

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of the Environment Canterbury (Temporary
Commissioners and Improved Water Management) Act 2010

AND

IN THE MATTER of proposed Plan Change 3 to the Waitaki
Catchment Water Allocation Regional Plan

**REPORT AND RECOMMENDATIONS
OF THE
HEARING COMMISSIONERS**

Date 3 June 2016

Hearing Commissioners:

Gordon Whiting Chairman

Edward Ellison Hearing Commissioner

Andrew Fenemor Hearing Commissioner

Table of Contents

Section 1 - Background	5
Introduction	5
The Waitaki Catchment	6
The importance of the Waitaki Catchment to Ngāi Tahu	7
The provisions of the Allocation Plan that relate to Plan Change 3	8
The current flow regime and the reasons given for change	9
Proposed Plan Change 3	13
Section 2 - The Legal and Statutory Context.....	19
Introduction	19
No presumption.....	19
Is it appropriate to change the Allocation Plan?.....	19
Overarching legal issues	20
The statutory context	24
The Resource Management Act	24
Other Acts.....	31
National Policy Statements and Canterbury Regional Policy Statement.....	32
Other regional plans	36
Canterbury Water Management Strategy.....	38
Waitaki Catchment Water Allocation Regional Plan.....	40
Application of legal context	46
Section 3 - The Factual Context	49
Introduction	49
The natural and physical characteristics of the Lower Waitaki River	49
Ecological requirements for water.....	54
Tāngata whenua requirements for water	62
Landscape and natural character.....	63
Anthropogenic requirements for water.....	65
Section 4 - Evaluation of Plan Change 3 and submissions	67
Introduction	67
Theme 1 – minimum flows (including cessation flows) and supply of water for security of supply for holders of existing consents	68
Changes to the minimum flow regime for existing consents.....	69
Alternative minimum flow regimes sought by submitters	72
Proposed changes to minimum flow and effects on the environment	73
Evaluation of effects on the environment arising from different flow regimes	74
Tāngata whenua cultural values	101
Economic impacts	103
Reliability of supply for existing and future water users.....	106
Natural character and landscape.....	108
Recreation.....	108

The most appropriate scenario	109
Implementation considerations	110
Theme 2 – allocation of water for enhancement of mahinga kai and the augmentation of Wainono Lagoon.....	111
Is mahinga kai a reservation to a class of people?	112
Is a rule that requires the consent of Ngā Rūnanga valid?	113
What does mahinga kai enhancement include?	115
Reliability for mahinga kai water	119
Finding.....	120
Reliability for augmentation water for the Wainono Lagoon	120
Theme 3 – inclusion of tributaries in Table 3.....	123
Theme 4 – exemption to minimum flows during low inflow periods	123
Theme 5 – basis for flow compliance	125
Theme 6 – annual allocation to activities	127
Theme 7 – removal of diversions from the counting of instantaneous allocation limits and annual allocation volumes	130
Theme 8 – effective and efficient use of water.....	131
Theme 9 – replacement of existing water permits for existing hydro-electricity generation ..	133
Parties opposed to controlled activity status	136
Parties in favour of controlled activity status	137
Evaluation	140
Frustration of consent.....	140
Scope.....	140
Theme 10 – temporary lowering of Lake Pūkaki water level.....	143
Theme 11 – complementary changes to the new flow regime	144
Section 5 – Overall evaluation.....	147
Section 6 – Conclusion and Recommendation	153
Appendices	155
Appendix 1	157
Appendix 2A.....	159
Appendix 2B.....	163

Section 1 - Background

Introduction

- [1] This report and recommendation relates to proposed Plan Change 3 to the Waitaki Catchment Water Allocation Plan (the “Allocation Plan”) which allocates the water of the Waitaki River and its tributaries, lakes, wetlands and aquifers. The Allocation Plan was prepared by the Waitaki Catchment Water Allocation Board under the Resource Management (Waitaki Catchment) Amendment Act 2004, was approved on 30 September 2005, and became operative on 3 July 2006.
- [2] In summary, the plan change proposes changes to a number of policies and rules in respect of the following matters:
- (a) greater security of supply for “*existing consents*”;¹ by providing access to flows lower than 150 cumecs² in restricted circumstances;
 - (b) improved certainty of continuing operation for hydro-electricity generation by changing the activity status of applications for resource consents to replace existing consents for hydro-electricity generation;
 - (c) allocation of water for mahinga kai enhancement and augmentation of Wainono Lagoon; and
 - (d) a number of consequential and minor amendments.
- [3] Proposed Plan Change 3 was notified on 28 June 2014, and submissions closed on 22 August 2014. Five hundred and forty nine submissions were received. Further submissions were sought in the period from 29 November 2014 to 12 December 2014. Eight further submissions were received. An assessment under section 32 of the Resource Management Act 1991 (RMA) was published in June 2014 and a section 42A report was published in April 2015. An “Officers’ Reply” was lodged in July 2015 and a section 32AA report, to address several changes to the proposed Plan Change as a result of submissions and evidence presented at the hearing, was lodged in July. Further minor changes were proposed in response to our questions in officers’ memos dated 11 August, 28 August 2015 and 12 November 2015.
- [4] We the undersigned, were appointed as hearing commissioners with appropriate delegations under ss42A, 41B and 41C of the Resource Management Act 1991 to hear and make recommendations to the Council on the submissions made.
- [5] A total of 31 briefs of evidence were lodged from nine submitters and six rebuttal briefs of evidence were lodged. We also received submissions from counsel; answers to written questions from a number of expert witnesses; and advice from Council Officers in the form of legal submissions,

¹ The term “existing consents” is used in the Allocation Plan to refer to consents that were held prior to the Allocation Plan being made operative in July 2006, and any replacement consents

² 1m³/s is 1 cubic metre per second (cumec), equivalent to 1000 litres per second

statutory reports and responses to minutes.

- [6] A hearing was convened at Oamaru and we heard submissions and evidence over 14 days of hearing between 9 June 2015 and 26 June 2015 and on 11 August 2015. We are grateful for the assistance given by those who made submissions and/or gave evidence at that hearing either in writing or in person. We have had regard to all that was put before us. However, it is not practicable to refer in this recommendation to every matter raised in the submissions and evidence.

The Waitaki Catchment

- [7] The Waitaki River is a large river in the South Island, being some 110km long. It flows from Aoraki/Mt Cook and the mountains of the Southern Alps/Ka Tiritiri o te Moana to the sea, where it enters the Pacific Ocean between Timaru and Oamaru.
- [8] Aoraki/Mt Cook and the Waitaki River are the ancestral mountain and river of Ngāi Tahu Whānui.
- [9] It is a braided river that flows through Lake Benmore, Lake Aviemore and Lake Waitaki. These are ultimately fed by three large glacial lakes, Pūkaki, Tekapo and Ōhau. Lake Benmore, Lake Aviemore and Lake Waitaki are contained by hydro-electric dams, Benmore Dam, Aviemore Dam and Waitaki Dam.
- [10] The Waitaki River has several tributaries, notably the Ahuriri River and Hakataramea River. It passes Kurow (below the Waitaki Dam) and Glenavy (below State Highway 1) before entering the ocean.
- [11] The River's flow is normally low in winter, with flows increasing in spring when the snows cloaking the Southern Alps begin to melt, with flows during the summer being rainfall dependent and then declining in autumn. The mean flow for the lower Waitaki River, from the Waitaki Dam to the sea, affected by flow releases from upstream dams, is 364 m³/s, with a seven day mean annual low flow (**7DMALF**) of 179 m³/s^{3, 4} as recorded at the Kurow recorder since 1979.
- [12] Over the period 1 July 1979 to 25 March 2015 there is one year on record that had a 7DMALF of 143 m³/s. During the 33 years of flow record, the 7DMALF during the irrigation season, 1 September to 30 April, has dropped below 150 m³/s in five of those years. The longest duration of these flows below 150 m³/s was four days.⁵
- [13] The Waitaki River provides for a diverse range of freshwater habitat and species, including a large number of indigenous fish and birds. The rivers and lakes are a popular recreation resource for a

³ Section 42A Report, para [2.2]. These figures are lower when a full 1931-2013 dataset is used, as by Henderson (see Sections 3 and 4 of this recommendation)

⁴ 1913 – 2013 had the hydro-electric scheme been operating all that time

⁵ Ibid at [2.2]

range of activities, particularly trout and salmon fishing and jet boating.

- [14] The water in the catchment provides essential supplies to towns and communities such as Oamaru and Waimate. It also provides water for industry such as the Alliance Group Plant at Pukeuri.
- [15] The Waitaki catchment is a nationally important hydro-electric resource area. The Waitaki Power Scheme includes eight hydro-power stations, two main storage reservoirs, four canal systems, and numerous dams, rivers and other control structures. Currently the scheme has a combined generation capacity of approximately 1,723MW and hydro-storage capacity of approximately 2,530GWh.
- [16] There has been an increasing demand for water from the Waitaki River for irrigation on land both in and out of the catchment. This is particularly so in the lower Waitaki River, where currently 150 million cubic metres per year has been allocated in the Allocation Plan for abstraction between the Waitaki Dam and Black Point, for irrigation.
- [17] All of these activities, with their demand for water, have put pressure on the sustainable management of the river. Currently, as mentioned earlier, the allocation of water is mandated under the Allocation Plan.

The importance of the Waitaki Catchment to Ngāi Tahu

- [18] The significance of the Waitaki catchment to Ngāi Tahu Whānui is predominated by the South Island's tallest peak Aoraki maunga. The ancestral mountain is lofty, revered and its creation story has been told and retold through tribal annals since time immemorial.
- [19] The ancestral waters flow from the shoulders of Aoraki, through the Waitaki catchment to the sea via the Waitaki River. The Waitaki embodies a spiritual force or mauri that binds the cosmological world of the gods with the physical, moving, ever changing flows of the river.
- [20] We understand that whakapapa or genealogy binds the tāngata whenua to the land and waters, from the time of creation to the present day, an holistic connection influencing customary values and beliefs.
- [21] The utilitarian nature of the Waitaki River and catchment is reflected in the mahinga kai traditions that sustained generations of Waitaha, Kāti Māmoe and Ngāi Tahu over time. This recognises the spiritual power of the river, while it is also a source of food and resources that sustain the physical well-being of the iwi.
- [22] The customary guardians or kaitiaki of tradition, customary resource and relationships are today exercised by the three Papatipu Rūnanga, namely Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki ("**Nga Rūnanga**"). Te Rūnanga o Ngāi Tahu exercises the statutory

powers invested in it to act in the interests of Ngāi Tahu Whānui in matters of natural resource management.

The provisions of the Allocation Plan that relate to Plan Change 3

- [23] The Allocation Plan sets out objectives, policies and rules that provide for the taking, using, damming and diverting of water from within the Waitaki Catchment. Plan Change 3 (as notified) proposes changes to a number of policies and rules to provide for the matters sought. It does not propose to amend any of the objectives so they are not within its scope. We propose, later in this recommendation, to discuss in some detail the objectives of the Allocation Plan, and the extent to which the proposed changes are the most appropriate way to achieve those objectives.⁶
- [24] The Allocation Plan contains the following policies, rules and provisions that are affected by the proposed changes contained in Plan Change 3 (as notified):
- (a) Provisions in respect of minimum water flows and allocation of water from the lower Waitaki River;
 - (i) Policy 12, which establishes an allocation for specified activities;
 - (ii) Policy 46, which requires:
 - a. the minimum flow and flushing flows of the environmental flow regime; and
 - b. sufficient water to ensure downstream users have an agreed security of supply, requiring downstream flow to be sufficient to maintain the actual requirements of existing consents and up to 95% of the combined peak rate of take for new consents;⁷
 - (iii) Rule 2, which sets the environmental flow and level regimes for waterbodies in the lower Waitaki catchment and in particular Rule 2 line xvii of Table 3 which provides for a minimum flow from the Waitaki Dam to the sea of 150m³/s subject to:
 - a. natural flows during specified low flow periods;
 - b. flushing flows;
 - c. an allocation limit of 90m³/s;
 - (iv) Rule 6, Table 5, which sets a maximum annual volume of water allocated to activities including for agricultural and horticultural activities;
 - (v) Rule 7, Table 6 (which gives effect to Policy 46), which requires the Waitaki Dam consent holder to provide past the Waitaki Dam up to a maximum of 80 m³/s above the minimum flow (but variable over the course of the year to match peak irrigation demand) sufficient to meet the actual requirements of the users identified in Policy 46;
 - (b) Guidance on replacement of existing consents;
 - (i) Policies 28 and 46, which provide guidance on how an application to replace an existing

⁶ s68(1) of the RMA

⁷ Granted after the Allocation Plan became operative

- consent should be considered by the consent authority and state that existing consents will be maintained in the same allocation limit and priority bands upon replacement;
- (ii) Rule 25, which sets out the application of rules to existing consents;
- (c) Policies on efficient and effective use;
 - (i) Policies 15, 16, 17 all address the efficient and effective use of water abstracted;
 - (d) Replacement of hydro-electricity consents;
 - (i) Rule 15 provides for discretionary activity status for the replacement of hydro-electricity consents;
 - (e) Minimum lake levels;
 - (i) Rule 3, Table 4 sets the minimum lake levels for Lakes Tekapo, Pūkaki and Ōhau below which no person shall take, use, dam or divert water from them or the canals leading from them;
 - (f) Provisions related to the transfer of resource consents;
 - (i) Rule 8, which restricts the transfer of a consent to take or use water;
 - (ii) Rules 21, 21A, 22 and 23 relating to the activity status of transfer of consents;
 - (g) Definitions and abbreviations.

We also note that there are new provisions proposed to be added as part of proposed Plan Change 3.

The current flow regime and the reasons given for change

[25] Rule 2 of the Allocation Plan establishes a minimum flow of 150 m³/s in the lower Waitaki River, and provides for an allocation of 90 m³/s. Policy 46 of the Allocation Plan requires the release of water, up to a maximum of 80 m³/s, past the Waitaki Dam to ensure that downstream users have an agreed security of supply. For agricultural and horticultural activities the Allocation Plan anticipates that:

- (a) existing consents (pre-plan consents) will have a security of supply for their “actual requirements” (i.e. very high reliability);⁸ and
- (b) consents granted since the Allocation Plan became operative (post-plan consents) will have a security of supply for up to 95% of their “actual requirements” (i.e. 95% of the peak rate of take allocated).⁹

⁸ Policy 46(ii)(b) of the Allocation Plan

⁹ Policy 46(ii)(c) of the Allocation Plan

- [26] In order to provide for both the minimum flow (150 m³/s) and the allocation limit (90 m³/s) for the lower Waitaki River contained in Rule 2, it would be necessary for up to 240 m³/s of water to be released from the Waitaki Dam (currently operated by Meridian Energy Limited) (**Meridian**).¹⁰ This release of water is provided for by Rule 7 of the Allocation Plan, which requires the consent holder for the Waitaki Dam to provide variable monthly flows in the lower Waitaki River sufficient to meet the actual requirements of the users listed in Policy 46. Up to a maximum of 80 m³/s is to be released from the Waitaki Dam between October and March, the period of peak irrigation demand.
- [27] The combination of Policy 46 and Rules 2 and 7 seeks to provide a very high reliability for the existing consent holders. Also of importance is Rule 6 and its Table 5, which limits the annual volumes of water allocated for activities. All four provisions are inter-related as a package.
- [28] However, it was generally accepted that the regime of the Allocation Plan cannot be implemented before the Waitaki Power Scheme is re-consented without the agreement of Meridian because of the case law¹¹ preventing derogation.
- [29] Meridian operates the Waitaki Dam under consent CRC905360.1, which expires in 2025. This consent only requires the consent-holder to maintain a minimum flow of 120 m³/s below the Dam, which is not sufficient to provide for the required minimum flow and for the needs of downstream water users.¹²
- [30] In approving the Allocation Plan, the Waitaki Catchment Water Allocation Board (**the Board**) noted that:¹³
- ...the Board was not able to include enhanced release provisions that would apply during the term of the current consents for the Waitaki power scheme, as the relevant consent conditions could not be amended under ss68(7), and 128 to 132 of the RMA.
- [31] Consequently, while the operative regime has existed on paper since 2005, it does not reflect reality in the sense that, all other things being equal, it would never have been able to be considered for implementation until replacement hydro-consents were applied for and determined, and even then the outcome is uncertain. Given the 2025 expiry date of the Waitaki Dam consent, this was not

¹⁰ s32 report, pg 9

¹¹ *Aoraki Water Trust v Meridian Energy Limited*, [2005] 2NZLR 268; (2005) 11ELRNA 207; [2005] NZRMA 251 (HC)

¹² According to the s32 report, while the minimum flow on the consent is 120 m³/s, flows in the catchment are typically higher than this, and sufficient to provide existing consent-holders with very high reliability, most of the time. Mr Waipara stated in evidence for Meridian that to ensure that there is not an instantaneous breach of the minimum flow consent conditions, Meridian currently operates with a 30 cumec buffer above the consented minimum level.

¹³ Waitaki Catchment Water Allocation Regional Plan: Decision and principle reasons for adopting the Plan provisions; Waitaki Catchment Water Allocation Board, September 2005 at [215]

likely to happen until the plan had been through at least one and perhaps two review cycles.

- [32] We heard evidence from a number of people directly involved in the irrigation community. It was clear from their evidence that irrigation schemes require considerable development, infrastructural and maintenance costs. It was also evident that security of supply has always been an area of concern. Mr Jensen, who gave evidence for Morven Glenavy Ikawai Irrigation Company Limited (**MGI**) stated:¹⁴

Reliability of supply is not only the vital return on the cost of investment made by shareholders – it is required for efficiency of water use, allows the scheme to operate without the requirement for water storage, and to remain cost effective.

- [33] Mr Ross, who gave evidence for the Waitaki Irrigators Collective (**WIC**), saw proposed Plan Change 3 as being needed to resolve the problem of paper over-allocation in the mid-reach with the annual volume now being fully allocated (due in part to the amount allocated to the mining rights and even if only fully allocated ‘on paper’).¹⁵ He noted:¹⁶

We are currently in a situation where reliability of supply is very uncertain for those that hold consents in this allocation zone should this matter not be resolved prior to consents coming up for renewal – which is contrary to Policy 28 of the Plan

- [34] Underlying their evidence was a genuine concern that the Allocation Plan has not brought about certainty for a number of reasons including:

- (a) plan provisions provide for pre-plan consents¹⁷ to have greater reliability than post-plan consents, but there is no corresponding rule provision to ensure this occurs. Instead, Rule 2 provides for all takes from the Lower Waitaki River¹⁸ to have a minimum flow of 150m³/s. Combined with this is the consent held by Meridian which precludes implementation of Rule 7 at least until its expiry in 2025;
- (b) key parts of the Allocation Plan relating to the lower Waitaki River remain unimplemented because of the case law relating to non-derogation (a matter discussed above);
- (c) further consents have been granted in the lower catchment, such as the North Bank Tunnel consent which, significantly, provided for a flow regime different from the Allocation Plan; and
- (d) since the Allocation Plan was promulgated, the volumetric allocation provided in Rule 6 Table 5, for agricultural and horticultural activities for the mid reach of the lower Waitaki River has

¹⁴ Statement of evidence M Jensen, para [17]

¹⁵ Statement of evidence M Ross, para [22]

¹⁶ Statement of evidence M Ross, para [29]

¹⁷ Refer Policy 46 of the Allocation Plan

¹⁸ Other than those that are exempt in flow conditions under Rules 2(2) and (3).

been over-allocated by the “deemed permits” or “mining rights” and the grant of resource consents, thus making new applications above Black Point non-complying activities.

- [35] Together these matters create uncertainty about the implementation of appropriate minimum flows when pre-plan consents are replaced or reviewed.
- [36] To respond to these issues, the Canterbury Regional Council’s (CRC) Regional Planning Committee, after considering them, initiated a plan change to provide for an increase in the annual allocation to agricultural/horticultural activities between the Waitaki Dam and Black Point. Before the plan change process could formally commence, the Government replaced the elected council with appointed commissioners.
- [37] The matter was then taken up by the South Coastal Canterbury Zone Water Management Committee (**the Zone Committee**).
- [38] The Zone Committee, from which Plan Change 3 as notified originated, was one of many set up under the Canterbury Water Management Strategy (**the CWMS**) as part of the water governance structure for the Canterbury region. The CWMS was developed out of the Canterbury Mayoral Forum and its strategic framework was released in November 2007 and subsequently adopted by the Council to assist in its functions under the RMA.
- [39] Many of the concepts of the CWMS have been incorporated into the objectives and policies of the Canterbury Regional Policy Statement 2013. The Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2012 (**ECan Act**) requires the Canterbury Regional Council to have particular regard to the vision and principles of the CWMS (set out in Schedule 1 to the ECan Act) in making decisions on the Canterbury Regional Policy Statement (**RPS**) and Regional Plans.
- [40] As part of the strategic framework, Zone Committees work collaboratively to develop effective water management solutions that deliver economic, social, cultural and environmental outcomes, in consultation with the local community. The Zone Committee recommended changes to the Allocation Plan in its Addendum to the Lower Waitaki Zone Implementation Programme (August 2012). Solutions reached by zone committees are recognised in the RPS as having value in water management.¹⁹
- [41] The Council commissioners accepted the recommendations in August 2012 and resolved to progress with the plan change. Since then the Council has consulted on the draft plan change, and made several amendments to produce the proposed plan change.
- [42] We are advised that, to avoid the non-derogation rule and as the proposed plan change is part of a

¹⁹ See Policy 7.3.1(3) and various methods

collaborative solution, Meridian and the Waitaki Irrigators Collective have agreed that they will voluntarily amend their consent conditions to implement it. Due to the risk that full implementation of proposed Plan Change 3 could be challenged on grounds of derogation, we sought undertakings from Meridian and WIC of the conditions under which they would volunteer relevant consents for review to implement this plan change. The Council's s42A Reply acknowledged this as being a risk of the plan change process since it was first initiated, and concluded there is no other option to address this key issue. The full immediate benefits of this proposed plan change depend on those undertakings being implemented. We discuss those undertakings and the weight we should give to them later in this decision.

