zero. These properties would be required to obtain a resource consent, and prepare and implement an FEP.

39.102. The evidence presented to the Hearing Panel does not provide an analysis of the types of properties that bound the Cam River/Ruataniwha and its tributaries within the proposed protection zone. It is therefore unclear how many properties would be affected by the proposed protection zone provisions and therefore what the anticipated improvements in water quality would be. In the absence of this information, the Officers are unable to understand the costs and benefits of including the new zone in Section 8 of the CLWRP. As

such, Officers do not recommend amending Section 8 to include a new Cam River/Ruataniwha protection zone.

40. Miscellaneous

- 40.1. In the “Section 42A Report Errata – 29 April 2020” document, Officers stated that a table that sets out the relationship between the rules in Section 8 and Section 5 will form part of the Section 42A Officers Reply report. Officers note that this table is typically prepared by Environment Canterbury as part of the plan implementation phase of the plan process, following the decision on the plan. A table has not been prepared as part of the reply report on the basis that it would not provide useful guidance ahead of a decisions version of the provisions.

Appendix A – Final Officer Recommendations

Appendix B – NPSFM 2020 Provisions and Changes

Appendix C – Stock Exclusion Scenarios

Appendix D – Outcome Comparison Table - Tables 1a and 1b and Schedule 8

Appendix E – Amendments to IFSH mapping - Dataset 6

Appendix F – Response to submissions on PC7 regarding extent of the Rangitata Orton and Levels Plain HNCA

Appendix G – Errata - Assessment of nitrogen loss reductions in the Waimakariri sub-region for different land use and nitrate-nitrogen limits

Appendix H – Errata – Third set of answers to Day 1 Questions NPSFM Limits

Appendix I – Final Officer Recommendations on Planning Maps