Proposed Plan Change 3

- [43] The proposed plan change has undergone a number of iterations since it was first notified. This is as a consequence of the Council officers adapting to the evidence, matters raised at the hearing, discussions with parties and responses to any memoranda. Consequently the proposed plan change as notified morphed considerably. The iterative process continued until the Council Officers' memorandum dated 15 April 2016 in response to Minute 11.
- [44] The most contentious matter arising out of proposed Plan Change 3 is that it proposes to provide access to flows lower than 150 m³/s in restricted circumstances, so as to maintain reliability of supply in recognition of sunk investments and infrastructure. The proposed plan change seeks to provide reliability of supply in the "low flow years".²⁰ It proposes new monthly variable minimum flows for existing consents. We recognise of course that "low flow years" in the lower river are actually a combination of inflows and hydro-generation releases.
- [45] The change to the minimum flow as it relates to existing consents is but part of a package that seeks to balance the lowering of minimum flows by restricting the circumstances under which the water is taken. Proposed Plan Change 3 also addresses consequential changes relating to annual allocation limits for classes of water taking activities, the provision of water below the Waitaki Dam, limiting the transfer of existing consents, and ensuring the higher reliability of supply provided for existing (pre-plan) consents in the current plan.
- [46] In addition, Plan Change 3 as notified by the Council proposes changes that:
- (a) improve certainty of continuing operation for hydro-electricity generation;
 - (b) promote the efficient and effective use of water;
 - (c) provide an allocation of water for mahinga kai and the augmentation of Wainono Lagoon;
- and

²⁰ s32 report, pg 10 [2.2]

- (d) implement other amendments relating to the application of the minimum flow regime, the calculation of inflows above the Waitaki Dam and the basis for measurement of flows.

[47] As a result of submissions, evidence heard at the hearing and responses to our questions and Minutes, the Council recommended further changes to the notified provisions. We propose to address the provisions as finally recommended to us by the Council under the following themes.

Theme 1 - minimum flows (including cessation flows) and supply of water for security of supply for holders of existing consents

[48] The plan change proposes to make provision for:

- (a) Policy 46 which requires the provision of flows into the lower Waitaki River, sufficient to meet the actual requirements of activities up to a maximum of 40m³/s
- (b) a new Policy 47 which provides for:
 - (i) the setting of cessation flows as an alternative to the minimum flow for existing consents, subject to cessation of takes in periods of sustained low flow; and
 - (ii) the setting of alternative cessation flows to facilitate the taking or diverting of a portion of the allocation for mahinga kai enhancement;
- (c) A new definition of “Cessation Flows” as an alternative to minimum flows at which takes must cease; and
- (d) amendments to Rule 2 of the Allocation Plan providing for:
 - (i) amendments to Rule 2(2) to include water “for augmentation flows to Wainono Lagoon” as being exempt from “cessation flows”; and
 - (ii) variable monthly cessation flows for existing consents as set out in Rows 4 and 5 of new Table 3A; and
 - (iii) variable monthly cessation flows for mahinga kai as set out in Rows 6 and 7 of new Table 3A; and
 - (iv) variable monthly cessation flows for water taken for other than existing consents or mahinga kai as set out in Rows 8 and 9 of new Table 3A; and
 - (v) amendments to Table 3B, line xvii (formerly Table 3, line xvii) to:
 - provide a specific allocation of 10m³/s for mahinga kai and 1m³/s for augmentation of the Wainono Lagoon out of the Allocation Plan’s allocation of 90m³/s for the lower Waitaki River;
 - amend the calculation of the minimum flow in extremely low flow periods to the natural flow if, during any period, the calculated natural flow for the preceding seven

days is less than or equal to 150m³/s; and

- amend measurements at the Kurow recorder from a one hour rolling average to an average over a 24 hour period; and
- (e) an amendment to Rule 7 including Table 6 to:
- (i) reflect that the cessation flows for existing consents in Rule 2 mean that not as much water is required to be provided over the Waitaki Dam; and
 - (ii) set out a specific regime with regard to the flows in the lower Waitaki River which is dependent on the inflows above the Waitaki Dam;

Theme 2 - allocation of water for enhancement of mahinga kai and the augmentation of Wainono Lagoon

[49] The plan change proposes to reserve 10 m³/s (mahinga kai water) plus a further 1m³/s (reserved water for Wainono Lagoon enhancement) of the 90 m³/s allocation (specified in Rule 2, Table 3B of the Allocation Plan). This comprises an allocation of 10 m³/s for projects, either within or outside the catchment, that enhance mahinga kai and align with Ngāi Tahu values. An additional 1 m³/s is to be reserved for augmentation of flows into Wainono Lagoon. The mechanisms by which the Allocation Plan provides for these matters are to:

- (a) introduce a new sub clause to Policy 12 that adds the enhancement of mahinga kai as an activity for which an allocation should be established; and
- (b) amend Rule 2(2) to include water “for augmentation flows to Wainono Lagoon” as exempt from “cessation flow”; and
- (c) amend Rule 2 by adding Rule 2(4)(bb)(ii) which proposes that all takes must cease for a period of 48 hours if the daily average flow of the Lower Waitaki River is at or below 150 m³/s for ten consecutive days; and
- (d) introduce a new clause (4) to Rule 2 and a new Table 3A to provide for cessation flows for the reserved water; and
- (e) amend Table 3B, (formerly Table 3) line xvii to make provision for the reserved water within the 90 m³/s allocation; and
- (f) make provision within Table 5 for mahinga kai activities up to an annual allocation of 315 million m³ (see also Theme 6); and
- (g) amend Table 5, line vi to make provision within the allocation for ‘any other activities’ for the reservation of water for the augmentation of Wainono Lagoon, up to an annual allocation of 32 million m³; and
- (h) include a new sub clause to Policy 46(ii) which requires sufficient water to be provided to meet the actual requirements for enhancement of mahinga kai and the augmentation of Wainono Lagoon.

Theme 3 – inclusion of tributaries in Table 3 of Rule 2

- [50] Plan Change 3 proposes amending the environmental flow and level regime listed in Rule 2 Table 3B (formerly Table 3) line xviii so that it applies to the tributaries of the Awakino River as well as the main stem.

Theme 4 – exemption to minimum flow during low inflow periods

- [51] Plan Change 3 proposes changing the way inflows above the Waitaki Dam are calculated for the purpose of matching inflows with water passing the dam by:
- (a) Amending Table 3B (formerly Table 3) line xvii(a) which currently provides for a minimum flow of 150m³/s except, for a restricted winter period, if inflows have been less than the one in twenty year flows throughout the preceding summer period. The proposed plan change seeks to amend this exception to a minimum flow equivalent based on the calculated natural inflows above the Waitaki Dam.

Theme 5 – basis for flow compliance

- [52] Proposed Plan Change 3 proposes changing the basis for flow measurement in Table 3B (formerly Table 3) line xvii(d) from a one hour rolling average to an average over a 24 hour period.

Theme 6 – annual allocation to activities

- [53] Proposed Plan Change 3 proposes amendments to Rule 6 Table 5 including:
- (a) Increasing the annual allocation for agricultural and horticultural activities in line v from 150Mm³ to 200Mm³; and
 - (b) Adding an extra column to Table 5 providing for an allocation of 315Mm³ for mahinga kai; and
 - (c) Providing, at line vi under the column “*Any other activities*” for 112Mm³ plus an allocation of 32m³ reserved for augmentation of Wainono Lagoon.

Theme 7 – removal of diversions from the counting of instantaneous allocation limits and annual allocation volumes

- [54] Plan Change 3 proposes to amend the relevant provisions to ensure that diversions are not counted as part of allocation. Effectively, the amendments would mean that only consumptive uses of the water are recorded as being either an instantaneous allocation or an annual allocation to activities by volume. Water that is not removed permanently from the river would not be an “*allocation*” in terms of the amended provisions.

Theme 8 – efficient and effective use of water

- [55] Plan Change 3 proposes to make changes to Policies 15, 16 and 17 so as to align the policy directions with the appropriate irrigation demand standards consistent in the partially operative Land and Water Regional Plan and the inclusion of two schedules to address the reasonable use of water.

Theme 9 – replacement of existing water permits for existing hydro-electric generation

- [56] Rule 15 of the Allocation Plan provides a discretionary status for activities that are consistent with the environmental flow and level regime. Plan Change 3 proposes a new rule (Rule 15A) that provides a controlled activity status for the replacement of existing resource consents for existing hydro-electricity generation schemes. Consent applications that are not consistent with the environmental flow regime are non-complying under the Plan and would remain so under PC3 (see Rule 16).

Theme 10 – temporary lowering of Lake Pūkaki water level

- [57] Plan Change 3 proposes to amend Table 4 of Rule 3 to lower the lake level of Lake Pūkaki from 518.0m AMSL to 515.0m AMSL for any period when the electricity security of supply situation is expressed as a security of supply “*alert*”.

Theme 11 – complementary changes to the new flow regime

- [58] Plan Change 3 also proposes a number of complementary amendments:
- (a) Deletion of Rule 25 relating to time periods for the review of existing consents;
 - (b) Provisions relating to the transfer of pre-plan consents; and
 - (c) Consequential amendments;
 - (i) A new definition for Black Point,
 - (ii) Deleting definition of “*Environment Canterbury UO5/15*”; and
 - (iii) A number of minor amendments consequential on the proposed changes to the flow regime.

Section 2 - The Legal and Statutory Context

Introduction

- [59] We now set out our understanding of the general legal and statutory context in which the Council is to give its decision on the matters raised in the submissions and evidence in accepting or rejecting the amendments requested.

No presumption

- [60] It is now well accepted that there is no legal presumption that the proposals advanced by the Council in proposed Plan Change 3 are to be preferred to alternatives being promoted by other participants in the process. Further, it is trite law that there is no legal presumption in favour of the existing provisions within the Allocation Plan that are within the scope of proposed Plan Change 3.

Is it appropriate to change the Allocation Plan?

- [61] Some submitters argued that the operative regime established in the Allocation Plan has a sense of finality about it such that it really should not be changed.
- [62] However, the Allocation Plan, like any other regional plan, is subject to review, and may be changed at any time²¹ following the two-year moratorium period set out in the Waitaki Act.²²
- [63] Section 79(1) of the RMA requires a council to commence a review of a regional plan not less than ten-yearly. This does not preclude changes to a regional plans during their currency prior to that time. It is common practice for councils to initiate plan changes at any time if they consider it appropriate.
- [64] Several submitters have suggested that since pre-plan consents do not begin expiring until 2028, the issue can be deferred to 2016 (review of the Allocation Plan) or 2025 (Waitaki Dam consent expiry date). There is no guarantee that either of those processes could achieve an outcome as sought in proposed Plan Change 3 as:
- (a) whatever the outcome of the review of the Allocation Plan, the issue of derogation remains, at least until Meridian's current consent expires. To achieve any outcome that addresses the issue of minimum flows for pre-plan consents below the dam would require agreement from Meridian, if the solution goes beyond its consent; and
 - (b) assuming the Allocation Plan provisions at the time of replacement of the Waitaki Dam

²¹ s79(4) of the RMA

²² s14(1)(b) of the Waitaki Act

consent are effectively unchanged, consent replacements would provide an opportunity to implement Rule 7. The Dam operator could, however, seek a consent that was not consistent with Rule 7, Table 6.

- [65] In any event, as we have said, the Council is well within its statutory rights to initiate Plan Change 3 in an attempt to address the need for security of supply arising, in part, from the fact that the Allocation Plan is not being fully implemented and the fact that water has been over-allocated. Further, planning is a fluid construct that may adapt to changing circumstances over time – hence the provisions to enable the initiation of plan changes.
- [66] The operative regime in the Allocation Plan is the Board’s then-assessment of the most appropriate provisions to give effect to the statutory directions based on the evidence before it. Just as was the case for the Allocation Board in 2005, now that a plan change has been initiated, it is our responsibility to assess the evidence that has been presented and to make a determination as to what are the most appropriate provisions in the light of that evidence and the legal and statutory principles that apply.

Overarching legal issues

Introduction

- [67] A number of legal issues were raised by various submitters. We intend in this section to deal with those that have an overarching generic nature. They include:
- (a) the scope of a number of submissions;
 - (b) the appropriate existing environment to use as a reference point;
 - (i) the regime of existing consents; or
 - (ii) the regime that would exist if the Allocation Plan, with a minimum flow of 150 m³/s, were implemented;
 - (c) the collaborative agreement between Meridian and the Waitaki Irrigators Collective to voluntarily amend their consent conditions.
- [68] A number of other legal issues were raised that relate to provisions of a particular theme. We propose to deal with those issues at the time of discussing those particular provisions.

The scope of submissions

- [69] A number of submissions sought amendments where the question of scope was an issue. The law on “scope” is now well settled.
- [70] Clause 6(1) of Schedule 1 to the RMA provides that once a proposed plan (including a change) is

publicly notified under clause 5, a person described in sub-clauses (2) to (4) may make a submission “on it” to the relevant local authority.

[71] An authoritative statement of the law on whether a submission is “on” a plan change is contained in the High Court decision of *Palmerston North City Council v Motor Machinists Limited*²³. The Court explicitly endorsed the bi-partite approach in *Clearwater Resort Limited v Christchurch City Council*²⁴ by which an analysis is required as to whether first, the submission addresses the change to the status quo advanced by the proposed plan change and, secondly, there is a real risk that persons potentially affected by the change proposed in the submission have been denied an effective opportunity to participate in the plan change process.

[72] The Court in *Motor Machinists Limited* said that:²⁵

The first limb of the **Clearwater** test requires that the submission address the alteration to the status quo entailed in the proposed plan change. The submission must reasonably be said to fall within the ambit of that plan change. One way of analysing that is to ask whether the submission raises matters that should have been addressed in the s32 evaluation and report. If so, the submission is likely to fall within the ambit of the plan change. Another is to ask whether the management regime in a district plan for a particular resource is altered by the plan change. If it is not, then a submission seeking a new management regime for that resource is unlikely to be “on” the plan change, unless the change is merely incidental or consequential.

And²⁶

The second limb of the **Clearwater** test asks whether there is a real risk that persons directly or potentially directly affected by the additional changes proposed in the submission have been denied an effective opportunity to respond to those additional changes in the plan change process.

[73] The Court then went on to say that a precautionary approach is required to receiving submissions proposing more than incidental or consequential further changes to a notified proposed plan change. The Court further said that the approach taken by the Environment Court in *Naturally Best New Zealand Limited v Queenstown-Lakes District Council*²⁷ of endorsing “fair and reasonable extensions” is not correct. Where a submission does not meet each limb of the **Clearwater** test, the submitter has other options; to submit an application for a resource consent, to seek a further public plan change, or to seek a private plan change.

[74] We propose to apply the **Clearwater** test as explained by the Court in *Motor Machinists* when considering the question of scope. We summarise our duties in relation to scope as:

²³ [2013] NZHC 1290

²⁴ HC Christchurch AP34/02, 14 March 2013

²⁵ at [91] (d)

²⁶ at [91] (e)

²⁷ EnvC C049/04

- (a) to determine whether each submission is a valid submission and is “on” Plan Change 3, applying the tests in *Motor Machinists Limited*, being whether:
 - (i) the submission reasonably falls within the ambit of the plan change by addressing a change to the pre-existing status quo advanced by proposed Plan Change 3; and
 - (ii) there is a real risk that by making changes sought in the submission, other persons directly or potentially directly affected by the additional changes proposed in the submission have been denied an effective opportunity to respond to those additional changes in the Plan Change process; and
- (b) by asking ourselves:
 - (i) has a submitter raised a relevant “resource management issue” in its submission? This may be in a specific or general way;
 - (ii) is the change contemplated by the submitter reasonably within the general scope of: an original submission; or Plan Change 3 as notified; or somewhere in between; and
 - (iii) was the summary of the decisions sought fair and accurate and not misleading?

The appropriate existing environment or reference point

- [75] Plan Change 3 proposes amendments to the Allocation Plan. It does not propose any change to the objectives. As we understand it, our duties under s32(3) of the RMA are to form overall judgements about whether, having regard to their efficiency and effectiveness, the policies and rules proposed as part of Plan Change 3 are the most appropriate for achieving the objectives of the Allocation Plan as they currently stand. Also, under s68(1), a regional council may include rules for the purpose of carrying out its functions and achieving its objectives and policies and under s68(3) shall have regard to effects on the environment.
- [76] In evaluating the effects on the environment of the proposed plan change, and alternative options sought by the submitters, a comparison with a reference point is required. This is particularly so with reference to the different level and flow regimes. Some submitters maintained the reference point should be the environment that reflects the regime set out in the Allocation Plan. Others maintained that the appropriate reference point is the environment that reflects the presently consented regime.
- [77] The Allocation Board adopted as its reference point the then current environment, including effects that are cumulative with the adverse effects of the existing development and activities. The Allocation Plan set a new and different flow and allocation regime which potentially set a new reference point. But, due to the case law as to non-derogation, the then current regime still continues to apply and is likely to apply under present circumstances until 2025.
- [78] We have an evidential base derived from the current consented regime, so it seems to us common sense and practicable to use that existing environment to compare the scenarios that reflect the

alternate flow and level regimes that we are required to consider. At the end of the day when it comes to assessing the efficiency and effectiveness of the provisions, it matters not what constitutes the reference point, so long as all scenarios are compared against the same reference point.

Collaborative agreement

[79] Counsel and witnesses for Meridian and the irrigators advised us that the changes proposed by Plan Change 3 are a package and, though it differs from the current consented regime, the consent holders would initiate changes to their consents to implement the required flows.

[80] No undertaking had been given and we were uncertain as to the extent of the voluntary agreements. As an example, Mr Page, the Environmental Strategy Manager for Meridian, had this to say:²⁸

Meridian has never agreed that the required flows for the lower Waitaki River within the WAP represent the best ways to achieve the WAP's objectives. However Meridian agrees with the position adopted by the Waitaki Catchment Water Allocation Board and ultimately reflected in footnote 23A in Rule 6, Table 5 of the WAP (and by Environment Canterbury subsequently), that the existing regime cannot be fully implemented before re consenting of the Waitaki Power Scheme unless Meridian agrees. This is because the operative WAP regime effectively requires a transfer of entitlement to use water from Meridian to other users. Assuming the outcome of the change 3 process is acceptable, Meridian has indicated it will initiate a change to its Waitaki Dam water permit to implement the required flows for the lower Waitaki River that would result from change 3.

The flow regime proposed by Meridian varies from that notified in change 3 primarily in order to better provide for Ngāi Tahu values and aspirations. In proposing this regime, Meridian is explicitly accepting that it will be subject to higher required flows below Waitaki Dam, with the consequent negative effect on electricity generation. This effect is described more fully in the evidence of Mr Waipara. It is doing so in the pursuit of providing certainty of acceptable resource management outcome. I understand this flow regime is supported by Ngāi Tahu and in principle by the Waitaki Irrigators Collective.

(Emphasis Ours)

[81] We were concerned as to the extent, and weight that we should give to this indication of intent. Our concern was presaged on the fact that the implementation of the proposed changes would be given immediate effect, thus ensuring both reliability and certainty of environmental outcomes. In response to our concern, Mr Christensen, counsel for Meridian, had this to say:²⁹

The hearing commissioners have raised the question as to the extent to which those assurances of implementation can be relied upon in this process. My instructions are that Meridian has every intention of honouring the commitment it is making in its evidence in relation to this matter and I submit that this is something that you are entitled to put such weight upon as you think is appropriate.

While I would not assert that the commitment given by Meridian amounts to an enforceable obligation, I do submit that it amounts to a statement of corporate intent from a major, highly reputable, and transparent company whose reputation is in part bound up with its ability to deliver on its stated commitments. I do not put the matter on a higher footing than that. In my submission you can put

²⁸ Evidence of J Page, paras [10] and [11]

²⁹ Closing submissions, paras [66] and [67]

considerable weight on the commitment given.

- [82] This did not alleviate our concern that the commitment given was not binding. Further, a similar commitment given by the Waitaki Irrigators' Collective was not, in our view, binding. As no undertakings were given, and we were uncertain as to the scope of any such intentions, we accordingly, after discussion with counsel, directed that written undertakings be given by Meridian and the Waitaki Irrigators' Collective.
- [83] These undertakings were given and are attached as Appendices **2A** and **2B**. We are of the view that their relevance only becomes pertinent in the event that the proposed Plan Change provisions first meet the relevant directions of the statutory instruments. The provisions must first pass the threshold of satisfying the statutory tests, including Part 2, the objectives and policies of the Allocation Plan and the effects on the environment.

The statutory context

- [84] As we have pointed out, proposed Plan Change 3 does not propose any changes or amendments to the objectives of the Allocation Plan. The objectives are not within its scope. It proposes amendments and additions to the policies, rules and schedules of the Allocation Plan. We bear this in mind when discussing the relevant statutory context.

The Resource Management Act

- [85] We set out in this section the provisions of the RMA that are relevant to our consideration of issues.

The purpose and principles of the RMA

- [86] **Part 2** is a framework against which all the functions, powers, and duties under the RMA are to be exercised for the purposes of giving effect to the RMA. Section 5 has been described as the lodestar of the RMA.³⁰ It guides decision-making under the RMA towards the overarching purpose of sustainable management and directs decision-makers to manage resources so that the reasonably foreseeable needs of future generations can be met and the life-supporting capacity of the ecosystem protected.
- [87] **Section 5** sets out the Act's overall objective. Its purpose is identified in s5(1) as "to promote the sustainable management of natural and physical resources". In doing this, sustainable management is to be given the meaning stated in s5(2):

In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while –

³⁰ **Lee v Auckland City Council** [1995] NZRMA 241 (PT) at [248]

- (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

[88] Section 5 contemplates environmental preservation and protection as an element of sustainable management of natural and physical resources;³¹ and protecting the environment from adverse effects of use and development is an aspect (though not the only aspect) of sustainable management.³²

[89] Although s5 is not itself an operative provision,³³ where applicable the other sections of Part 2 (ss6, 7 and 8) are operative, albeit at the level of general principles, directing those administering the RMA, and elaborating³⁴ on how s5 is to be applied in the circumstances described in them.

[90] **Section 6** of the RMA identifies matters of national importance, and directs all persons exercising functions and powers under the Act to recognise and provide for them. Of them, those relevant to proposed Plan Change 3 include:

- The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, lakes and rivers and their margins, and the protection of them from inappropriate use and development.³⁵
- The protection of areas of indigenous vegetation and significant habitats of indigenous fauna.³⁶
- The maintenance and enhancement of public access to and along lakes and rivers.³⁷
- The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other tāonga.³⁸
- The protection of protected customary rights.³⁹

[91] The word “inappropriate” in s6(a) should be interpreted “*against the backdrop of what is sought to be protected or preserved*”.⁴⁰ The application of these matters, which are described as having national significance, is to serve the Act’s purpose of promoting sustainable management. They are not to be achieved at all costs. Protection is not an absolute concept, and a reasonable, rather than strict,

³¹ **Environmental Defence Society v New Zealand King Salmon Limited & Ors** [2014] NZCSC 38 at [146]

³² **Environmental Defence Society v New Zealand King Salmon** cited above, at [148]

³³ **Environmental Defence Society v New Zealand King Salmon**, cited above, at [151]

³⁴ **Environmental Defence Society v New Zealand King Salmon**, cited above, at [25] and [149]

³⁵ RMA s6(a)

³⁶ RMA s6(c)

³⁷ RMA s6(d)

³⁸ RMA s6(e)

³⁹ RMA s6(g)

⁴⁰ **Environmental Defence Society v New Zealand King Salmon**, cited above, at [105]

assessment is called for.⁴¹

[92] **Section 7** directs that, in achieving the purpose of the Act, all persons exercising functions and powers under it are to have particular regard to some 11 listed matters, all of which are relevant to proposed Plan Change 3. They are:

- (a) kaitiakitanga;
- (aa) the ethic of stewardship;
- (b) the efficient use and development of natural and physical resources;
- (ba) the efficiency of the end use of energy;
- (c) the maintenance and enhancement of amenity values;
- (d) intrinsic values of ecosystems;
- ...
- (f) maintenance and enhancement of the quality of the environment;
- (g) any finite characteristics of natural and physical resources;
- (h) the protection of the habitat of trout and salmon;
- (i) the effects of climate change;
- (j) the benefits to be derived from the use and development of renewable energy.

[93] **Section 8**, the final section of Part 2 of the Act, directs persons exercising functions and powers under it to take into account the principles of the Treaty of Waitangi (te Tiriti o Waitangi). We understand this direction does not extend to principles that are not consistent with the scheme of the RMA, nor does it provide for allocating resources to Māori.⁴² It does not impose a duty on functionaries to take into account past wrongs, or to be open to ways to restore imbalance.⁴³

[94] Although Part 2 states the purpose of the Act and the principles in elaboration of the purpose, where specific, unqualified prescriptions of a superior instrument by which Part 2 is given effect (the lawfulness and the meaning of which are not disputed), and which “cover the field”, apply, a decision-maker is not free to “refer back” to Part 2⁴⁴ to diminish the effect given to such a prescription.

Restrictions on water – Section 14

[95] **Section 14** regulates taking, using, damming, or diverting water unless expressly allowed by a national environmental standard, a regional rule or a resource consent; and the taking of water for an individual’s reasonable domestic needs or the reasonable needs of an individual’s animals for drinking water and the taking does not, or is not likely to, have an adverse effect on the environment; and the taking of water for fire-fighting.⁴⁵

⁴¹ **Environmental Defence Society v Maunganui County Council** [1089] 3NZLR 257 (CA) 260

⁴² **Minhinnick v Minister of Corrections** EnvC A043/2004

⁴³ **Waikanae Christian Camp v Kapiti Coast District Council** (HC Wellington 27/10/2004 Mackenzie J)

⁴⁴ **Environmental Defence Society Inc v King Salmon**, cited above, at [80] and [88]

⁴⁵ s14(2) and (3) of the RMA

Functions of regional councils – Section 30

[96] **Section 30** of the RMA lists the functions of regional councils for the purpose of giving effect to the Act in their regions. The following of those functions are relevant to Plan Change 3:

- the establishment, implementation, and review of policies and methods to achieve integrated management of the natural and physical resources of the region;⁴⁶
- the preparation of policies in relation to the actual or potential effect of the use, development, or protection of land which is of regional significance;⁴⁷
- control of the use of land for the purpose of soil conservation; maintenance and enhancement of the quality of water and water bodies; maintenance of the quantity of water and water bodies; maintenance and enhancement of ecosystems in water bodies;⁴⁸
- control of the taking, use, damming and diversion of water, and control of the quantity, level and flow of water in any water body, including –
 - (i) the setting of any maximum or minimum levels or flows of water;
 - (ii) the control of the range, or rate of change, of levels or flows of water;⁴⁹
- the establishment of rules in a regional plan to allocate the taking or use of water (other than open coastal water);⁵⁰
- the establishment, implementation, and review of policies and methods for maintaining indigenous biological diversity;⁵¹

[97] Section 30(4) contains directions about allocation of natural resources in regional plans under s30(1)(fa) or (fb). The directions:

- restrict allocating amounts of resources that have already been allocated (s30(4)(a) and (b));
- regulate allocating a resource in anticipation of expiry of existing consents (s30(4)(c) and (d));
- authorise allocating a resource among competing types of activities (s30(4)(e)); and
- limit the allocating of water if the allocation does not affect activities authorised by s14(3)(b) to (e).

Contents of regional plans – Sections 63, 66, 67 and 68

[98] **Section 63** of the RMA states that the purpose of a regional plan “is to assist a regional council to

⁴⁶ s30(1)(a) of the RMA

⁴⁷ s30(1)(b) of the RMA

⁴⁸ s30(1)(c) of the RMA

⁴⁹ s130(e)(i) and (ii) of the RMA

⁵⁰ s130(fa)(i) of the RMA

⁵¹ s130(1)(ga) of the RMA

carry out any of its functions in order to achieve the purpose of this Act.”

[99] **Section 65** authorises a regional council to prepare a regional plan for any function specified in s30(c), (ca), (e), (f), (fa), (fb), (g) or (ga);⁵² and directs that a plan is to be prepared in accordance with Schedule 1.⁵³

[100] **Section 66** stipulates that:

- a regional council is to prepare a regional plan **in accordance** with its functions under s30, the provisions of Part 2, its duty under s32, and any regulations;⁵⁴
- when preparing a regional plan, the regional council is **to have regard to** any proposed regional policy statement for the region and management plans and strategies prepared under other Acts to the extent to which their content has a bearing on resource management issues of the region;⁵⁵
- when preparing a regional plan a regional council is **to take into account** any relevant planning document recognised by an iwi authority, if lodged with the council, to the extent that its content has a bearing on resource management issues of the region.⁵⁶

[101] **Section 67** of the RMA stipulates that:

- a regional plan is to state the objectives for the region; the policies **to implement** the objectives; and the rules (if any) **to implement** the policies;⁵⁷
- a regional plan is **to give effect to** any national policy statement, and any regional policy statement;⁵⁸
- a regional plan is **not to be inconsistent with** a water conservation order, or any other regional plan for the region;⁵⁹
- if a council allocates the taking and use of water under s30(1)(fa)(i) (which relevantly relates to the taking or use of water) the regional plan is to record how it has done so.⁶⁰

[102] **Section 68** of the RMA:

- empowers a regional council to make rules in a regional plan for carrying out certain functions and **for achieving the objectives and policies** of the plan;
- prescribes that in making a rule, a regional council is **to have regard to** the actual or potential effect (particularly any adverse effect) on the environment of activities; and,

⁵² s65(1) of the RMA

⁵³ S65(3) of the RMA

⁵⁴ s66(1) of the RMA

⁵⁵ s66(2)(c)(i) of the RMA

⁵⁶ s66(2A)(a) of the RMA

⁵⁷ s67(1) of the RMA

⁵⁸ s67(3) of the RMA

⁵⁹ s67(4) of the RMA

⁶⁰ s67(5) of the RMA

- relevantly contains specific prescriptions for rules relating to levels or flows or rates of use of water, including the ability for the plan to require consequential reviews of consents.⁶¹

[103] We keep all of these duties in mind in addressing submissions on proposed Plan Change 3 if and as they apply to the subject matter of the submissions and evidence.

Section 32 requirements and other statutory reports

[104] **Section 32** of the RMA prescribes requirements for preparing and publishing evaluation reports. An evaluation report is to examine whether the provisions of proposed Plan Change 3 are the most appropriate way to achieve the relevant objectives of the Allocation Plan by:

- identifying other reasonably practicable options for doing so;
- assessing the efficiency and effectiveness of the provisions in doing so; and
- summarising the reasons for deciding on the provisions.⁶²

[105] The report is to contain a level of detail that corresponds to the scale and significance of the environmental, economic, social and cultural effects anticipated from implementation of the proposal.⁶³

[106] In assessing the efficiency and effectiveness of provisions, the assessment has to identify and assess the anticipated benefits and costs of the environmental, economic, social and cultural effects, including opportunities for economic growth and employment anticipated to be provided or reduced. The assessment has also, if practicable, to quantify the benefits and costs; and if there is uncertain or insufficient information about the subject matter of the provisions, has to assess the risk of acting or not acting.⁶⁴

[107] By **s32AA**, a further evaluation is required for any changes proposed since the original evaluation report was completed. That further evaluation does not need to be published as a separate report if it is referred to in the decision-making record in sufficient detail to demonstrate that it was undertaken in compliance with that section.⁶⁵

[108] Pursuant to its obligation under s66(1)(e) of the RMA and clause 5(1)(a) of Schedule 1, the Council prepared an evaluation report for the proposed Plan Change entitled “**Waitaki Catchment Water Allocation Regional Plan: Plan Change 3: Section 32 Assessment: June 2014**”. This report was made available for public inspection as is required by s32(5). The Council prepared a further report entitled “**Waitaki Catchment Water Allocation Plan: Proposed Plan Change 3: Section**

⁶¹ s68(7) of the RMA

⁶² s32(1)(b) of the RMA

⁶³ s32(1)(c) of the RMA

⁶⁴ s32(2)(a) of the RMA

⁶⁵ s32AA(1)(d)(ii) of the RMA

32AA Evaluation.” This report was made available for public inspection pursuant to section 32AA of the RMA in July 2015.

[109] Further evaluations and reports were received from the Council officers in:

- (a) **“Responses to Questions of Hearing Commissioners on Expert Evidence and Council Reports”** dated June 2015;
- (b) **“Response to Further Questions (including Minute 8)”** dated 28 August 2015;
- (c) **“Submissions on controlled activity matter”** dated 30 September 2015;
- (d) **“Memorandum – Plan Change 3 – Minute 10”** dated 12 November 2015; and
- (e) **“Memorandum of Counsel on Behalf of the Canterbury Regional Council”** dated 15 April 2016 (including evidence from Mr Regnault, Mr Norton, Ms Topélen, Dr Ryder and Dr Saunders)⁶⁶

[110] We also received reports and statements in response to questions and directions from us including:

- (a) Joint Statement of Hydrology Witnesses, dated June 2015;
- (b) Memorandum from Ms Topélen “Surface Water science response to matters arising from proposed Plan Change 3 to the Waitaki Catchment Water Allocation Plan (Week 1 : 9, 10 and 12 June 2013) dated 18 June 2015”;
- (c) Joint Statement of witnesses in relation to flow regime, dated 3 July 2015;
- (d) Submission on controlled activity status in response to Minute 9 from:
 - (i) Meridian
 - (ii) Genesis
 - (iii) Waitaki Irrigators Collective
 - (iv) Ngā Rūnanga
 - (v) The LWRMS
 - (vi) Mackenzie District Council; and
 - (vii) Mrs Alison MacTavish
- (e) Submissions in response to Minute 11 from:
 - (i) Hunter Downs Development Co Ltd
 - (ii) Lower Waitaki River Management Society Inc
 - (iii) Meridian Energy Ltd
 - (iv) Te Rūnanga O Arowhenua Trust and Others
 - (v) Waitaki Irrigators Collective Ltd

[111] Some submitters have, through their submissions or evidence, commented on the Council’s “s32 assessment” or have submitted additional s32 assessments in respect of particular amendments

⁶⁶ Minutes 2, 8, 9, 10 and 11

requested.

- [112] Pursuant to **s42A** of the RMA a report was prepared for the purposes of assisting us in our deliberations. Following the first two weeks of the hearing, we received a s42A Reply Report, and we resumed the hearing on 11 August to consider it with its authors.
- [113] During the course of the hearing we also issued several minutes requesting clarification of and caucusing on certain matters,⁶⁷ and directions to parties, and have considered responses to those questions and directions in our evaluation.
- [114] We have considered all of the statutory reports to the extent we are required to do so by the statutory directions.
- [115] The Council carried out an effectiveness and efficiency review under section 35 of the Act and we have taken into account the findings of that review.⁶⁸

Other Acts

- [116] There are other Acts that apply either directly or indirectly to the Council's decision on Plan Change 3 and deciding submissions on it.

Te Rūnanga o Ngāi Tahu Act 1996 and Ngāi Tahu Claims Settlement Act 1998

- [117] These two Acts recognise Ngāi Tahu Whānui as tāngata whenua for Canterbury. This is relevant when applying ss6(e), 7(a) and 8 of the RMA, and in giving effect to relevant sections of the RPS.

Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2010

- [118] This Act empowers Environment Canterbury, among other matters, to address issues relevant to the efficient, effective, and sustainable management of fresh water in Canterbury. Of particular relevance to proposed Plan Change 3 is s63 which directs that, in considering any proposed plan, the Council is to have particular regard to the vision and principles of the Canterbury Water Management Strategy (CWMS), as set out in Part 1 of Schedule 1 of the 2010 Act, in addition to the matters relevant under the RMA to its decisions made under clause 10(1) of Schedule 1 of the RMA.
- [119] The text of the CWMS vision and principles reproduced in Part 1 of Schedule 1 of the 2010 Act includes a statement of the vision, and also states fundamental principles, including primary principles and supporting principles.

⁶⁷ Minutes 2, 8 and 9

⁶⁸ *Progress towards achieving objectives Waitaki Catchment Water Allocation Regional Plan*, December 2012

National Policy Statements and Canterbury Regional Policy Statement

- [120] In considering the submissions on proposed Plan Change 3, and the recommendations that we make on them, we apply the statutory requirements that proposed Plan Change 3 is to give effect to national and regional policy statements.⁶⁹ The words “to give effect to” are strong directives, creating a firm obligation,⁷⁰ and require positive implementation.

The New Zealand Coastal Policy Statement 2010 (NZCPS)

- [121] Objective 1 of the NZCPS deals with matters relating to both the coastal marine area and also the coastal environment. Parts of the Waitaki Catchment are within the coastal environment where the river meets the sea at its mouth.
- [122] Objective 3, Policy 2 seeks to ensure that Ngāi Tahu and Rūnanga are involved in issues of concern to them.
- [123] Objective 6 recognises that protection of coastal values does not preclude use and development in appropriate places and within appropriate limits.
- [124] River flows are a critical part of the coastal environment. Maintaining a flow that protects the natural functioning of the river mouth and for aquatic species to migrate naturally is important, providing for the maintenance of ecosystems and contributing towards natural character.

National Policy Statement on Freshwater Management 2014 (NPSFM)

- [125] Proposed Plan Change 3 was originally prepared on the basis that it was required to give effect to the NPSFM 2011,⁷¹ however on 4 July 2014 the NPSFM 2014 was gazetted and came into force on 1 August 2014. It replaced the NPSFM 2011. There are no transitional provisions in the NPSFM 2014, accordingly proposed Plan Change 3 would be required to give effect to the NPSFM 2014.
- [126] As proposed Plan Change 3 relates to a water allocation plan, the objectives and policies of most relevance to the plan change are those specifically relating to water quantity, integrated management and the national objectives framework. The objectives and policies relating to water quantity that must be given effect to include:
- (a) Safeguarding the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of freshwater, and sustainably managing the taking, using, damming, or diverting of fresh water – Objective B1;

⁶⁹ s67(3) of the RMA

⁷⁰ **Environmental Defence Society v NZ King Salmon**, cited above [77]

⁷¹ section 32 Report, pg 52

- (b) Avoiding any further over-allocation of fresh water and phasing out existing over-allocation – Objective B2;
- (c) Improving and maximising the efficient allocation and efficient use of water – Objective B3;
- (d) Protecting significant values of wetlands and of outstanding freshwater bodies – Objective B4;
- (e) By regional councils making or changing regional plans to the extent needed to ensure the plans establish freshwater objectives in accordance with policies CA1-CA4⁷² and set environmental flows and/or levels for all freshwater management units in their region (except ponds and naturally ephemeral water bodies) to give effect to the objectives in the National Policy Statement, having regard to at least the following:
 - (i) the reasonably foreseeable impacts of climate change;
 - (ii) the connection between water bodies; and
 - (iii) the connections between freshwater bodies and coastal water – Policy B1;
- (f) By regional councils making or changing regional plans to the extent needed to provide for efficient allocation of fresh water to activities, within the limits set to give effect to Policy B1 and Policy B2;
- (g) By regional councils making or changing regional plans to the extent needed to ensure the plans state criteria by which applications for water take permits or transfers of water take permits are to be decided, including to improve and maximise efficient allocation – Policy B3;
- (h) By regional councils identifying methods in regional plans to encourage the efficient use of water – Policy B4;
- (i) By regional councils ensuring that no decision will likely result in future over-allocation – including managing fresh water so that the aggregate of all amounts of fresh water in a freshwater management unit that are authorised to be taken, used, dammed or diverted does not over-allocate the water in the freshwater management unit – Policy B5;
- (j) By regional councils setting a defined timeframe and methods in regional plans by which over-allocation must be phased out, including by reviewing water permits and consents to help ensure the total amount of water allocated in a freshwater management unit is reduced to the level set to give effect to Policy B1 – Policy B6;

[127] The objectives and policies relating to integrated management that must be given effect to include:

- (a) By improving integrated management of fresh water and the use and development of land and whole catchments, including the interactions between fresh water, land, associated

⁷² The National Objectives Framework of the NPSFM

ecosystems and the coastal environment – Objective C1;

- (b) By regional councils making or changing regional policy statements to the extent needed to provide for the integrated management of the effects of use and development of:
 - (i) land on fresh water; and
 - (ii) land and fresh water on coastal water – policy C2
- (c) By providing for the involvement of iwi and hapū and to ensure that tāngata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding fresh water planning, including on how all other objectives of the National Policy Statement are given effect to – Objective D1.

[128] For completeness we note that the Council, to address the progressive implementation programme under Policy E(1) of the NPSFM 2014, has notified a progressive implementation programme. At the Council meeting on 4 September 2014 it was resolved that the Council:

- (a) adopts this part of the progressive implementation programme to implement the National Policy Statement 2014 (attached as Appendix 2);
- (b) approves public notification of the progressive implementation programme on 13 September 2014; and
- (c) notes a further decision will be required in 2015 about the timing of further stages to complete the implementation programme;

[129] In December 2015, Council resolved to amend the progressive implementation programme. The progressive implementation programme specifies a review of the water quantity provisions of the Waitaki sub-region by 2023/2024.

National Policy Statement for Renewable Electricity Generation 2011

[130] The National Policy Statement for Renewable Electricity Generation (**NPSREG**) came into force on 13 May 2011. This Policy Statement ensures a consistent approach to planning for renewable electricity generation in New Zealand by giving clear directions on the benefits of renewable electricity generation and requiring all councils to make provision for it in their plans.

[131] The statement emphasises as matters of national significance:⁷³

- (a) the need to develop, operate, maintain and upgrade renewable electricity generation activities throughout New Zealand; and
- (b) the benefits of renewable electricity generation.

[132] The Preamble to the statement contains the following:⁷⁴

⁷³ National Policy Statement for Renewable Electricity Generation 2011, pg 4

⁷⁴ Ibid at 3

Preamble...

This National Policy Statement does not apply to the allocation and prioritisation of freshwater as these are matters for regional councils to address in a catchment or regional context and may be subject to the development of national guidance in the future.

- [133] We heard submissions from counsel relating to the extent to which we should take the NPSREG into account when allocating water. We consider that the location of the above statement in the Preamble illustrates that it is not intended to act as a guide to decision makers in respect to any freshwater allocation decisions they are making. Rather, the statement says that “*amongst other things*” the National Policy Statement should not be used to justify always giving hydro-electricity generation activities priority when making freshwater allocation decisions. It envisages that there may be circumstances when this would not be appropriate and should not occur.
- [134] However, the statement in the Preamble should not be read as excluding the ability of regional councils to make freshwater allocation decisions which reflect the importance of renewable energy activities. Even if we are wrong in this regard, we consider it necessary, as a cautionary approach, to consider the policy statement’s provisions which reflect and give strong guidance to the relevant statutory provisions contained in Part 2 of the Act.⁷⁵
- [135] The NPSREG identifies several matters for decision-makers to have regard to, including:
- (a) The generation output of existing renewable electricity generation activities – Policy B(a);
 - (b) The requirement for regional plans to include objectives, policies, and methods (including rules) to provide for the development, operation, maintenance and upgrading of new and existing hydro-electricity generation activities – Policy E2.

Canterbury Regional Policy Statement 2013

- [136] The Canterbury Regional Policy Statement 2013 (**the RPS**) contains provisions which specifically relate to the management of fresh water, and those which are of relevance to the Plan Change include:
- (a) To ensure freshwater resources are managed to enable people and communities to provide for their economic and social wellbeing, for in-stream recreational and amenity values, and any economic and social activities associated with those values, provided the life supporting capacity/mauri is safe-guarded, natural character values are preserved, and any actual or reasonably foreseeable requirements for community and stock water supplies and customary uses are provided for – Objective 7.2.1;
 - (b) Requiring that further abstraction of water in the region occurs in parallel with improvements to the efficiency with which water is allocated for abstraction, the way it is abstracted and

⁷⁵ See *Carter Holt Harvey Ltd & Ors v Waikato RC* [2011] NZEnvC 380 at [55] to [59]

conveyed, and its application or use – Objective 7.2.2;

- (c) Ensuring fresh water is managed in an integrated way within and across catchments and between agencies and people with interests in water management in the community – Objective 7.2.4;
- (d) Promoting the restoration and improvement of wetlands and their surroundings and associated Ngāi Tahu values by implementing programmes to promote the enhancement of indigenous biodiversity, inland basin ecosystems and riparian areas – Policy 7.3.3;
- (e) Managing the abstraction of surface water by establishing environmental flow regimes and water allocation regimes which primarily protect a range of values and the existing or reasonably foreseeable drinking water or stock water supplies, while also providing for any actual or reasonably foreseeable demand for abstraction – Policy 7.3.4(1);
- (f) Requiring that Council recognise and provide for the continuation of existing hydro-electricity generation and irrigation schemes, but require improvements in water use efficiency and reductions in adverse environmental effects where feasible – Policy 7.3.11;
- (g) Recognising and providing for efficient, reliable and resilient electricity within Canterbury by, among other things, maintaining the generation output and enabling maximum supply benefit to be obtained from existing generation facilities – Policy 16.3.5.

Other regional plans

- [137] In considering the submissions on proposed Plan Change 3, and the recommendations we make on them, we apply the statutory requirement that the Plan Change must **not be inconsistent with** any other regional plan for the region.⁷⁶

The Natural Resources Regional Plan (“NRRP”)

- [138] Prior to the development of the LWRP, the Natural Resources Regional Plan was the primary regional plan for regulating the management of natural resources in Canterbury. Chapters 4, 7 and 8, relating to water quantity and quality, beds of lakes and rivers, wetlands and soil conservation were revoked when the LWRP was made partly operative.
- [139] While the NRRP was relevant at the time of the development and drafting of the proposed Plan Change, and accordingly it had to be consistent with the NRRP, its relevance for the purpose of this report has been overtaken by the LWRP being made partly operative. The water quantity provisions of the LWRP apply, unless the activities are subject to location-specific regional plans, which include the Allocation Plan for the Waitaki River. Therefore the NRRP does not apply to the allocation of water in the Lower Waitaki River.

⁷⁶ s67(4) of the RMA

The Canterbury Land and Water Regional Plan (“LWRP”)

- [140] On 18 January 2014, the Council notified the decisions on the LWRP. The scope of the LWRP relates to the management of land and water resources to the extent of regional council functions set out in s30 of the RMA, except those functions relating to the management of air quality and the coastal marine area. When operative, the LWRP will therefore supersede most of the existing chapters of the NRRP. We note that the Land and Water Regional Plan was made partially operative on 1 September 2015 and further provisions made operative on 1 December 2015.
- [141] The LWRP aims to provide the framework to facilitate the delivery of the community’s aspirations for water management in Canterbury as set out in the Canterbury Water Management Strategy.
- [142] Section 2.8 of the LWRP states that the Waitaki Catchment Water Allocation Regional Plan controls the taking, using, damming and diverting of water from within the Waitaki Catchment, and the LWRP’s objectives, policies and rules do not apply to these matters. Accordingly, the document is relevant only insofar as it addresses water use efficiency measures which are proposed to be included in the Allocation Plan to ensure consistency across the region.

Iwi Management Plans

- [143] In determining our recommendations we apply the statutory requirement that we are required to **take into account** any relevant planning document recognised by an iwi authority, if lodged with the Council.
- [144] Those Iwi Management Plans within the Waitaki Catchment that have been lodged with the Council are:
- (a) Te Rūnanga o Ngāi Tahu – Freshwater Policy (1999);
 - (b) Kai Tahu ki Otago Natural Resource Management Plan (1995), revised in 2005;
 - (c) Te Whakatau Kaupapa – Resource Management Strategy for Canterbury (1992); and
 - (d) Iwi Management Plan of Kāti Huirapa – Arowhenua – Rakaia to Waitaki (1992).
- [145] The Ngāi Tahu Freshwater Policy includes:
- (a) a catchment-based and holistic “mountain to sea” approach to resource management – s4.1.2;
 - (b) identification of priority areas including the restoration, maintenance and protection of the mauri of freshwater resources – Objective 6.2; and
 - (c) maintaining vital, healthy mahinga kai populations – Objective 6.3.

- [146] Te Whakatau Kaupapa, the resource management strategy for Canterbury, was first published by Ngāi Tahu in November 1990. General policies within the strategy relating to water include:
- (a) the encouragement of more efficient use of water – Policy 7; and
 - (b) the maintenance of existing wetlands – Policy 10.
- [147] The management plan of Kāti Huirapa – Arowhenua, published in July 1992, covers the area from the Rakaia River to the Waitaki River and contains policies relating to land, water, and air. Policies of the plan to restore the life-supporting capacity of water bodies include:
- (a) the encouragement of the restoration of existing wetlands and the construction of new wetlands; and
 - (b) the maintenance of the natural rise and fall of river flows.
- [148] The Kāi Tahu ki Otago Natural Resource Management Plan 2005 provides issues, objectives and policies for five separate catchments, as well as general matters of relevance across the whole Otago region. In keeping with the “mountains to the sea” philosophy, the plan’s chapter on the Waitaki Catchment acknowledges that most of the catchment is within the Canterbury region.
- [149] It states that a key issue is the threat to cultural values that are associated with the abstraction of water from the Waitaki Catchment – s6.2.2. Policies to resolve this issue include: the efficient use of water, and the requirement for acceptable minimum flows for the water body – s6.2.3. Proposed Policy 47 (proposed Plan Change 3) ensures the implementation of that plan’s existing policies relating to the efficient and effective use of water when assessing applications for replacement consents in the lower Waitaki River.

Canterbury Water Management Strategy

- [150] We have already mentioned the direction in s63 of the ECan Act that **particular regard is to be given** to the vision and principles of the Canterbury Water Management Strategy (CWMS) set out in Part 1 of Schedule 1 of that Act.
- [151] The preparation of the CWMS was supervised by a multi-stakeholder steering group under the overall leadership of the Canterbury Mayoral Forum. It followed recognition that a shift was needed from effects-based management of individual consents to integrated management based on water management zones and management of cumulative effects of both water abstraction and land use intensification.

[152] The vision of the CWMS is:

To gain the greatest cultural, economic, environmental, recreational and social benefits from our water resources within a sustainable framework both now and for future generations.

[153] The primary principles include sustainable management, a regional approach, and kaitiakitanga. The first is stated to require the water is managed in accordance with sustainability principles and to be consistent with the RMA and the Local Government Act.

[154] The second primary principle provides that the planning of natural water use is to be guided by first and second order priority considerations. Those in the first order are the environment, customary use, community supplies, and stock water. Those in the second order are irrigation, renewable electricity generation, recreation, tourism, and amenity.

[155] The third primary principle provides for kaitiakitanga, which is explained as follows:

The exercise of kaitiakitanga by Ngāi Tahu applies to all water and lakes, rivers, hāpua, water ways and wetlands, and shall be carried out in accordance with tikanga Māori.

[156] The supporting principles include natural character, indigenous biodiversity, access, quality of drinking water, recreational and amenity opportunities, and community and commercial use.

[157] In order to give effect to the vision and principles of the Strategy, Zone Committees were set up to facilitate community engagement and (by consensus where possible) to identify community-informed outcomes. This Plan Change originated from a recommendation from the South Coastal Canterbury Zone Water Management Committee that covers the lower part of the Waitaki Catchment.

[158] The Regional Policy Statement recognises the importance of the Zone Committee's process in Policies 7.3.9 and 7.3.13 which state:

"Policy 7.3.9 – Integrated solutions to fresh water management

To require integrated solutions to the management of fresh water by developing and implementing comprehensive management plans which address the policies of this Statement including addressing all the relevant matters set out in Appendix 2.

Policy 7.3.13 – Resolution of freshwater management issues

To encourage the involvement of people and communities in the management of fresh water, including:

- (1) community stewardship of water resources and programmes to address fresh water issues at a local catchment level;
 - (2) Ngāi Tahu, as tāngata whenua, exercising kaitiakitanga in accordance with tikanga Māori;
- and

- (3) Providing opportunities for consent holders to take greater stewardship of fresh water resources, within consent conditions.”

[159] Given the close relationship between the CWMS, the Zone Committee processes and the Zone Implementation Programme, we agree that weight ought to be given to them in the context of our recommendation on proposed Plan Change 3. In so doing, we are mindful of the submissions and evidence we received as to the different submitters’ involvement in the process. In this regard we particularly note the record of meetings set out in Appendix 1 to Part 1 of the Officer’s s42A Reply. This demonstrates that opportunities for dialogue were numerous.

Waitaki Catchment Water Allocation Regional Plan

[160] Perhaps the most important statutory instrument to consider is the Allocation Plan itself. As the proposed changes relate to policies and rules it is to the objectives of that plan that we should first turn. Those objectives were promulgated by the Board by applying the statutory directions then set out in the RMA. This required the various statutory instruments, extant at the time, to be considered in accordance with the level of consideration laid down by statute.

[161] All of the parties to this plan change appeared to accept that the objectives of the Allocation Plan reflect the relevant principles of the RMA and the then extant statutory instruments to the degree that they apply.

[162] A number of higher order statutory instruments have been promulgated since September 2005. They include:

- the New Zealand Coastal Policy Statement 2010;
- the National Policy Statement for Renewable Electricity Generation 2011;
- the Canterbury Regional Policy Statement 2013; and
- the National Policy Statement on Freshwater Management 2014.

[163] The objectives of the Allocation Plan can be assessed by whether they appropriately reflect these later statutory instruments. That they do is evidenced by the fact that the submissions, legal submissions and evidence did not raise any questions that the Allocation Plan objectives did not appropriately reflect these statutory instruments. In fact, we heard evidence that the unchanged objectives of the Allocation Plan are consistent with the National Policy Statements and the CRPS.⁷⁷

[164] As we have said, a regional plan must state:⁷⁸

- (a) the objectives for the region;
- (b) and the policies to implement the objectives; and

⁷⁷ Evidence of Ms Dawson for Meridian Energy Ltd, para [42]

⁷⁸ s67(1) of the RMA

(c) and the rules to implement the policies.

[165] There is, therefore, a hierarchy within a regional plan with objectives at the top, followed by policies, and then rules.

[166] This hierarchy is reflected in the s32 Evaluation Report which must examine:

- (a) the extent to which the objectives are the most appropriate way to achieve the purposes of the Act; and
- (b) whether the provisions proposed are the most appropriate way to achieve the objectives.

[167] A regional council may make rules for the purpose of achieving the objectives and policies of the plan.⁷⁹

[168] Thus the policies must be consistent with the objectives; and the rules must be consistent with the objectives and policies.

The Allocation Plan's relevant objectives

[169] The Allocation Plan contains five carefully compiled and inter-related objectives. We set them out in full:⁸⁰

Objective 1⁵ To sustain the qualities of the environment of the Waitaki River and associated beds, banks, margins, tributaries, islands, lakes, wetlands and aquifers by:

- (a) recognising the importance of maintaining the integrity of the maŪri in meeting the specific spiritual and cultural needs of the tāngata whenua, and by recognising the interconnected nature of the river
- (b) safeguarding the life supporting capacity of the river and its ecosystems
- (c) managing the water bodies in a way that maintains natural landscape and amenity characteristics and qualities that people appreciate and enjoy
- (d) safeguarding the integrity, form, functioning and resilience of the braided river system
- (e) providing for individuals' reasonable domestic water needs
- (f) providing for individuals' reasonable needs for their animals' drinking-water
- (g) providing for fire-fighting needs.

Objective 2⁵ To the extent consistent with Objective 1, to enable people and communities to provide for their social, economic and cultural wellbeing and their health and safety, by providing water for:

- (a) town and water supplies
- (b) hydro-electricity generation
- (c) agricultural and horticultural activities
- (d) industrial and commercial activities

⁷⁹ s68(1) of the RMA

⁸⁰ Noting that underlined words are defined at [10] in the Allocation Plan

- (e) tourism and recreation facilities
- (f) any other activities.

Objective 3 In allocating water, to recognise beneficial and adverse effects on the environment and both the national and local costs and benefits (environmental, social, cultural and economic).

Objective 4 To promote the achievement of a high level of technical efficiency in the use of allocated water.

Objective 5 To provide for a practical and fair sharing of allocated water during times of low water availability.

⁵ The order in which the items are stated does not imply an order of importance or priority. In any circumstance in which a decision is made, the relative importance of competing or conflicting factors may need to be considered for that decision.

[170] Objective 1 relates to sustaining the quality of the environment of the Waitaki River, while Objective 2 relates to providing water to enable people and communities to provide for their welfare. Objective 2 begins with the phrase “*To the extent consistent with Objective 1.*” The Board in its “**Decision and reasons**”⁸¹ explained the wording as follows:⁸²

The Board understood that it is entitled to subordinate one objective to another if it judges that appropriate in the particular case. However, having considered the submissions and evidence, the Board concluded that as general objectives for the Plan as a whole, the appropriate relationship between Objectives 1 and 2 should reflect the Board's judgement on the counterpoint between the enabling provisions and the sustaining provisions in section 5(2).

[171] Objective 3 recognises beneficial and adverse effects on the environment and both national and local costs and benefits.

[172] Objective 4 seeks to promote a high level of technical efficiency in the use of allocated water, meaning least cost use of water to produce any given output.

[173] Objective 5 provides for a practical and fair sharing of allocated water during times of low water availability.

The Allocation Plan's relevant policies

[174] There are two policies in the Plan relating to the flow regime and provision of water for the Lower Waitaki River. Policy 45 relates to the setting of an environmental flow regime and reflects Objectives 1 and 2. Policy 46 (which is subject to change under proposed Plan Change 3) relates to the reliability of water supply for existing users. We set them out in full:

⁸¹ Annexure 1 to the Allocation Plan

⁸² Annexure 1 at [86]

- Policy 45** (1) By setting an environmental flow regime in the Lower Waitaki River that:
- (i) maintains
 - (a) the physical characteristics (including flow variability) of a dynamic braided river;
 - (b) the physical and ecological functioning of the river mouth;
 - (c) the connectedness of the main flow with riparian margins, wetlands, and back water areas;
 - (d) habitats for aquatic plants, invertebrates, birds and fish;
 - (e) support for cultural relationships (including those of Ngāi Tahu) with the river;
 - (f) the opportunity for people to experience the river's aesthetic characteristics, including openness, naturalness, and magnitude; and
 - (g) recreational opportunities;
 - and
 - (ii) enables appropriate access to water for the activities identified in Objective 2, to the extent consistent with Objective 1.
- (2) In deciding whether to grant or refuse consent for an application to take, use, dam or divert water from the Lower Waitaki River upstream of Black Point that would result in a cumulative peak rate of abstraction greater than 90 cubic metres per second, the consent authority will have regard to the extent to which the exercise of the consent would maintain the matters listed in Policy 45(1)(i).

Policy 46 By maintaining a flow of water into the Lower Waitaki River downstream of the Waitaki Dam that is sufficient to maintain:

- (i) the minimum flow and flushing flows of the environmental flow regime for the Lower Waitaki River;
 - and
 - (ii) the aggregate of:
 - (a) the actual requirements of exercising existing¹⁵ and new¹⁶ consents (at their points of taking) in the Lower Waitaki River for town and community water supplies, industrial and commercial activities, tourism and recreational facilities, and any other activities provided for within the annual allocation for all those activities; and
 - (b) the actual requirements of exercising existing¹⁵ consents for agricultural and horticultural activities (at their points of taking) in the Lower Waitaki River provided for within the annual allocation for those activities; and
 - (c) the actual requirements of exercising, up to 95 percent of the peak rate of taking, of new¹⁶ consents for agricultural and horticultural activities (at their point of taking) in the Lower Waitaki River provided for within the annual allocations for those activities;
- up to a maximum of 80 cubic metres per second

Explanation for Policies 45 – 46

These policies describe the basis on which the environmental flow regime for the Lower Waitaki River has been set. In the rules, there are two different environmental flow regimes set in the Lower Waitaki River, both of which contain minimum flows. For the reach downstream of Black Point, flow variability

above the minimum flow is provided for by an allocation limit. In the reach between Waitaki Dam and Black Point, variability above the minimum flow is provided for by flushing flows and the requirements in Policy 45 (2).

Because the flow in the river is artificially controlled, the reliability for downstream users is dependent on the pattern of flow releases.

- [175] There was some debate about the meaning of the words **actual requirements** in Policy 46(ii)(a), (b) and (c). Some parties maintained that the words **actual requirements of exercising...consents** were qualified by demand and/or efficiency. It was contended by Mr McTavish, who gave evidence for the Lower Waitaki River Management Society Inc (LWRMS), that Policy 46 is about reliability for required water, and not simply about releasing consented water. In their reply to our questions on this point in Minute 8, Mr Regnault confirmed this when he stated:

In my opinion this phrase provides an opportunity for parties to agree a system whereby the Dam operator is advised of the actual requirements of downstream abstractors, that is to say what their needs actually are on any particular day, rather than what their peak consented rate of take is.⁸³

- [176] We also acknowledge the need for the plan to encourage efficient water use and that efficient water allocation matches water use with demand. Efficiency is facilitated with strong directions in the policies relating to the resource consent process. However, the Allocation Plan is muted at encouraging efficiency directly as is apparent from the Allocation Board's Appendix 1 where it said:

There was evidence in support of a demand regime, by which the amount of water released is adjusted to meet demands at the time. The Board accepted that this method is efficient. Although the Board did not make detailed provision for it in the plan, it included provisions to facilitate it.⁸⁴

- [177] However the Board went on to provide for actual demands when it said:

Rule 7 and the associated Table 6 provide a monthly envelope of the required releases by the consent holder for the Waitaki Dam to the Lower Waitaki River (in addition to the environmental flow regime), while providing that the consent holder may provide lower flows if these are sufficient to meet the actual requirements of the consent holders (at the reliability specified in Policy 46).

- [178] Efficiency is facilitated by the policies on efficient and effective use – Policies 15-20 and Policy 28, which relate to the resource consent stage.

- [179] The decision by the Allocation Board was premised on the Board's acceptance that the Allocation Plan needs to provide for a high level of "certainty of supply" to consent holders downstream of the Dam, due to the "considerable investments based on such a supply regime, and the high level of risk faced by those users in the event that supply reliability is reduced."⁸⁵

⁸³ Council Memorandum in reply to Minute 8, 28 August 2015, pg 19

⁸⁴ Appendix 1 at [214]

⁸⁵ Annexure 1 at [213]

[180] The Board recognised that supply reliability could be reduced for new consent holders in that investment decisions would be made in full knowledge of the effects of supply restrictions. Tellingly, the Board considered that this reduced reliability for new consent holders would be “*to a reliability that allows 95% of the peak rate to be taken.*”⁸⁶

[181] On this basis, the Board amended Policy 46 to:⁸⁷

...provide surety of supply to existing consent holders, while recognising the requirement that such flows downstream of the Waitaki Dam must also be sufficient to maintain the components of the associated environment flow regime for this section of the river.

[182] Rule 7 (which is subject to change under proposed Plan Change 3) and the associated Table 6 provide the monthly envelope of the required releases by the consent holder for the Waitaki Dam to the Lower Waitaki River (in addition to the environmental flow regime). Rule 7 currently states:

Rule 7 In addition to minimum flows and flushing flows of the
Cross-ref: environmental flow regime for the Lower Waitaki River, the
Objectives 1 consent-holder for the Waitaki Dam shall provide flows in

and 2 the Lower Waitaki River sufficient to meet the actual
requirements of activities identified in Policy 56(ii) (at their
points of taking), up to a maximum of the flows in Table 6.

Table 6: Provision of flows into the Lower Waitaki River

Month	Flows to be provided above the <u>minimum flow</u> (in m ³ /s)
October to March	80
April and September	50
May and August	20
June and July	10

[183] Of Rule 7, the Board had this to say:⁸⁸

Rule 7 and the associated Table 6 provide the monthly envelope of the required releases by the consent holder for the Waitaki Dam to the Lower Waitaki River (in addition to the environmental flow regime), while providing that the consent holder may provide lower flows if these are sufficient to meet the actual requirements of the consent holders (**at the reliability specified in Policy 46**). This rule responds to the need for certainty requested by a large number of submitters, while accepting that actual monthly volumetric requirements, particularly for irrigation, vary significantly over the year. However the Board was not able to include enhanced release provisions that would apply during the term of the current consents for the Waitaki Power Scheme, as the relevant consent conditions could not be amended under sections 68(7) and 128 to 132 of the RMA.

[184] Rule 7 provides for the releases required from the dam, sufficient to meet the actual requirement

⁸⁶ Annexure 1 at [213] and footnote 55

⁸⁷ Annexure 1 at [213]

⁸⁸ Appendix 1 at [215]

of activities identified in Policy 46(ii). The Board noted that the consent holder may provide lower flows over the Dam, provided actual requirements are met at the reliability specified in Policy 46, to respond to the reality that monthly volumetric requirements vary over the year.

Application of legal context

[185] We have set out the most relevant of the statutory precepts which make up the somewhat complex legal context and which sets out our statutory duties as they should be applied to our consideration of proposed Plan Change 3 and the amendments sought in the submissions.

[186] While our duties at first appear multifarious and compound, we can in this exercise simplify them considerably. This is because the objectives of the Allocation Plan have subsumed the principles set out in the RMA and the relevant statutory instruments extant at the time the Allocation Plan was promulgated.

[187] We thus propose to assess the policies, rules and provisions that are proposed to be changed against the Allocation Plan's objectives, and in the case of rules and other provisions the effects on the environment. As for the statutory instruments that have come into force since the Allocation Plan was made operative, we will refer to them when we consider it appropriate to do so. That is, where there are provisions that have not been reflected in the objectives of the Allocation Plan.

[188] We thus summarise our duties as:

- (a) to remind ourselves of the direction in s63(1) of the RMA that the purpose of regional plans is to assist a regional council to carry out any of its functions in order to achieve the purpose of the Act;
- (b) from the submissions identify an amendment sought;
- (c) determine whether the amendment is within scope;
- (d) identify amendments that are alternative options to a particular provision and discard those that are impracticable;
- (e) to remind ourselves that there is no presumption as to which alternative should be accepted;
- (f) for each reasonably practicable alternative option, which proposes a change of policy, assess the extent to which adopting that option or not would:
 - (i) be the most appropriate way to achieve the objectives by assessing the efficiency and effectiveness of the policy against the objectives; and
 - (ii) consider, where appropriate, the relevant statutory instruments promulgated post the Allocation Plan, in accordance with the statutory directions under the RMA;
- (g) if a requested amendment is to a rule, have regard to whether the rule, as it would be amended, would:
 - (i) be the most appropriate way to achieve the objectives and policies of the Allocation Plan; and

- (ii) have any actual or potential effect on the environment, including in particular, any adverse effect (as directed by s68(3)); and
- (h) if we determine that the wording of a provision should be substantially different to that recommended by the Council Officers we must:
 - (i) undertake a section 32AA analysis; and
 - (ii) either publish that analysis or set it out in our recommendation

Section 3 - The Factual Context

Introduction

[189] We set out in this section:

- (a) the natural and physical characteristics of the Lower Waitaki River;
- (b) the ecological requirements for water;
- (c) the tangata whenua requirements for water;
- (d) landscape and natural character; and
- (e) the anthropogenic requirements for water

[190] We consider the evidence as the river is now, under the current consented flow and level regime. As we have said, we consider this to be appropriate to use as a reference point.

The natural and physical characteristics of the Lower Waitaki River

The hydrology of the Waitaki River

[191] The hydrology of the Waitaki catchment was summarised in the Allocation Plan.⁸⁹ It has been updated for the Lower Waitaki River where most of the PC3 issues are focussed in descriptions in the section 32 and 42A reports by Ms Topélen for the Council, the evidence of Mr Henderson for Meridian and Mr Scarf for Fish and Game, among others.

Actual and naturalised flows

[192] In summary, the Waitaki River has the fourth largest flow of all New Zealand rivers, with a mean naturalised flow (1931-2013) at Waitaki Dam⁹⁰ of 360 m³/s and a 7-day mean annual low flow (7DMALF) of 137 m³/s if there were no dams upstream. For comparison with minimum flows of 150 and 100 m³/s to be discussed shortly, the actual 7DMALF from Waitaki Dam for 1931-2013 would have been 179 m³/s, had the hydro-electric scheme been operating all that time. The catchment's dams have increased not only the 7DMALF at Waitaki Dam, but also the median flow, and lower quartile flow, while reducing peak flows and the range of variability of flows.⁹¹

[193] Some of the hydrological witnesses have relied on flow data since 1979 when the last of the upstream dams (Pūkaki) had filled. However, mean flows and 7DMALF are higher for that data series, by 15 m³/s and 11 m³/s (23 m³/s at Kurow⁹²) respectively than for the longer period⁹³ and

⁸⁹ Water Resources, pg 7, para [3]

⁹⁰ Same as the flow at the Kurow recorder below the Dam

⁹¹ Evidence of R Henderson, Tables 2, 4 and 5

⁹² Evidence of F Scarf for Fish & Game, Table 2A. We understand Kurow data are actual measurements downstream, Waitaki Dam data from Henderson are modelled

⁹³ Evidence of R Henderson

for the flows below 300 m³/s the bias is about 9 m³/s.⁹⁴ We accept the evidence of Mr Henderson that inter-decadal climate variability (IPO) produced higher flows during 1978-2000 and that the post 1979 record has potential to bias flow statistics higher than in the longer term.

[194] Despite the difficulties of synthesizing naturalised flow data during dam-filling periods, hydrological data since 1931 (and in some cases back to 1927) has been preferred for our decision-making. We understand that Mr Henderson's modelling over the period since 1931 is based on weekly data, whereas Ms Topélen's modelling for the Council uses actual daily flow data at Kurow since 1979,⁹⁵ so we have been mindful of differences caused by climate variability vs changing hydro-electric operations vs differing modelling assumptions.⁹⁶

[195] Flows in the Lower Waitaki River are dominated by upstream inflows including releases from upstream dams, rather than any substantial tributary inflows:

Just below the Waitaki Dam, the river widens to become a large, braided river flanked, in places, by wetlands with a coastal lagoon where it reaches the sea. Along the length of both banks of the lower Waitaki River, small rivers and streams (including the Hakataramea River, Elephant Hill and Waikākahi Streams, Awakino River, Kurow River, Otiake River, Otekaieke River, Maerewhenua River, Awamoko River, and Welcome Creek/Whakapapa Ariki) flow into the mainstream. Collectively these tributaries, which have peak flows in winter, provide two percent of the river flow.⁹⁷

[196] Therefore, aside from natural fluctuations, the flow releases from the Waitaki and upstream dams are the major factor affecting the aquatic environment and ability to satisfy water demands in the lower catchment.

Consented water take and use

[197] While we have adopted the current consented environment as representing the existing environment, there was considerable discussion about the exact quantum of those existing consents. As a result of our direction on this matter to the hydrologists' caucus,⁹⁸ we understand⁹⁹ that pre-plan ('existing') consents for consumptive water use total 52.76m³/s, post-Plan ('new') consents total 22.42m³/s, and consumptive applications in process total 0.660 m³/s, making a total of 75.28m³/s allocated downstream of Waitaki Dam, and including connected groundwater.

[198] The agreed summary of current consents includes the Hunter Downs Irrigation water permit

⁹⁴ Evidence of R Henderson, para [71]

⁹⁵ Responses to the Panel's questions, 5 June 2015, Q3; Evidence of R Henderson, 9 June 2015

⁹⁶ Based on synthesized inflows at Waitaki Dam described in evidence of Mr Henderson for Meridian for 1931-2013. Analysis by Ms Topélen for the Council in Appendix 4 of the s42A Reply [10-11] showed averaged daily inflows falling below 150 m³/s during the Sept-April irrigation season in the period 1926-2013 in 50% of years; the ten longest durations of low flows occurred respectively in 1976-77, 1941-42, 1932-33, 1927-28, 1989-90, 1977-78, 1957-58, 1954-55, 1940-41 and 1948-49.

⁹⁷ Allocation Plan, pg 7, para [3]

⁹⁸ Mr Regnault [4] in Council's Responses to questions of 27 May, Appendix A

⁹⁹ Hydrology joint statement, June 2015, Table 1

(CRC142804) held formally by the South Canterbury Irrigation Trust and Meridian Energy Ltd for the future taking of up to 17.5 m³/s immediately downstream of Black Point. We understand that Hunter Downs is seeking to move the location of this water take downstream to Bells Pond where the Morven Glenavy irrigation take originates.

[199] The summary of consents does not include the consents held by Meridian for the North Bank Hydro Project (NBHP). The project proposed to take up to 260 m³/s via a tunnel from above the Waitaki Dam and return it to the Waitaki River at Black Point, therefore it is non-consumptive. NBHP consent CRC071903 is current and does not lapse until 2022. However we were advised by Mr Page for Meridian¹⁰⁰ that the project is ‘suspended and on hold’ and unlikely to be implemented.

[200] Putting NBHP aside, and as shown in the graph on the following page¹⁰¹ (*Consumptive water allocations*), almost all water abstraction affecting flows in the lower Waitaki occurs at or downstream of Stonewall/Black Point.

[201] The seasonal timing, frequency and duration of low flow events when realised are most noticeable below Black Point. Flow reductions from consented but yet-to-become implemented NBHP and HDI water take consents, and of the Waihao Downs irrigation scheme currently under construction, will increase the duration of low flow periods.

[202] Should the NBHP tunnel be built, the river reach between the Waitaki Dam and Black Point would be subject to much lower flows because much of the water otherwise released through the Waitaki Dam would have been taken to Stonewall/Black Point via the tunnel. The following minimum flows, which we note are lower than provided for in the Allocation Plan (110 instead of 150 m³/s in summer), would apply under the NBHP consent:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
140	150	145	125	120	110	110	110	120	125	130	140

[203] The flow regime requirement of Meridian’s consents is to maintain a minimum flow of 120 m³/s below the Waitaki Dam, thus Meridian’s main compliance obligation is to ensure the river flow immediately below the Waitaki Dam does not fall below 120 m³/s. To meet this obligation Meridian provides an operational buffer flow of 30 m³/s over the Waitaki Dam, which generally results in a minimum flow downstream of the Waitaki Dam of 150 m³/s.¹⁰²

[204] We concluded earlier that the existing consented baseline should be our reference point for evaluating the plan change. Conditions of existing pre-plan (pre-2006) consents allow water to be taken at flows between 80 m³/s and 152 m³/s. We were presented with flow duration curves for

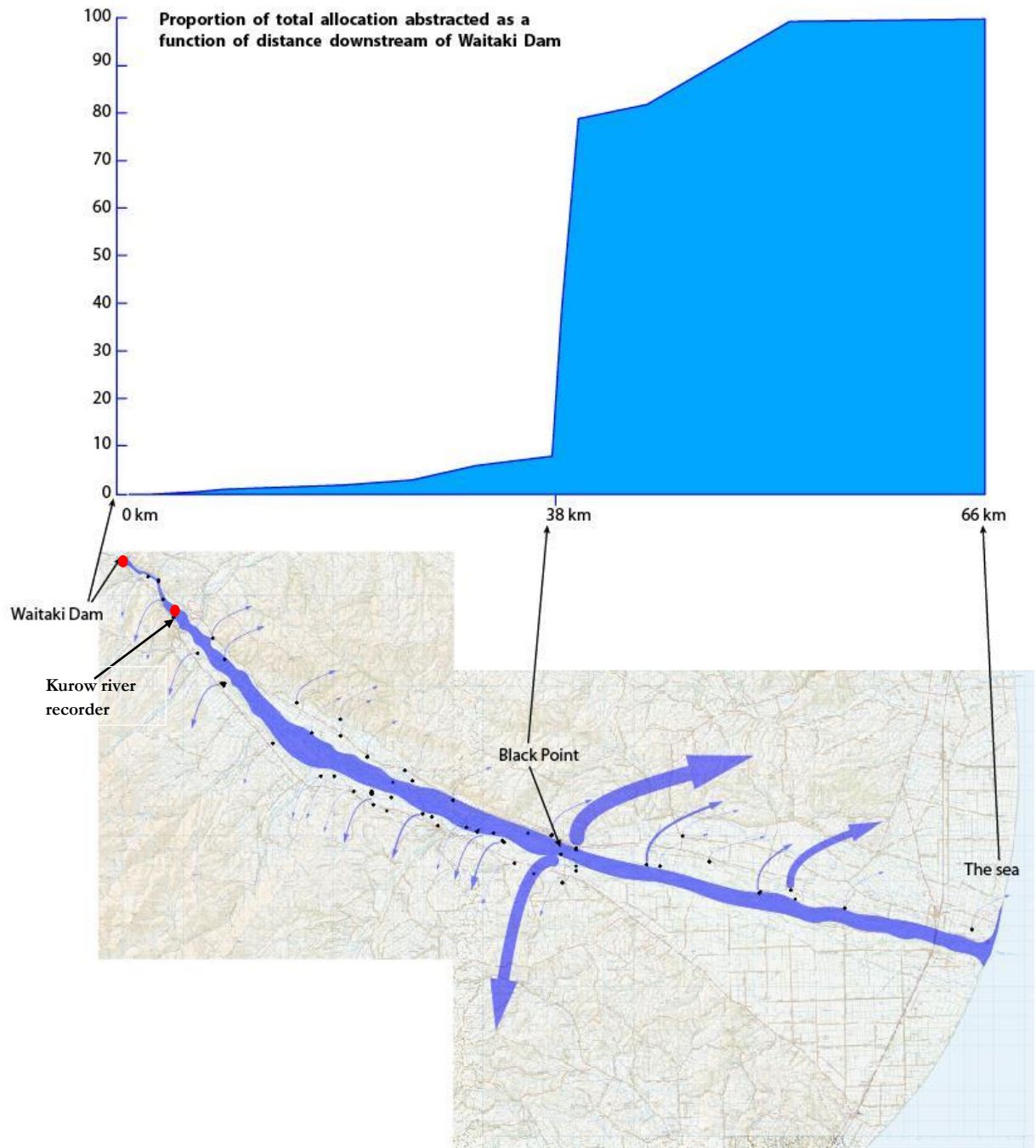
¹⁰⁰ Evidence of J Page, Meridian, para [27]

¹⁰¹ The graph does not include abstractions and discharges by NBHP

¹⁰² Evidence of J Page, Meridian, para [20]

various scenarios and take as our reference points the consented scenario.

Graph of consumptive water allocations



- [205] By way of comparison, the mean flow of the lower Waitaki is 356 m³/s, the 7DMALF 179 m³/s as noted above, and an average within-day variation of 80 m³/s has been recorded due to fluctuating releases from the Waitaki Dam.¹⁰³ Extreme low flows occur on average at 1 in 15 year intervals¹⁰⁴ while mean annual floods have a return period of 2.3 years.

Potential effects of climate change on river flows

- [206] Climate change up to the 2040s and 2090s is projected to cause increased variability in river flows, with higher winter-spring flows caused by less precipitation falling as snow and more as rain for immediate run off, and potentially either increases or decreases in flow during summer.¹⁰⁵ However, summer flows would likely be subject to increasing irrigation water demand due to increased temperatures projected for the east coast.¹⁰⁶ We conclude that regardless of any future water-related development, climate change in the next 30-80 years will create increasing water demand especially for irrigation.

The geomorphology of the Waitaki River

- [207] From Waitaki Dam to just upstream of Kurow, the Waitaki River is a single channel confined by bedrock gorge. From approximately 1km upstream of Kurow the valley widens and the river becomes braided, initially narrower in wetted width to about 5km downstream from Kurow from which point the braiding density is uniform down to the coast.

- [208] As stated in the Allocation Plan:

The braided rivers of the Waitaki catchment are formed and maintained by a number of interacting factors, predominantly: flood flow regime; sediment/gravel inputs and throughput; riparian flood protection works; and vegetation encroachment onto the riverbed. The way these factors interact influences the form and character of braided rivers.¹⁰⁷

- [209] The intensity of channel braiding and functioning of the river mouth (hāpua) is affected primarily by high flows.¹⁰⁸ Maintaining these features is important because they affect bird habitat (including predation risk), encroachment of exotic vegetation, periodic flushing of fine sediment and algae from the bed, and erosion and flooding at the river mouth and of riverbanks and adjacent coast.

- [210] Under the current low flow regime in the lower river, there is an average of 6.6 river braids and some 2-12 islands per km of river.¹⁰⁹ Islands isolate bird colonies from predators, but if the flow were to fall low enough that islands favoured by birds for breeding became accessible from a bank,

¹⁰³ Dr Ryder in Council's responses to questions of 27 May, at [80]

¹⁰⁴ s32 Report, Dr Ryder report at [6.5]

¹⁰⁵ Evidence of D Kingston for LWRMS

¹⁰⁶ Evidence of R Henderson for Meridian [Appendix 1]

¹⁰⁷ Allocation Plan, pg 7-8

¹⁰⁸ Evidence of M Hicks for Meridian

¹⁰⁹ Modelling by M Hicks [Table 1 and Figure 1]

then bird populations could be severely reduced by predation.

- [211] The river enters the Pacific Ocean via the Waitaki Lagoon, an elongated body of generally fresh water bounded by a porous barrier of sandy gravel broken by a frequently moving outlet channel. This outlet is 're-centred' whenever large floods cut a new channel. Changes to the river flow regime have the potential to exacerbate flooding of low-lying farmland and access tracks. Changes could potentially increase the duration or frequency of closure of the river mouth, which affects flooding, fish migration and the salinity of the lagoon and its ecosystem. However, we understand from Dr Hicks that closure of the Waitaki river mouth is rare, due to the larger size of this river in comparison with other east coast rivers.¹¹⁰
- [212] The braided river system of the catchment has evolved to carry the high flows of water and rapids produced in the mountains. A key role of water is the maintenance of the braided river system itself, including the main braided channel, slow moving backwaters, riparian wetlands, and the gravel islands.
- [213] The presence and the connection between these various habitats is important to the flora and fauna that inhabit the rivers. The rivers' braiding pattern, depth, width, bed material, bank stability and the functioning of the river mouth depend on the flow regime in the river. Floods are the major natural channel forming mechanisms, reshaping and refreshing the bed and riparian areas, to establish the bed material and braiding pattern.
- [214] Lower flows provide important physical conditions, particularly depth and width, and maintain connection between the main channels and adjacent habitats. The number of braids can reduce if there is a lack of flows of sufficient magnitude to transport sediment, remove vegetation and form channels.

Ecological requirements for water

Water quality

- [215] Water quality in the river below the Waitaki Dam is high, although there is some decline down-river. Water quality guidelines for ecological health are generally achieved, except for occasional breaches of water clarity and turbidity (due to natural glacial silt), and dissolved nutrients below Stonewall/Black Point¹¹¹ (likely due to agriculture, horticulture, stock and bird colonies, groundwater exchange). The primary relevance of turbidity in the Lower Waitaki River is its effect on salmon angling, and in particular its influence on the ability to catch adult salmon. At SH1, concentrations of dissolved inorganic nitrogen (DIN) and dissolved reactive phosphorus (DRP)

¹¹⁰ Evidence of M Hicks, para [49]

¹¹¹ Stonewall is approximately opposite Black Point, the locality described in the Allocation Plan

frequently do not meet periphyton guidelines for nutrients.¹¹²

- [216] A recent review of water quality and aquatic ecology trends by the Council (Clarke 2014) shows that there has been little change in *E.coli* levels below the Waitaki Dam since 2004. Microbial quality met a Suitable for Recreation grade of 'fair-poor' at Stonewall/Black Point and was 'poor-very poor' at the SH1 Bridge in 2006 and 2007. Applying the NPSFM 2014 national objectives standards showed that median *E.coli* achieved an 'A' at Kurow and the SH1 Bridge, and for 95%ile exceedances met an A grading at Kurow but a 'B' at SH1. These states mean there is a very low risk of infection for recreational activity (including full immersion) at Kurow and moderate risk (<5%) at the SH1 Bridge.¹¹³
- [217] These data indicate to us that, despite being a high flow river, the Waitaki is likely affected by intensive land use in its lower catchment; as the intensity of land use is increased and river flows reduced with irrigation, water quality is therefore a relevant factor for proposed Plan Change 3. Lowered flows would increase the concentration of contaminants in the lower reaches of the river, assuming catchment contaminant inputs remain the same; however we note that some contaminants such as *E.coli* flush into the river with rain, and would typically be less during summer low flow situations.
- [218] Despite acknowledging and providing policies and rules relating to water quality effects of water allocation, the Allocation Plan surprisingly contains no summary of current water quality or water quality issues. However, it does describe catchment ecology.¹¹⁴

Periphyton (including didymo)

- [219] Periphyton is the layer of typically green biofilm that is often seen in riverbeds. While periphyton is a common food source for many benthic macro-invertebrates that in turn are the primary food source for fresh water fish and riverine birds, periphyton feeds on nutrients and can proliferate to nuisance levels when nutrient and light levels are high and the substrate is stable. This can have a significant effect on the health of macroinvertebrate communities (including mayflies and caddisflies), in turn reducing food for fish and riverine birds.
- [220] The invasive and non-indigenous algae *didymo* was first identified in the Waitaki River in January 2006. It has grown fastest and to the greatest biomass in riffles, runs and edges of fast flowing braids and less in stable pools and backwaters and now dominates the periphyton community in the Lower Waitaki River. *Didymo* can exceed the guidelines for trout habitat within 6-8 weeks from a clean substrate. The only control is through natural floods or via flushing flows released from a

¹¹² Section 32 Report, Dr Ryder report, pg 28

¹¹³ Evidence of M James for Meridian, pg 7

¹¹⁴ Allocation Plan, pp 8-9, and Annexure 1

dam, particularly over the warm summer months.¹¹⁵

- [221] There is potential for other nuisance periphyton growths (including toxic cyanobacteria) to occur in peripheral braids where water velocities are less aggressive and with increasing agricultural intensification¹¹⁶.
- [222] Periphyton cover can temporarily breach the periphyton guidelines (MFE 2000) in summer down to SH1 and below SH1.
- [223] The flow regime along with nutrient supply, are considered to be two of the major factors controlling periphyton growth in the lower Waitaki River system. Flushing flows (>450 m³/s) are occurring as a result of high natural flows on average 7 times a year, approximating the standard adopted by the Allocation Plan,¹¹⁷ even though these flushing releases cannot be enforced until Meridian reviews its consent(s).
- [224] High flow events naturally flush sediment deposits along with periphyton build up. However, it is the persistence of low flows for sustained periods where the potential to promote fine sediment and periphyton build up is most likely to occur.

Benthic macro-invertebrates

- [225] The Lower Waitaki River has a diverse benthic macro-invertebrate community relative to other large South Island east coast rivers. This is attributed to the greater flow and stable substrate of a regulated river. Most macroinvertebrate species found in these rivers are endemic, thus having intrinsic biodiversity value as well as providing the basis for the food webs leading through to fish and river birds. No rare species, unique communities or species of special conservation value are known from the Lower Waitaki River and the community is what would be expected of a large, healthy braided river.¹¹⁸
- [226] The richness and density of invertebrates that include snails, midges, mayflies, stoneflies and caddisflies is higher in stable habitats of the Lower Waitaki River including riffles, runs, pools and side braids and gravel/cobble substrate. Areas frequently dewatered due to flow variability and the deep, swift central regions of the main channels provide poor benthic invertebrate habitat.
- [227] Large-scale hydro-electric development within the Waitaki River catchment has acted to smooth out natural seasonal high and low flows. Low flows are generally enhanced and flood flows

¹¹⁵ Evidence of M James for Meridian

¹¹⁶ NBHP Environment Court decision, para 69-70, Evidence of N Norton 16.

¹¹⁷ Although analysis provided by J Top  len for the Council (in the Surface Water Science Response, 18 June 2015) for the 2014-15 year showed that the timing and duration of these flows did not comply with requirements of the Allocation Plan as insufficient occurred in February-March and many were less than 24 hours duration

¹¹⁸ Evidence of M James for Meridian, pg 9

reduced, with spring and summer flows reduced and autumn and winter flows increased. However, flow variability associated with operation of the hydro system dewateres the edges of channels providing low quality habitat for benthic invertebrates and periphyton in those zones.

- [228] Excess growths of periphyton can alter the macroinvertebrate community from one dominated by high value species such as mayflies, caddisflies and stoneflies to one dominated by low value taxa tolerant of poor water quality, with a community dominated by oligochaete worms, snails and chironomids.

Native fish

- [229] Evidence provided to NBHP and HDI hearings on the native fish community in the lower Waitaki indicate it is dynamic and changing throughout the year as fish move and species abundance varies.
¹¹⁹ A total of twenty-one species have been recorded in the lower Waitaki River. Fish community composition is reported as typical of South Island braided rivers and native fish abundance.

- [230] As the Waitaki River flows downstream from the Waitaki Dam, changes in the physical nature of the bed and margins has an influence on the habitat of native fishery.

- [231] The diversity of the native fishery varies along the Lower Waitaki River. The single channel reach below Waitaki Dam to Kurow, includes common bullies, kōaro, non-diadromous galaxids, upland bullies and long-finned eels. The reach between Kurow and Stonewall is dominated by upland bullies and long-finned eels.

- [232] The greatest diversity of native fish are found between Stonewall/Black Point and the lagoon where diadromous species that do not penetrate further inland occur (bluegill bullies, torrentfish and common bullies) together with long-finned and some short-finned eels.

- [233] The revised native fresh water threat classification system¹²⁰ classifies the bluegill bully, giant kōkopu, inanga, kōaro, lamprey, redfin bully, longfin eel and torrentfish as 'declining'. The Canterbury mudfish is classified as 'nationally critical'. The decline in long-finned eel is linked to a national decline in long-finned eel populations. The Canterbury mudfish have been recorded in slow flowing or still habitats, such as wetlands close to SH1 Bridge.

- [234] In addition to the mudfish, the common bully, kōaro, long-finned eel, short-finned eel, and upland bully are found in the wetlands. Eels, in particular short-finned eels are found in most wetlands and with adequate habitat for fish, upland bully and common bully are also found frequently.

- [235] Useable habitat for native fish decreases in low flow events. Dr Ryder considers this likely to have

¹¹⁹ Section 32 Report, Dr Ryder report, Native Fish, pg 40.

¹²⁰ Alibone *et al* 2010

limited ecological effects, other than in extremely dry seasons which on average occur on a 1 in 15 year cycle. Low flows may result in increased concentration of species like torrentfish and bluegill bullies in the reduced riffle habitats. These species have been observed surviving in environments where impacts of low flows are more extreme.

- [236] This assessment is made more difficult given some species have flow requirements that differ from others; for example, many native fish do well in shallow flowing water. But flow reductions in summer may be more stressful than a similar event in winter as cold water is able to hold more oxygen. We conclude that our assessment of the effects of proposed reductions in minimum flows should be related to the duration of the flow event and the time of year it occurs.
- [237] Water levels in wetlands that are strongly connected to the River will respond to flow changes in the River, particularly those downstream of Stonewall/Black Point where cumulative water takes reach their maximum level. Generally the water levels, and connectivity, in the wetlands closest to the Lower Waitaki River are driven more strongly by river flows, particularly the riparian wetlands with at least some occasional surface inflows. However most wetland water levels show no or weak relationship to water level and river flow.¹²¹
- [238] The majority of native fish species in the Waitaki River are migratory, with some migrations occurring at all months of the year. The current river management regime has been in place for a number of years. While flow can potentially reduce to 120 m³/s in an extended dry period, and water quality in the lower section is being eroded, the current flow regime maintains an open river mouth and a healthy river and wetland ecosystem sufficient to sustain the native fishery. Floods and freshes remain important cues for some fish species to initiate spawning migrations or population dispersal.

Trout and salmonids

- [239] The salmon and trout fisheries in the Lower Waitaki River are nationally significant¹²² and comprise brown trout, rainbow trout and Chinook salmon. Waitaki is considered one of the most important angling rivers in Canterbury, with much of the fishing effort occurring in the lower half of the Lower Waitaki River. Good angling flows range between 150-350 m³/s.
- [240] Adult salmon enter the river between January and March, and spawning occurs from April to June. Seventy-five percent of the fish spawn in side braids of the main stem above Stonewall/Black Point and below Kurow, with the remaining 25% spawning either below Stonewall/Black Point or in tributaries.
- [241] Salmon and trout eggs and young fry require clean, cool, well-oxygenated water for successful

¹²¹ Section 32 Report, Appendix 4, Dr Ryder, Lower Waitaki River Riparian Wetlands Memorandum, pg 13.

¹²² NBHP Environment Court interim decision, Evidence of Greenaway, para [25]

incubation and are vulnerable to disturbance due to flooding, silt deposition, and exposure to flow reductions. Salmon fry emerge from their redds from mid to late August and are most abundant in October. Habitat preferences change with age and young fry tend to be found near in-stream cover along the margins of shallow, slow flowing braids with juveniles occurring mainly in backwaters and side pools.

- [242] Adult trout have the highest flow requirements for freshwater fish and can be considered to provide a conservative requirement for the minimum flow for aquatic biota. Brown trout spawn around May and June in some side braids of the River and tributaries. Eggs incubate from May to October and trout fry emerge in late August to early November. Rainbow trout spawn from late July to mid-October in tributaries, and some fry migrate downstream to the main stem from late October to early January. Juvenile habitat in the main stem is limited while adult rainbow trout are seldom found in the small side braids preferring deeper and faster water than brown trout. Juveniles can be found in the shallows, often shaded by overhanging riparian foliage, a haven from summer heat, predatory trout and birds.
- [243] Habitat for adult brown and rainbow trout varies little once flows exceed 100 m³/s.¹²³ Trout and salmon spawn in winter and salmonid rearing is mostly in the spring so spawning and rearing are unlikely to be affected by water abstraction for irrigation. Salmon tend to move on freshes so frequency of flushes is as important as the magnitude of flow. Based on this information, it seems possible that the up to 80 m³/s daily variation of flow from hydro generation may have more effect on trout and salmon than the minimum flows proposed in this plan change.

Braided river birds

- [244] Twenty-seven braided river bird species have been identified, principally in the braided reaches below Kurow to the sea. A 2010 survey¹²⁴ recorded six species as 'threatened': bittern, black-billed gull, black fronted tern (Nationally endangered), banded dotterel, Caspian tern and red-billed gull (Nationally vulnerable). Seven 'at risk' species were also observed: pied stilt, pied oystercatcher, white fronted tern (declining), variable oystercatcher (recovering), black shag, little shag and the royal spoonbill (Naturally uncommon).
- [245] Numbers of black-fronted terns were highest in the reach upstream of Stonewall/Black Point. Red-billed gull, white fronted tern and black-billed gull numbers were highest near the river mouth, while black-billed gull had some presence above Stonewall/Black Point. Pied oystercatchers and pied stilts were distributed more consistently throughout the river. The wide and braided Waitaki River also provides an ideal habitat and security for several species of introduced game birds and

¹²³ NBHP Environment Court, Evidence of Jowett

¹²⁴ North Bank Hydro (Tunnel) Project: Waitaki River Birds Survey, 2010

the pukeko.

- [246] From Waitaki Dam to just upstream of Kurow, the Waitaki River is a single channel confined by bedrock gorge. From approximately 1km upstream of Kurow the valley widens and the river remains braided for a distance of 60km to the mouth. The Lower Waitaki River from Stonewall/Black Point has an average of 7.7-9.1 braids and a normal flow range of 240-420 m³/s and an average wetted channel width of 325-437 metres.
- [247] Clear open gravels and an absence of vegetation on the islands created by braiding provide ideal habitat for bird breeding that occurs between September and January. Such habitat minimises cover for predators and provides breeding birds visibility of predators.
- [248] However, the value of the River as a bird habitat has decreased substantially over the past 50 to 80 years as a result of very extensive invasion by introduced vegetation, including gorse, broom and willows. This encroachment has resulted in a dramatic narrowing of the active riverbed, loss of braiding and suitable bird habitat and provides habitat and access for mammalian predators.
- [249] The braided channels and fast flowing water maintain the islands and impede the breeding season of predators such as adult feral cats, ferrets, stoats, weasels, hedgehogs, Norway rats, brushtail possums and house mice.
- [250] Floods sustain the dynamic pattern of migrating and formation of new bars, islands and removal of vegetation, while they can impact on nesting sites if occurring during the breeding season. Regular flushing flows maintain the braided channels, remove periphyton build-up and support ecosystem health.
- [251] Reduced or sustained low flows during the bird breeding season can cause islands to connect, particularly those adjacent to the mainland. In general, predation risk is believed to increase with decreasing flows but predation events across large flows have been recorded. Increasing the risk of mammalian predators accessing islands has potentially devastating effects. Predators such as rats and hedgehogs can be long-term island residents while the mobile stoat is less likely to be deterred by flow levels. Encroachment of vegetation and habitat suitable for rabbits further attracts predators.
- [252] With most water abstraction occurring downstream of Stonewall/Black Point, low flow events would mostly affect birds such as white-fronted tern and Caspian tern whose habitat is confined to that area. Flow variability is likely to pose as much risk to birds as low flows, a factor we return to in the evaluation below.¹²⁵

¹²⁵ Dr Sanders in the Council's responses to questions, pg 21

Wetlands

- [253] Dr Ryder¹²⁶ advised us that the Lower Waitaki River wetlands have been classified by Boffa Miskell (2013) into two groups, according to their locations relative to, and relationship with, the river:
- Terrace wetlands – are away from the river edge and do not receive surface water inflows from the Lower Waitaki River;
 - Riparian wetlands – are defined as being adjacent to the Waitaki River, between the cleared fairway and intensively managed farmland, and have at least occasional surface inflows from the River.
- [254] There are approximately 130ha of terrace wetlands between Stonewall/Black Point and the sea, most of which are less than 10ha. There are also estuarine wetlands located adjacent to the river mouth and influenced by coastal processes and low salinity conditions.
- [255] The relationship between river flow and connectivity of riparian wetlands is not direct. Wetland and groundwater systems are also influenced by direct rainfall, springs, terrace seepage, irrigation, tributaries and streams. Dr Ryder¹²⁷ states that past field observations indicate some of the riparian wetlands below Stonewall/Black Point maintain more stable water levels than those observed upstream of Stonewall/Black Point. This is thought to be due to drainage from border dyke irrigation systems contributing to maintenance of those wetland water levels.
- [256] Based on 2001 aerial photos, it is estimated there are approximately 2,890ha of riparian area in the lower Waitaki, with approximately 1,650ha between Stonewall/Black Point and the sea. Of this 1,650ha riparian area below Stonewall, less than 100ha is thought to be wetland, with the remainder dominated by dryland ecosystems, of predominantly gorse and broom scrub and open willow forest.
- [257] Dr Ryder¹²⁸ reports the Lower Waitaki River terrace wetlands include areas of soft rush, native wiwi, flax, jointed rush, toetoe, cutty grass, spike sedge, and/or exotic grasses. In riparian wetlands, raupō dominates, *secta* (pūrei/pūkio) occurs in both wetland types, but only abundant in two locations. There are also two main communities of bog rush in wetlands on the south bank of the River, while flax is uncommon in the lower Waitaki Valley, although abundant in three wetlands.
- [258] Six native and one introduced fish species have been identified within the wetlands. Migratory fish have been found in some wetlands with no apparent connection to the river, suggesting that intermittent connections must occur between these wetlands and the river. Canterbury mudfish can withstand reductions in water levels by burrowing into the substrate, where they can survive

¹²⁶ Section 32 report, Appendix 4, Dr Ryder, Lower Waitaki River Riparian Wetlands Memorandum, pg 13.

¹²⁷ Section 32 report, Appendix 4, Dr Ryder, Lower Waitaki River Riparian Wetlands Memorandum, pg 7

¹²⁸ Section 32 report, Appendix 4, Dr Ryder, Lower Waitaki River Riparian Wetlands Memorandum, pg 6

provided they remain moist.

- [259] The wetlands provide habitat for 21 species of birds preferring wetland habitat and additional habitat for braided river birds. A terrace wetland survey (Boffa Miskell, 2013) found that mallards, welcome swallow, Australasian harrier and pūkeko were the species recorded in the largest numbers in wetlands. Two species are classified as threatened: bittern and black-fronted tern, and several others are at risk: pied stilt, marsh crake, little shag and black shag.
- [260] The riparian zone has a high level of modification due to the effects of exotic tree and shrub invasion, agricultural development, active vegetation management and altered river flows. The invasion of willows (particularly crack willows) is a major threat to wetland biodiversity values. There has been an increase in lacustrine (open water) wetlands in association with irrigation development.
- [261] Nine wetlands along the Lower Waitaki River were assessed for cultural values by Tīpa and Associates (2013) against the following criteria: mahinga kai values, stream health and tāonga species criteria. As a result, six of the nine wetlands were rated highly for cultural values.

Tāngata whenua¹²⁹ requirements for water

- [262] The mauri of the Waitaki is an important if not essential element of the cultural and spiritual relationship that the tāngata whenua value. It transcends both a metaphysical and spiritual domain. Interpretation of mauri in its traditional context is reliant on the views of tāngata whenua.
- [263] Mrs Sissie Te Maiharoa-Dodds¹³⁰ said that in her lifetime she had witnessed a profound reduction in the mauri of the Waitaki and she was concerned that further loss of mauri would have a detrimental effect on eels, birds and other native fish that inhabit the ancestral river.
- [264] Mandy Waaka-Homes (Ngāi Tahu) explained that the mauri of the Waitaki is not judged alone on the biophysical elements e.g. healthy flow. It includes a range of interactions and value assessments based on cultural concepts of kinship. The distinctive Waitaki waters serve as a cleansing agent, nourishing habitats and constitutes a life supporting function that provides for mahinga kai and, for example, was also used for washing and preserving bodies or dyeing fibre as well as a medium for travel by mōkihi. Water not only sustains mahinga kai, but underpins the associated traditions and stories to be passed on to succeeding generations through the generational practice of mahinga kai.
- [265] D Higgins, Upoko¹³¹ of Te Rūnanga o Moeraki, spoke of the Ngāi Tahu cultural association with

¹²⁹ The term Tāngata whenua in the context of the Waitaki River catchment is inclusive of Waitaha, Ngāti Māmoe and Ngāi Tahu, as per the description of Ngāi Tahu Whānui in the Ngāi Tahu Claims Settlement Act 1988

¹³⁰ On behalf of Waitaha Taiwhenua o Waitaki Trust Board Inc, and in support of LWRMS

¹³¹ Appointed Traditional Leader

the Waitaki River catchment. This description included holistic reference to whakapapa links, sites, seasons and types of mahinga kai, ancient trails, place names, Maori archaeological sites and creation traditions. Mr Higgins referred to the challenge today of maintaining and enhancing mahinga kai in a heavily modified and changing river system. He also spoke of the enduring endeavour by Ngāi Tahu over generations to restore mahinga kai and associated cultural values of the Waitaki. Mr Higgins made an application¹³² for and was granted a public excluded session during the hearing on the Waihao marae. This was to protect the sensitive nature of information which elaborated specifically on the cultural evidence Mr Higgins provided to the panel on the connection Ngāi Tahu have with the Waitaki River and catchment.

- [266] In the Lower Waitaki River many of the terrace and riparian wetlands support mahinga kai values of importance to Ngāi Tahu. Tipa & Associates (2013) assessed the cultural values of nine wetlands¹³³ along the lower Waitaki River, six of the wetlands were given a high ranking indicating those sites that had been used traditionally and would be used again.
- [267] Ms Waaka-Home said that despite river modification and mahinga kai losses in the Waitaki catchment, artificial habitats (drains, canals, storage ponds and races) fed by the Waitaki waters have become highly valued as a substitute mahinga kai resource.
- [268] Ngāi Tahu are seeking to have a separate allocation of water with high reliability reserved for mahinga kai enhancement that it is not at risk of allocation to “any other activity”.¹³⁴ We heard that for Ngāi Tahu, such an allocation would support meaningful exercise of kaitiakitanga and recognise important cultural and historical relationships they hold with the waters of the Waitaki River.
- [269] Ngāi Tahu in collaboration with Meridian presented an alternative flow regime to that proposed by Plan Change 3, that they consider better meets the requirements of Objective 1 of the Allocation Plan.

Landscape and natural character

- [270] Landscape is a significant and integral part of the environment and is a major consideration in achieving the purpose of the RMA. While landscape and natural character are separate matters, they are often acknowledged and dealt with together. The consideration of both matters under s6 reinforces this apparent close relationship, but also their separateness. We accordingly deal with each matter separately.

¹³² Application for an order, under Section 42 of the Resource Management Act 1991.

¹³³ Section 32 report, Appendix 4, Dr Ryder, Lower Waitaki River Riparian Wetlands Memorandum, pg 6-7

¹³⁴ Legal submissions for Ngāi Tahu, para [1.8](a)

Natural character

- [271] As a subset of landscape, natural character comprises both indigenous nature (ecological naturalness) and perceptions of nature (human perceptions and experience of naturalness). The evaluation of the sensory element of landscape, relating to natural character, includes the visual/perceptual attributes of naturalness. The experiential attributes of naturalness relate to human experience of the natural environment. Associative values, including cultural heritage, historical heritage and shared and recognised values are distinctly separate from natural character assessment and relate to human relationship with landscape, as compared to an experience of the natural environment.
- [272] We have heard from only one landscape architect, namely Ms Yvonne Pfluger on behalf of Meridian Energy Limited. We accordingly adopt what she had to say about the existing environment.
- [273] The Lower Waitaki River is a highly modified river system with a different flow regime from its former unregulated state. Upstream dams moderate flows which fluctuate on a daily and weekly basis according to power demand. Existing modifications to the lower reach and wider landscape of the Waitaki River include:
- (a) hydro-electric infrastructure, including the Waitaki Dam;
 - (b) water abstraction and irrigation;
 - (c) intensive land use and modified vegetation cover;
 - (d) the management of the river bed and riparian margins including river control works; and
 - (e) built elements such as farm buildings and structures, dwellings, shelter belts, transmission lines and roads.
- [274] The Waitaki, being a braided river, is naturally dynamic and the morphology of the river and the extent and composition of the fairway vegetation naturally undergo continual adjustments. A large portion of the riparian margin is covered by willow, gorse, broom or other scrub, with farmland encroaching closer to the margins over the years.
- [275] Some of the gravel bars within the fairway consist of clear, clean gravels, while the majority have been colonised with woody vegetation and various exotic grasses and herbs. Although indigenous vegetation is sparse, several species have been recorded within the various vegetation types along the river and its margins. According to Ms Pfluger, overall the River appears to be developing a character that is less braided and more stable in its channel patterns than in the past. Ms Pfluger concluded:¹³⁵

¹³⁵ Evidence of Ms Pfluger for Meridian, para [40]

I consider the natural character of the active braided river bed to be moderate to high, with largely natural patterns and processes, but with some weed invasion on the islands and significant infestation of woody weeds along the banks. However, despite its modified state, the lower Waitaki River retains important natural science values, particularly as a site for several rare river-bed bird species and as a highly valued fishery. It also remains a dynamic and legible natural feature.

Landscape and visual amenity

- [276] The lower Waitaki Valley and the Lower Waitaki River have not been identified as an outstanding natural feature or landscape under s6(b) of the RMA in the district or regional landscape assessments,¹³⁶ nor have they been classified as such in either the district or regional plans.
- [277] The lower Waitaki has been identified in the Waitaki Landscape Study¹³⁷ as a significant landscape feature, which is considered as an RMA s7(c) matter rather than a s6(b) matter.
- [278] We have already referred to the fact that the River is an important source of spiritual and cultural value, with historic and cultural associations for tāngata whenua. It also has strong cultural associations for Europeans. The Waitaki River contributes to a sense of identity and pride in the local community.
- [279] The Waitaki Valley is valued by many as an attractive and productive working agricultural landscape, as well as a recreation resource.
- [280] Ms Pfluger concluded:¹³⁸

While the lower Waitaki River is recognised as an important landscape feature and recreation area, there is a weak visual relationship between the river and the surrounding valley due to the extensive riparian vegetation, and the lack of and difficulty of easy public access. Unless someone is on the river, viewpoints to the open river are also limited and infrequent.

Anthropogenic requirements for water

- [281] In addition to environmental requirements for water there are a number of requirements for people and communities. These include:
- (a) the rivers and lakes are a popular recreation resource for a range of activities, particularly trout and salmon fishing and jetboating;
 - (b) the water in the catchment provides essential supplies to towns and communities such as Oamaru and Waimate, and for other stockwater and community supplies;

¹³⁶ Waitaki Landscape Study (Densem, 2004) and Canterbury Regional Landscape Study Review (BML 2010)

¹³⁷ Densem, 2004

¹³⁸ Evidence of Ms Pfluger, para [48]

- (c) the river also provides water for industry such as the Alliance works at Pukeuri;
- (d) the Waitaki hydro-electricity scheme, operated by Meridian and Genesis, generates 20-25 percent of New Zealand's electricity annually. The Waitaki Power Scheme includes eight hydro-power stations, two main storage reservoirs, four canal systems and numerous dams, rivers and other control structures. Currently the scheme has a combined generation capacity of approximately 1,723MW hydro-storage capacity of approximately 2,530GWh, and annual power generation of around 8000 GWh;¹³⁹ and
- (e) there has been an increasing demand for water from the Waitaki River for irrigation on land both in and out of the catchment. This is particularly so in the Lower Waitaki River. The Allocation Plan noted in 2005 that approximately 46,000ha of land was irrigated by water takes in the lower catchment. Evidence presented at the HDI hearing suggests that at least 75,000ha is now irrigated¹⁴⁰ but estimating irrigated area from consented allocations is fraught because many do not specify area irrigated.¹⁴¹ We discuss this difficulty in our assessment below.

¹³⁹ Evidence of G Waipara, Meridian Energy, pg 4-5

¹⁴⁰ Evidence of E Soal, Waitaki Irrigators' Collective, para [6]

¹⁴¹ Rebuttal evidence of K Johnson and I McIndoe, para [15]-[16]

Section 4 - Evaluation of Plan Change 3 and submissions

Introduction

- [282] We propose in this section to summarise the changes to the Allocation Plan in proposed Plan Change 3 grouped by theme. We will identify the amendments sought, the reasons given and, where relevant, the evidence adduced in support. We will provide an evaluation and make a finding.
- [283] During this hearing further amendments to clarify the proposed changes were recommended and caucused on. As we have said, the Council has varied its notified provisions as a consequence of the caucusing and of further evidence adduced during the hearing process.
- [284] While we have, for ease of analysis, grouped the provisions in proposed Plan Change 3 and the amendments sought into themes, we recognise the need at all times to stand back and look at the plan change as a whole and as a complete package.
- [285] As we have said, we have received comprehensive advice from the Council officers in the form of legal submissions and reports prepared under s32, s32AA and s42A of the Act comprising both technical analysis and planning advice, as well as responses to our queries during the hearing and to our minutes.
- [286] The initial s32 Evaluation Report is dated June 2014. As part of the reply to us the Council officers prepared an evaluation report under s32AA of the Act. The s32AA Evaluation Report contained an evaluation of and justification for the officers' recommended amendments to the notified provisions of Plan Change 3 in response to submissions.
- [287] The s42A planning reports recommended whether submission points should be rejected or accepted, with reasons; and specific recommended amendments to the notified change were included for our consideration.
- [288] To avoid repetition, where we consider the officer's final recommendations¹⁴² on the issues raised by submissions to be appropriate, including their evaluation under s32AA of the Act, we may simply note that we accept the officer's recommendations for the reasons set out in the various reports received from the Council officers. The consequence of this is that our evaluative consideration in this recommendation is more constrained than it otherwise would have been.
- [289] We summarise here a number of the primary factors we have applied in reaching our overall recommendation.

¹⁴² Section 42A Officer's reply: Part 1 – Legal Submissions; Part 2 – Evaluation and Technical Memoranda; and Part 3 – Reply Recommendation Tracked Change version

- [290] Firstly, we note the fact that the proposed plan change has been recommended following a collaborative process by the Zone committee. In considering the weight we should give to this we bear in mind the debate about the degree of consensus reached, a matter raised by LRWMS.
- [291] Secondly, we are required to assess the effects of the proposal and reach an outcome which we judge meets the sustainable management outcomes of the RMA. As discussed below in detail, and compared with the current provisions of the Allocation Plan, we assess the primary consequences of Plan Change 3 as being:
- (a) to allow more water to be taken below the Waitaki Dam at times of low flow;
 - (b) to allow Meridian to release less water than the Allocation Plan requires but more than their current consents require;
 - (c) to maintain reliability of supply for downstream irrigators, at least until their consents expire; but to re-allocate some of the allocation block (10m³/s) provided in the Allocation Plan specifically for mahinga kai purposes and keep this in the River until consents allow it to be taken; and
 - (d) to reallocate 1m³/s of water for augmentation of Wainono Lagoon.
- [292] Thirdly, we questioned the consent holding parties closely – especially Meridian, and WIC who represent irrigation interests – on their preparedness to voluntarily review their consents to implement the plan change. Importantly, the undertakings, and the weight we give to them, are subservient to the matters we must consider relating to the effects of the change including effects on the environmental, ecological and recreational values of the lower river, especially at lowest flows, and whether the allocations for irrigation use adequately encourage efficient use and are reasonably justifiable.

Theme 1 – minimum flows (including cessation flows) and supply of water for security of supply for holders of existing consents

- [293] The plan change changes the provisions under which applications for resource consent to abstract water would be considered, which in turn affects the amount of water to be released past the Waitaki Dam. Once implemented, it would require Meridian to release more water than their current consent requires (though not necessarily more than they currently release, as we discuss later). It would also require holders of other existing consents – mainly for irrigation – to accept a higher minimum flow (to be called cessation flows), and potentially slightly lower security of supply, than applies to those consents currently.
- [294] The benefit to these parties is that they attain certainty of water availability rather than having to face uncertainty of outcomes when consents expire, and the more draconian minimum flows of the current Allocation Plan may apply.

[295] This theme involves recommended changes to two important aspects of the Allocation Plan:

- (a) the provisions that fix the minimum (now cessation) flows above which the water may be taken from the Lower Waitaki River downstream of the Waitaki Dam. In other words, those provisions which limit the amount of water taken at times of low flow. The current Allocation Plan sets out the environmental flow regime in Rule 2 and Table 3, while a proposed new Policy 47 (and reference to it in Policy 28) provides the policy support to set those new minimum (now cessation) flows in Rule 2 and a new Table 3A for existing consents, which are proposed to be referenced in a new schedule; and
- (b) those provisions which ensure a supply of water past the Waitaki Dam to ensure that there is enough water to match the water that may be taken under the minimum flow regime. Policy 46 requires the maintenance of flows downstream of the Waitaki Dam in addition to the minimum flow to meet the actual requirements of stated allocated activities. Rule 7 sets variable monthly maxima for such flows.

Changes to the minimum flow regime for existing consents

[296] Plan Change 3 (as notified) proposed a new minimum flow for pre-plan consents. This is achieved by a new sub-clause (4) to Rule 2 and proposed amendments to Table 3, line xvii – Lower Waitaki River.

[297] Proposed Rule 2(4) as notified was proposed to state:

Water taken or diverted from downstream of the Waitaki Dam as authorised by consents referred to in Schedule 2, has the minimum flow set out in Table 3A, or that of the existing consent, whichever is the higher provided that:

- (a) the amount of water taken as a percentage of the consented take complies with Table 3A;
- (b) in the event that the daily average flow of the Lower Waitaki River is at or below 150 cumecs for ten consecutive days, all takes must cease for a period of 48 hours;
- (c) ...

Table 3A

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minimum Flow (m ³ /s)	102	102	102	120	138	144	144	138	120	102	102	102
Amount of water taken (as % of consented take)	100	100	100	63	25	13	13	25	63	100	100	100

...

[298] Under proposed Rule 2(4) and new Policy 47, the replacement of pre-plan consents would be given a minimum flow as set out in Table 3A (as notified); or, for those consents that already have a minimum flow that is higher than those in Table 3A (as notified), the existing minimum flow recorded in the consent would continue to apply. This is in accordance with Policy 28 which seeks the replacement of consents in the same allocation limit and priority band and ensures that those consents granted after the Allocation Plan became operative could not take advantage of proposed Rule 2(4). Proposed Plan Change 3 does not amend Rule 2(2), so that activities that comply with Rule 2(2) would continue to be exempt from the minimum flow. However, to prevent holders of consents from taking advantage of a better priority band through a transfer of consent, Plan Change 3 (as notified) proposed to add the following clause to Rule 8 (relating to transfer of consents) after clause (3):

No person who holds a consent subject to Rule 2(4) shall transfer that consent to another person on another site, or to another site, unless that site is already the subject of a Schedule 2 consent to take and use water.

and to include a new schedule¹⁴³ listing current consent numbers of all existing consents.

[299] Subsequent to notification Rule 2 went through a number of iterations as a result of discussions during the hearing and responses to questions and minutes by the Panel. Minimum flows for consents to take were replaced with an alternative called “cessation flows,” a definition of which was added to the definition section of the Allocation Plan.

[300] The plan change (as recommended in the Officer’s Reply as amended in response to Minutes) proposes to make provision for:

- (a) Policy 47 which provides for:
 - (i) the setting of cessation flows as an alternative to the minimum flow for existing consents, subject to cessation of takes in periods of sustained low flow; and
 - (ii) the setting of alternative cessation flows to facilitate the taking or diverting of a portion of the allocation for mahinga kai enhancement;
- (b) amendments to Rule 2 of the Allocation Plan providing for:
 - (i) variable monthly cessation flows for existing consents as set out in Rows 4 and 5 of new Table 3A; and
 - (ii) variable monthly cessation flows for mahinga kai as set out in Rows 6 and 7 of new Table 3A; and
 - (iii) variable monthly cessation flows for water taken for other than existing consents or

¹⁴³ Due to insertion of an additional schedule, references to Schedule 2 become Schedule 3

mahinga kai as set out in Rows 8 and 9 of new Table 3A;¹⁴⁴ and

(iv) amendments to Table 3B. line xvii (formerly Table 3, line xvii)- to provide:

- a. a specific allocation of 10m³/s for mahinga kai and 1m³/s for augmentation of the Wainono Lagoon out of the Allocation Plan's allocation of 90m³/s for the Lower Waitaki River (see Theme 2); and
- b. to amend the calculation of the minimum flow in extremely low flow periods to the calculated natural flow if, during any period, the calculated natural flows for the preceding 7 days is less than or equal to 150m³/s (see Theme 4); and
- c. to amend measurements at the Kurow Recorder from a one hour rolling average to an average over a 24 hour period (see Theme 5).

[301] Plan Change 3 (as notified) proposed to make amendments to Rule 7 (including Table 6) as less water would be required to satisfy the lower minimum flows above which water may be taken by existing consent holders. It was proposed that Rule 7 would state:

In addition to the minimum flows and flushing flows of the environmental flow regime for the Lower Waitaki River, the consent holder for the Waitaki Dam shall provide flows in the Lower Waitaki River sufficient to meet the actual requirements of activities identified in Policy 46(ii) (at their points of taking), up to a maximum of the flows in Table 6, except that no flows shall be required to be provided during any period when the mean of the calculated natural inflows above the Waitaki Dam for the average of the preceding seven day period is less than 182m³/s.

Table 6: Provision of flows into the Lower Waitaki River

Month	Flows to be provided above the <u>minimum flow of 150m³/s (in m³/s)</u>
October to March	80 32
April and September	50 20
May and August	20 8
June and July	10 4

[302] In a Joint Witness Statement, dated 3 July 2015, following caucusing between the Council Officers, Te Rūnanga o Ngāi Tahu, Meridian and WIC, an amended rule was suggested, which revised the flows in Table 6 as a consequence of a reassessment of current allocations below the Dam. In our Minute 8 dated 13 August 2015, we sought clarification from the Council officers as to the meaning and intent of Rule 7. We also suggested some amendments to the Rule, which were accepted by the Council officers as being more explicit and appropriate.

[303] In concert with these proposed changes to Rule 7, a change was proposed in Policy 46 to align the

¹⁴⁴ Rows 8 & 9 provide for the lowest priority band and include the 1m³/s for augmentation for the Wainono Lagoon. We discuss the appropriate priority of this abstraction in the next subsection headed Theme 2

October-March flow from Table 6 with the maximum stated at the end of Policy 46.

Alternative minimum flow regimes sought by submitters

The LWRMS alternative

[304] The Society describes its alternative minimum flow in their submission.¹⁴⁵ In broad terms, it proposes a single allocation block with a minimum flow of 150 m³/s. It proposes that all consents should be aligned with the minimum flow in 2025 or earlier, and that Meridian should be permitted to use Lake Pūkaki water to offset lower flows past the Waitaki Dam.

The Fish and Game alternative

[305] Fish and Game support the proposal for a new minimum flow for pre-plan consents,¹⁴⁶ but seek a range of amendments. They propose an alternative regime that they contend better provides for their interests, is achievable for Meridian, encourages more efficient allocation and use of irrigation water, and provides an acceptable albeit lower level of reliability for irrigators.

The Meridian/Ngāi Tahu¹⁴⁷ alternative

[306] Ngāi Tahu¹⁴⁸ and Meridian¹⁴⁹ support a lower minimum flow for pre-plan consents, but seek amendments to the way it is applied. Their amendments are conditionally supported by the Waitaki Irrigators' Collective (**WIC**). The main aspects of their request as compared to Plan Change 3 as notified are to:

- (a) Provide more water over the dam for downstream abstraction during the irrigation season, and less in the other months of the year by amending Rule 7, Table 6 by:
 - October to March – 40 m³/s instead of 32 m³/s;
 - April and September – 18 m³/s instead of 20 m³/s;
 - May and August – 8 m³/s as proposed in Plan Change 3, as notified;
 - June and July – 4 m³/s as proposed in Plan Change 3, as notified.
- (b) Introduce a minimum flow for pre-and post-plan consents linked to the uptake of reserved water;
- (c) Have a lower minimum flow for reserved water than for post-plan consents;

¹⁴⁵ LWRMS submission Figure 3.4 and para [4.23]

¹⁴⁶ Fish and Game submission, pg 6

¹⁴⁷ Reference to Ngāi Tahu in this recommendation is a reference to the submission jointly made by Te Rūnanga o Waihao, Te Rūnanga o Arowhenua, Te Rūnanga o Moeraki and Te Rūnanga o Ngāi Tahu

¹⁴⁸ Ngāi Tahu submission on Rule 2, which proposes new Tables 3A, 3B, 3C

¹⁴⁹ Meridian submission, pgs 4, 5 and 9-12

- (d) Increase the annual allocation for “Any Other Activities” so as to provide for mahinga kai – refer Table 5 (Rule 6) – addressed later in our Theme 6; and
- (e) Amend Policy 46(ii) to support the above changes in Rule 7, Table 6.

[307] We made several directions¹⁵⁰ to clarify the various flow regimes resulting in a Joint Statement of Hydrology Witnesses (June 2015) and a Joint Statement of Witnesses in relation to the Flow Regimes (3 July 2015) from Meridian, Ngāi Tahu, WIC and Council. We asked these parties to caucus on alternative flow regime options and they proposed a compromise option (hereafter referred to as the “Caucus Option”).

[308] The suggested Caucus Option¹⁵¹ has the following elements:

- (a) cessation flows for pre-plan and post-plan consents which provide reserved water for mahinga kai enhancement and augmentation of Wainono Lagoon that will stay in-river without enhancing the reliability of those consents;
- (b) cessation flows¹⁵² which change as reserved water is taken;
- (c) an annual allocation for reserved water;
- (d) an increase in flows passing the Waitaki Dam in the winter months to provide for reserved water.

[309] The caucus suggested Table 3A¹⁵³ link the minimum flow conditions of consents to the uptake of mahinga kai water at any point in time. In evidence Meridian provided an example of a consent condition¹⁵⁴ to link minimum flows of consents with the uptake of reserved water. We agree this type of condition on a resource consent could also address the timing of annual reviews to update those minimum flows.

Proposed changes to minimum flow and effects on the environment

[310] The proposed changes to the minimum flow regime as set out in this section of the Recommendation received the most discussion and argument in the submissions, the evidence and during the hearing. This was because the provisions relating to the minimum flow regime directly affect the environmental attributes of the River. We bear in mind that the qualities of the environment of the Waitaki River and associated beds, banks, margins, tributaries, islands, lakes, wetlands and aquifers are required to be sustained by Objective 1 of the Allocation Plan.

[311] Because of the quantity of material that addressed this issue, we consider it incumbent on us to consider it in some detail. Thus, in this section of the Recommendation we discuss the different

¹⁵⁰ Minute 2, 26 May 2015 and at June hearing; Minute 4 refers, 30 June 2015

¹⁵¹ Joint Statement of witnesses in relation to the flow regimes (Caucus Statement), 3 July 2015

¹⁵² New terminology to avoid confusion with ‘minimum flows’ in the current plan’s Table 3

¹⁵³ Subsequently refined into a single Table 3A (see later discussion)

¹⁵⁴ Meridian response to Minute 8 at Paragraphs [13] and [14], 9 September 2015

flow regime scenarios against the evidence, bearing in mind the submissions and representations we have received.

[312] In making our assessment and evaluation we bear in mind what we consider to be the appropriate reference point, namely the environment that currently reflects the presently consented regime.

Evaluation of effects on the environment arising from different flow regimes

[313] As we have said, exempting existing consent holders from the Allocation Plan's minimum flow provisions of 150 m³/s in restricted circumstances was the most contentious issue raised by the Plan Change. The resulting flow regime of the Plan Change, and its effects on the environment were the subject of submissions and evidence.

[314] In making our evaluation of the effects of the proposed change to the minimum flow above which existing consents may take their allocated water we need to consider the following scenarios:

- the existing allocation regime;
- the Allocation Plan regime;
- alternative regime from LWRMS;
- Plan Change 3 as drafted and notified by the Council;
- alternative regime from Meridian and Ngāi Tahu,
- alternative regime proposed by Fish and Game;
- the Caucus Option; and
- the effect of the chosen option if the mahinga kai allocation is or is not taken or diverted.

[315] In considering each scenario, we are mindful that implementation is dependent either on awaiting expiry and compliant renewal of current consents (particularly Meridian's current Waitaki Dam consent expiring 2025), successful review by the Council of consents prior to expiry under s128, or agreement by Meridian and irrigators to vary their consents under s127 to implement our preferred scenario.

[316] The potential effects identified by the submissions and evidence gave rise to a number of factual issues that can be grouped under the following headings:

- Hydrology
- Water quality and ecology
- Tāngata whenua cultural values
- Economic
- Reliability of supply for existing and future water users

- Natural character and landscape
- Recreation

[317] We deal with each in turn.

Hydrology

[318] Evidence on the hydrological consequences of the various options was evaluated, and later caucused upon, by the hydrology experts: Mr Henderson appearing for Meridian, Mr Scarf for Fish & Game, Ms Topélen for the Council, Mr Stewart for Ngāi Tahu, Mr McTavish for LWRMS, and Messrs McIndoe and Rajanayaka for WIC.

[319] The table on the following page summarises the minimum flows (m^3/s) applying in each month of the originally suggested scenarios.¹⁵⁵ The LWRMS scenario was not modelled but we understand it to have minimum flows slightly higher than the Allocation Plan (referred to as the ‘WAP’ in the table below) option – a $150\text{m}^3/\text{s}$ minimum flow with up to $90\text{m}^3/\text{s}$ of flow releases. The caucus option depends on whether water reserved for mahinga kai and Wainono Lagoon augmentation is left in the river or has been allocated, however we understand this to be similar to the NT/MEL scenario below for flows at Waitaki Dam; minimum flows in the lower river would not fall below $100\text{m}^3/\text{s}$ unless calculated natural inflows (discussed below) were lower.

[320] The comparative effects of the flow regimes are seen in the figure below. There is little difference between scenarios when flows from Waitaki Dam are above $240\text{m}^3/\text{s}$ (which corresponds approximately to $150\text{m}^3/\text{s}$ minimum flow plus $90\text{m}^3/\text{s}$ released).

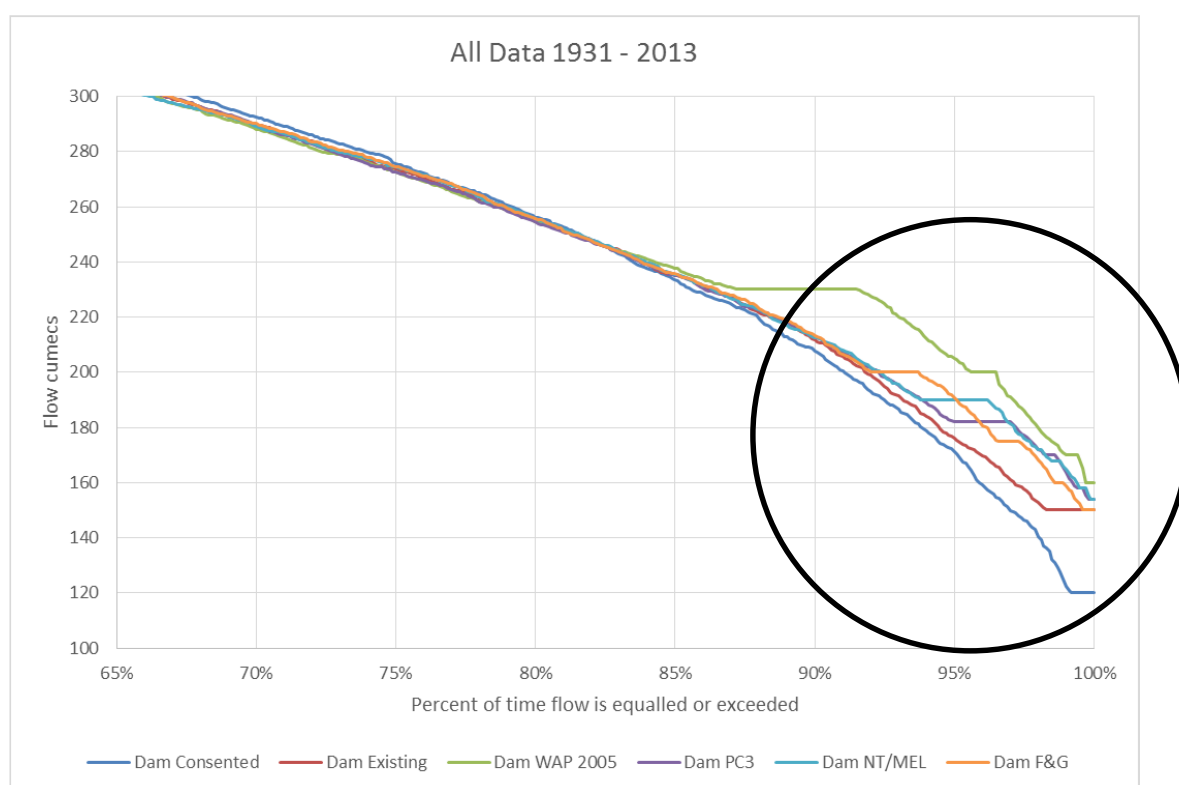
¹⁵⁵ Expanded from evidence of Mr Henderson, Table 3. Note these are based on weekly flows so lower flows could occur on a daily or instantaneous flow basis as discussed later.

Comparison of flow scenarios

Scenario	Jan	Feb	Mar	April	May	June	Jul	Aug	Sept	Oct	Nov	Dec
Consented	120	120	120	120	120	120	120	120	120	120	120	120
Existing	150	150	150	150	150	150	150	150	150	150	150	150
WAP	230	230	230	200	170	160	160	170	200	230	230	230
PC3	182	182	182	170	158	154	154	158	170	182	182	182
NT/MEL	190	190	190	168	158	154	154	158	168	190	190	190
F&G	190 - 240 (= cni* +40) or if cni >200 then 200	190 - 240 (= cni* +40) or if cni >200 then 200	170 - 195 (= cni* +20) or if cni >175 then 175	160 - 170 (= cni* +10) or if cni >160 then 160	155 – 160 (= cni* +5) or if cni >155 then 155	155 – 160 (= cni* +5) or if cni >155 then 155	155 – 160 (= cni* +5) or if cni >155 then 155	155 – 160 (= cni* +5) or if cni >155 then 155	160 - 170 (= cni* +10) or if cni >160 then 160	170 - 195 (= cni* +20) or if cni >175 then 175	190 - 240 (= cni* +40) or if cni >200 then 200	190 - 240 (= cni* +40) or if cni >200 then 200
Caucus Option	190	190	190	172	162	158	158	162	172	190	190	190

*cni = calculated natural inflow into Lake Waitaki

[321] There was some contention among the hydrology witnesses about the use of different periods of record, with Mr Stewart, Mr McTavish and Ms Topélen using actual flows at Kurow starting July 1979, whereas Mr Henderson used modelled flows from July 1931 generated using Dr McCahon's SPECTRA hydroelectric model. Mr Henderson provided us with a supplementary statement comparing modelled flows below the Dam at Bell's Pond using the SPECTRA model with the 1979-2013 data used by Mr Stewart, and with data adjustments applied in the analysis of Ms Topélen. For flows below about 250 m³/s at Bell's Pond, all modelled flows were similar. We are comfortable that the relative differences are adequately represented by the various experts' analyses, providing a sufficient basis for our assessments below.



[322] The 7DMALF is a very relevant metric for evaluating the effects of low flows. We have compiled below modelled 7DMALF data¹⁵⁶ from Mr Henderson at both the Waitaki Dam and 'residual flows' at Bell's Pond, which is the lower limit of the major water takes in the catchment.¹⁵⁷ 7DMALF data for the Caucus Option have not been calculated but are expected to be very slightly higher (1-2 m³/s higher) than those for NT/MEL.

¹⁵⁶ Evidence of Mr Henderson, compiled from Tables 5 and 8

¹⁵⁷ Modelling scenarios comprise: Consented representing current consented 120 m³/s minimum flow, Existing representing consented 120 plus the current Meridian buffer flow release of 30 m³/s, F&G scenario excluding tributary inflows as these would be very low at low flow times, Waitaki Natural representing modelled flows if there were no upstream dams. Bell's Pond results assume all consented water is taken, hence is worst case. Other assumptions are in Mr Henderson's evidence at paragraph [74]

Scenario	Modelled 7DMALF Waitaki Dam 1931-2013 (m ³ /s)	Modelled 7DMALF Bell's Pond 1931-2013 (m ³ /s)
Consented	155	-
Existing	171	110
WAP	195	153
PC3	182	117
NT/MEL	184	118
F&G	180	135
Waitaki Natural	137	-

- [323] These data combined with the flow frequency figure above show that the WAP scenario (implementing the Allocation Plan) has the higher low flows, the 7DMALFs for the PC3, NT/MEL and F&G scenarios are all similar, and the Existing and Consented scenarios are lowest. The figure confirms that the debate about hydrological outcomes of the various alternative scenarios relates to low flows occurring about one month per year (~8% of the time) on average. The exception is the F&G scenario as it results in higher flows throughout the low-mid flow range because of its lower abstraction limits.
- [324] The figure also shows that each scenario results in differing amounts of ‘flat-lining’, i.e. constant flows which should be avoided in the interests of ecological health. We understand all options retain the provision for flushing flows. The figure shows shorter periods of flat-lining for the PC3, NT/MEL and F&G scenarios, compared to the current Allocation Plan, but any flat-lining occurs at lower flows when environmental effects such as bird predation risk may be exacerbated.
- [325] We also need to understand effects of intermittent lowered flows. Mr Henderson’s modelling of flows below Bell’s Pond showed that if the Allocation Plan was fully implemented the flows below Bell’s Pond would never be below 150 m³/s.¹⁵⁸ We compare it with the PC3 and NT/MEL scenarios, which could have resulted in flows below 105 m³/s for up to 9 weeks continuously in any one year (1931-2013 data) or 6 weeks under the existing scenario. For those three scenarios (existing, PC3 and NT/MEL) flows could have fallen below the current Allocation Plan minimum of 150 m³/s for up to 10-12 weeks. Mr Henderson’s analyses of low flows each month show that lowest flow occurs in October but flows can also be low into January.¹⁵⁹ We have therefore taken some care to consider effects of those more extreme lowered flows.
- [326] Some of the hydrological analysis presented in evidence assumes that Meridian’s regime of flow releases from the Waitaki Dam will continue much as it does now, while providing for agreed

¹⁵⁸ This is a little surprising because the Allocation Plan provides for a flow less than 150 m³/s when flows into Waitaki Dam are equal to or less than a 1:20 year low flow, however the difference is not likely to be material

¹⁵⁹ Evidence of Mr Henderson, Table 10 and Figure 9

changes when flows are low. For example, the Council's s42A reply stated:

Plan Change 3 permits the taking of water below the Plan minimum flow of 150m³/s but the hydrological record indicates that this seldom occurs. The plan change addresses the uncertainty in a manner that is not detrimental to the river and has the full support of affected consent holders

- [327] The Panel was concerned that Meridian's implementation of the changes may more substantially affect low flows, compared to the current situation, especially if Meridian no longer maintains their current buffer of 30 m³/s ¹⁶⁰ released (Existing scenario in the table above) above their consented minimum flow of 120 m³/s (Consented scenario). However, we also recognise that the modelling of scenarios is conservative in that it assumes all allocated water is taken.
- [328] We also queried the parties whether it was necessary to lower the minimum flow for the reserved water, given that reserved water is part of the post-plan allocation. The options provide for reserved water to remain in the River until such time as it is taken. Table 3A now proposed means that minimum flows for all consents are linked to the uptake of up to 11m³/s of reserved water. This would have the effect of lifting the proposed minimum flow of pre-plan consents above that notified in PC3 (which in turn lifts the minimum flows for post-plan consents also).
- [329] When the reserved water is consented for removal from the River it would have the same reliability as other post-plan water during the irrigation season. If taken in winter months when there is less water released past the Dam, the take would have to cease, for example, in May at 143m³/s (149-6).¹⁶¹
- [330] We note that the Caucus Option presented to us would retain higher flows in the River than that proposed in PC3 as notified. In addition:
- (a) as efficiency improvements are made, unused pre-plan water that is not transferred remains in the river; and
 - (b) mahinga kai flows remain in-river until applications are made for consumptive uses of this water.
- [331] We can conclude in a comparison of the options presented to us, that from a hydrological perspective, the Caucus option and its preceding MEL/NT option would result in improved river flows compared with Plan Change 3 (as notified), the existing situation, and the consented situation, but reduced flows as compared to the Allocation Plan.

Water quality and ecology

- [332] In this section we evaluate the potential effect on Lower Waitaki River water quality and ecological

¹⁶⁰ Evidence of J Page para [32a], and supplementary evidence, para [5]

¹⁶¹ Table 3A, Caucus Option

values from PC3 as recommended in the Officer's Reply for access to lower minimum flows downstream of Stonewall / Black Point for existing consents.

[333] Evidence presented was complemented by evidence predicated on the predicted low flow effects of the consented but yet to be become operational HDI and the potential NBHP schemes. Various flow regime proposals were introduced by parties as discussed in the previous section, each with similarities of effects, ranging between that of the existing flow and the Allocation Plan regimes. We consider the merits of all flow regime options. The water quality and ecological effects of low flows for sustained periods in dry seasons downstream of Black Point were key issues.

[334] Under this heading we consider the following:

- (a) water quality;
- (b) periphyton;
- (c) benthic macroinvertebrates
- (d) native fish;
- (e) trout and salmonids;
- (f) braided river birds; and
- (g) wetlands.

Water quality

[335] While Plan Change 3 is primarily a change to the water allocation regime, and water quality management is to be dealt with under the LWRP, there are potentially environmental effects of the proposed reductions in minimum flows.

[336] Reducing minimum flow from 150 to 100 m³/s amounts to a 33% reduction in dilution capacity for contaminant loads,¹⁶² at least for those contaminants arising during summer low flows from catchment land use and geology (nitrogen for example, but less relevant for faecal bacteria).

[337] Dr Ryder¹⁶³ cited Mr Norton's evidence from the HDI hearing, which calculated that a 100m³/s minimum flow could increase concentrations of nutrients and faecal bacteria for a median of 18 days during the irrigation season, and for 80 days in very dry seasons occurring about once every 15 years.

[338] Dr Ryder noted¹⁶⁴ that the increase in *E.coli* concentrations would not however change the MfE/MoH Suitability for Recreation grade of 'fair-poor' at Stonewall and 'poor-very poor' at the

¹⁶² Section 32 report, Appendix 4, Dr Ryder, Ecological Considerations, pg 29,

¹⁶³ Ibid

¹⁶⁴ Ibid, p30

SH1 Bridge.

- [339] Increases in bioavailable nutrients at the SH1 bridge would likely cause algae to exceed periphyton guidelines for protecting aesthetics, recreation, trout habitat and angling values. However Dr Ryder's view was that this is the same as the existing situation and only during very dry seasons (>15 year recurrence) would there be more periphyton biomass in the River.

Periphyton

- [340] We heard from Dr Ryder¹⁶⁵ that flow reductions may increase the risk of nuisance periphyton, in particular *didymo* due to the cumulative effects of increased flow stability, increased nutrient concentration (due to less dilution) and favourable light and temperature conditions. The Lower Waitaki River is infested with *didymo*. A reduction in minimum flows is unlikely to significantly alter its distribution or biomass, due to its rapid recovery.
- [341] Dr Ryder cited the HDI decision¹⁶⁶ which indicates that compared to a minimum flow of 150 m³/s, a minimum flow of 100 m³/s will reduce habitat area for diatoms and short filamentous algae by 9%. However, the habitat for nuisance filamentous green algae will only decline 7% and therefore could cover a higher proportion of the bed at 100 m³/s.
- [342] This change would be difficult to discern for a casual observer, but they would see these growths under either a 150 m³/s or 100 m³/s minimum flow situation. In very dry years this difference could be noticeable to regular river visitors, and could affect recreational users, e.g. snagging lures and entering jet-boat engine intakes in small braids and at the margin of large braids.
- [343] Dr James¹⁶⁷, states that although it is mainly low flows that are of concern for biota, floods are also important for flushing of bed sediment and nuisance periphyton growths. He noted that flood magnitudes are very similar for all the modelled regimes including Consented and Existing. The frequency and effectiveness of flushing flows and floods determine the magnitude and significance of any increase in nuisance growths. We note that Plan Change 3 does not amend the environmental flow regime with respect to the flushing flow frequency or flow rate.
- [344] We consider that the proposal to reduce the minimum flow may in very dry years result in a minor increase in nuisance periphyton growths, but unlikely to aid the spread of *didymo*. The implementation of regular flushing flows and application of the 48 hour Rule would offer some mitigation of effects.

¹⁶⁵ Section 32 Report, Appendix 4, Dr Ryder, Ecological considerations

¹⁶⁶ Norton, hearing decision page 88

¹⁶⁷ Meridian

Benthic macroinvertebrate communities

- [345] Productive areas for macro-invertebrates may be lost for up to several weeks in an extended dry period but this is a temporary condition. Macro-invertebrates recolonise from drift and recruitment of the next generation, and populations have continuous recruitment or several generations per year. Complete recovery of macro-invertebrate communities following these infrequent occasions is generally rapid.¹⁶⁸
- [346] It is in dry years that the ecological effect of a low flow is likely to adversely affect the invertebrate communities, the extent of the detrimental effect depending on the magnitude and duration of the low flow. This is more pronounced in extended dry periods that occur on average at 1 in 15 years return intervals in the stretch of river particularly between Stonewall/Black Point downstream to the river mouth.
- [347] Dr Ryder¹⁶⁹ referred us to a study in the braided section of the River of invertebrate taxa at flows of 150 and 100 m³/s, which show, depending on the taxa, habitat availability reduce by 7 to 21% as flow decreases from 150 to 100 m³/s. But changes in the quality of the habitat were small.¹⁷⁰
- [348] The greatest habitat reduction was for taxa that prefer swift waters. Under the NBHP proposal a reduction in the magnitude and frequency of flow fluctuations associated with hydro generation would have improved habitat in the otherwise fluctuating zone of unproductive habitat known as the varial zone. This again emphasizes for us the relative impact of daily fluctuations in flow resulting from generation releases from Waitaki Dam.
- [349] Dr Ryder considered the similarity of NBHP consented monthly flows and the minimum monthly PC3 flows ranging from 105 to 145 m³/s would have similar effects on invertebrate communities, depending on the frequency and duration of low flow periods.
- [350] Reference was made to Stark's HDI evidence that indicates the ecological effect of a low flow depends not only on its magnitude but also its duration, with detrimental effects usually increasing with duration of low flow.
- [351] Dr Ryder concluded that:
- ...reducing the minimum flow of the lower Waitaki River to approximately 100 m³/s is unlikely to have any discernible effect on the character, densities, or productivity of lower Waitaki River benthic macroinvertebrate communities, except during extreme low flows which have an estimated return period of 15 years (or more).

¹⁶⁸ Section 32 report, Appendix 4, Dr Ryder, Ecological Considerations, pg 39,

¹⁶⁹ Section 32 report, pg 37, taken from Evidence in Chief of I Jowett, attachments, Table 2, HDI hearing

¹⁷⁰ Jowett, WAP, evidence 2005

Native fish

- [352] The area downstream of Stonewall/Black Point to the mouth is where the greatest volume of water takes currently occur and is where the proposed regimes in this Plan Change would potentially have greatest effect.
- [353] Evidence from the HDI hearing, for what is a similar flow regime indicates that depending on the native species, habitat availability reduces by 8 to 28% as flow decreases from 150 to 100 m³/s.¹⁷¹ For the flow regime modelled for the HDI hearing, a minimum flow of 100 m³/s rather than 150 m³/s was considered likely to have limited ecological effects, other than in extremely dry years.¹⁷² Experts at that hearing concluded that a flow regime with a minimum flow of 150 m³/s would probably support higher total numbers of fish than one with a minimum flow of 100m³/s, but the aquatic communities would be maintained at similar densities. However, if a low flow persisted for several weeks it could be expected that there would be some small reduction in numbers of native fish, or cause them to concentrate in the most suitable habitat.
- [354] Under similar flow scenarios presented to the hearing panel it is unlikely that there would be significant mortality of native fish associated with reduced flows in the Lower Waitaki River. Where numbers are reduced due to a low flow or sustained low flow, the population of native fish would be expected to return to normal the following year after the spring recruitment of juveniles.¹⁷³
- [355] Dr Ryder¹⁷⁴ observed that native fish species had survived in environments where impacts of low flows are more extreme, and that many native fish do well in shallow flowing water. Reduction in flow can be tolerated for a period of time without significantly affecting individuals or the population. Flow reductions in summer may be more stressful than those in winter due to the effects of oxygen saturation associated with higher water temperatures.

Trout and salmonids

- [356] Dr James advised us that for the maintenance of the salmonid fishery, a flow of 150 m³/s is optimal, but there was little variation in suitable habitat between flows of 100 and 150 m³/s. Thus a varied flow of 100-150 m³/s would still provide quality habitat for salmonids, and safeguard existing populations.¹⁷⁵
- [357] Salmon and trout spawn during the winter and rear their juveniles during the spring, outside of the main irrigation season and generally outside the period when the lowest flows occur. When low flows occur, the area and quality of spawning habitat for salmon and brown trout may decline, but there would be sufficient spawning habitat in the reach above Stonewall/ Black Point to support

¹⁷¹ Evidence of Jowett, HDI Hearing, Table 2

¹⁷² Evidence of Jowett, HDI Hearing, para 68

¹⁷³ Evidence of Jellyman, HDI Hearing

¹⁷⁴ Response to Hearing Commissioners questions on expert evidence and Council reports, p15

¹⁷⁵ Evidence of M James for Meridian at [108]

current stock. The short term nature of low flows are unlikely to affect fish populations except in very dry years; in such instances recruitment would occur in the following spring.

- [358] Dr Ryder referred to HDI evidence¹⁷⁶ to illustrate that brown trout and salmon spawning habitat availability reduces by 15% as flow decreases from 150 to 100 m³/s. In the case of brown trout juvenile and yearlings, habitat availability reduces by 12 and 3%. Trout and salmon spawning occurs in the winter and salmonid rearing is mostly in the spring, so the exotic fishery is unlikely to be affected by minimum flows caused by abstraction for irrigation. However, we do observe that flows passing the Waitaki Dam are proposed under the plan change to be lower throughout the whole year, not just the irrigation season.
- [359] In the case of adult brown and rainbow trout, habitat varies little once flows exceed 100m³/s, while flows considerably less than 135 m³/s provide for upstream passage of adult salmon and trout.¹⁷⁷
- [360] We heard there is plenty of suitable angling in flows from 150 m³/s up to 350 m³/s, while suitable habitat for salmon angling falls steeply at around 100 m³/s or below.¹⁷⁸ We understand that the optimum flow for salmon angling is 150 m³/s.¹⁷⁹ When the river flow is at 100 m³/s, fishing habitat will decline by 4-30% and the quality of the fishing lies by 31% compared with a flow of 150 m³/s. However, as Dr Ryder rightly points out,¹⁸⁰ such low flow conditions will occur infrequently and the median flow which anglers experience most of the time will not change appreciably. Effects would probably be noticeable by salmon anglers only during very dry years.
- [361] Mr Hughes (LWRMS) told us that the smaller stable side streams are productive rearing waters for juveniles. Large shoals of trout and salmon juveniles can be found in the shallows, often shaded by overhanging riparian foliage, a haven also from adult trout and predatory birds. In low flows these braids may dry, resulting in fish mortalities and encouragement of juveniles to venture into deeper water where the risk of predation is high and the current is swift.
- [362] Dr Hicks said that the alternative regimes to the Allocation Plan all involve a relatively small increase in the incidence of situations where the flow will persist at lower flows for longer periods. Proposed regular flushing releases would provide a consistency that better maintains the river channel substrate condition during extended periods lacking in high natural flow events.¹⁸¹
- [363] Extended dry periods of low flow events generally occur at 1 in 15 year intervals and are historically driven by periods of low in-flows in the upper catchment. The circumstances involving such low flows are normally due to catchment inflows above the Waitaki Dam being low rather than the

¹⁷⁶ Evidence of Jowett, attachments Table 2

¹⁷⁷ NBHP Environment Court, Evidence of Jowett, para 54, Jowett 2006.

¹⁷⁸ NBHP Environment Court Interim Decision para 348

¹⁷⁹ HDI Hearing, Evidence of Dr J Hayes,

¹⁸⁰ Section 32 report, Appendix 4, Dr Ryder, Ecological Considerations, pg 48,

¹⁸¹ Evidence of M Hicks for Meridian at [59]

combined effects of abstraction.

- [364] Dr Ryder¹⁸² stated that it is likely that the risk of adverse ecological effects occurring increases as the duration of a low flow event increases. He said:

If low flow events of more than 30-60 day duration were to occur every 1-3 years I would expect effects on fish populations in particular to become more than minor, and result in significant overall reduction in the size of the population due to reduced habitat and reduced recruitment. ...

It is my understanding of the hydrological data, that the durations of low flows under PC3 are not significantly different from those under proposed alternative flow regimes to the degree where I would expect to see meaningful changes in aquatic ecology.

- [365] Historical flow records show the periods at the lowest flows would occur in extremely dry years and for an average run length of 1.4 weeks per year for the Existing, PC3 and NT/MEL scenarios.¹⁸³ Fish spawning occurs outside of the peak irrigation period, and the adherence to flushing flows and the proposed requirement to cease all irrigation abstraction after 10 days of flows at 150 m³/s will reduce impacts on native fish and salmon communities. Suitable fishery habitat decreases with reduced minimum flows, but the quality of habitat remains relatively constant or increases, at least down to 100 m³/s.

Braided river birds

- [366] We heard that a minimum flow of around 100 m³/s over the warmer months, may result in a slight increase to the risk of bird predation in the drier months of the year. Further, that the white-fronted tern is the only bird species in the threatened category that only nests downstream of Stonewall/Black Point and therefore most at risk from lower minimum flows.
- [367] Ms D Robertson,¹⁸⁴ ecologist,¹⁸⁵ observed that islands which are large enough to have ground above flood level may have been an important factor in sustaining the black-fronted tern numbers and potentially other braided river bird specialists in the Lower Waitaki River. Ms Robertson noted a study in the Upper Waitaki where very low flows (0.059 and 3.13 m³/s) deterred predators from accessing islands in the Upper Ōhau River.¹⁸⁶ However, Ms Robertson observed that predation events had also occurred during times of large flows in the Lower Waitaki River resulting in the loss of breeding colonies on islands.¹⁸⁷

¹⁸² at [67] and [68]

¹⁸³ Evidence of Henderson for Meridian, Table 10 (without the 48 hour 10 day low flow rule incorporated)

¹⁸⁴ Meridian

¹⁸⁵ Ms Robertson noted that over the last 14 years she had spent 80 days in field in the lower Waitaki Valley across a range of projects assessing wetland, braided river bird and terrestrial ecological values.

¹⁸⁶ Boffa Miskell, 2007. Black-fronted tern trial, effects of flow and predator control on breeding success

¹⁸⁷ Boffa Miskell 2003, Terrestrial Ecology and Wetlands Assessment Report, Appendix L to Project Aqua Assessment of Effects on the Environment

- [368] Ms Robertson observed that high spring and summer flows are common and can impact on breeding activity. Some species of river birds have adapted and have the ability to lay repeat clutches if necessary if early nesting fails. The combination of floods with other pressures from predators and vegetation encroachment however combine to compound low breeding productivity.
- [369] Ms Robertson considered that the short-term nature of differences between the proposed flow regimes at their lowest flows means there will be no discernible difference among the modelled flow regimes. This is due to the similarity of flood events in all the regimes and the limited differences in the lower flow characteristics.¹⁸⁸
- [370] Dr Hicks¹⁸⁹ referred to a study he undertook¹⁹⁰ on the relationship between flow rate and island count and size in the lower Waitaki. This study used aerial photos taken during a Meridian flow trial in 2001, with flow rates of 87, 116, 147 and 354 m³/s, and then calculated the number of islands larger than 0.25 ha. The study indicated relatively little change in cumulative area over the flow range of 150 to 200 m³/s, and indeed little change over the wider flow range between 84 and 354 m³/s.
- [371] He further observed¹⁹¹ that as flows decrease in a braided river, some islands are merged with others or with banks, while new islands are created as submerged bars begin to be exposed, meaning the change in net number and size of islands is relatively insensitive to flow change. He concluded that the various flow regimes will not materially affect island count or cumulative island area above the 0.25 ha threshold.
- [372] In respect of maintenance of braiding intensity, Dr Hick's evidence indicated this is driven by the frequency and duration of high flow events, which reflects the River's ability to keep in check the stabilizing effect of encroaching woody vegetation. Drawing on Henderson's¹⁹² evidence he concludes that there is no significant difference among the proposed flow regimes, the Allocation Plan and the Existing regime in ability to maintain a dynamic braided river.
- [373] Ms Schlessemann,¹⁹³ an ornithologist, told us that birds do not select for islands *per se* but rather they select for suitable breeding habitat, one of the main factors being bare gravel substrate. The mere presence of other islands at lower flows is irrelevant if birds are already nesting on islands, which then become isolated or connected to mainland at lower flows.

¹⁸⁸ Evidence of Ms Robertson for Meridian at [14]

¹⁸⁹ Meridian

¹⁹⁰ Niwa 2015. *Relationship between island size and river flow, Lower Waitaki River, for DOC*

¹⁹¹ Evidence of M Hicks (NIWA) for Meridian at [25]

¹⁹² Evidence of Henderson for Meridian

¹⁹³ LWRMS - Her experience includes study of conservation genetics of black-fronted terns and visiting 30 different black-fronted tern colonies on the braided rivers of the S.I, catching over 300 individuals in the field.

- [374] Ms Pickerill,¹⁹⁴ an ornithologist, told us that October and November are the months with the most braided river bird breeding attempts. In her rebuttal of Dr Hick's evidence, she states that in non-dry years it is changes in flow around the existing bird breeding islands and not the number of islands *per se* that is important. Better information on the number and proportion of existing bird-breeding islands that retain good flow levels around them as minimum flows drop would allow a more realistic assessment of the risks to braided river birds from mammalian predation.
- [375] Ms Schlesselmann, said that the main reason for black-fronted terns and black-billed gulls being classified respectively, as endangered and critically endangered is recruitment failure leading to declining population. The main threat to these two bird species plus the 'declining' white-fronted tern are predation and/or disturbance by predators and loss and/or degradation of breeding habitat, both these threats being linked to river flow. A breeding attempt may in fact be exposed to extra predation pressure throughout the entire process, while a single bird predator accessing islands at low flows for even one night can be disastrous for breeding birds.¹⁹⁵ Based on counts of black-fronted terns on South Island rivers, she suggested that if flows were reduced significantly on higher-flow rivers (such as the Waitaki), the rate of population decline of braided river birds would accelerate.¹⁹⁶
- [376] Dr Sanders¹⁹⁷ told us that flow variability is much more important than minimum flows, which indicates an average within-day variation of 80 m³/s, and much greater at times. Such wide variations can affect birds, which often nest only a few centimetres above water level, where they are vulnerable to sudden increases in water level. The bulk of the variable flows occur above 200 m³/s.
- [377] Dr Sanders considered that minimum flows would result in "*unacceptable*" risks to birds if they caused the River to be held for prolonged periods (weeks) at flows below 120m³/s during September-December, the bird breeding season, more than one in every ten years, due to the high value of the River for birds and increased mammalian predator risk at reduced low flows.
- [378] It appears to us that, if the low flow years occur more frequently or for longer duration than the hydrological records predict, the scale and severity of effects may be greater than anticipated.
- [379] Mr Henderson¹⁹⁸ provided a table that assesses the time downstream of Bells Pond that flow would be less than 105 m³/s, based on the 82 years of 1931-2013 modelled flows discussed earlier¹⁹⁹. We

¹⁹⁴ LWRMS - Currently researching factors affecting the presence of mammalian predators on braided river islands

¹⁹⁵ O'Donnell *et al.* 2010

¹⁹⁶ Evidence of A Schlesselmann for LWRMS at [36]

¹⁹⁷ Dr Sanders, Ryder Consulting, Response to Questions of Hearing Commissioners on Expert Evidence & Council Reports, June 2015, para 87

¹⁹⁸ Evidence of Henderson for Meridian at [91]

¹⁹⁹ Noting that the table does not incorporate the effect of the requirement to cease all irrigation abstraction after 10 days of flows less than 150 m³/s

understand the numbers of days for the Caucus option would be similar to those shown here for the NT/MEL option.

Below 105	Existing	WAP 2005	PC3	NT/MEL	F&G
Weeks below 105 in 82 years	115	0	118	114	0
Weeks per year below 105	1.4	0	1.4	1.4	0
Max weeks below 105	10	0	10	10	0
Max run length weeks below 105	6	0	9	9	0
Average run length weeks below 105	1.0	0	1.2	1.2	0

- [380] There was general agreement among the experts that flows do appear to deter predators but little quantitative evidence was available on the relationship between predation events and low flows in the Lower Waitaki River.
- [381] Other influences include short-term flow variability and floods, vegetation encroachment, and avian predation. Many birds inhabit the River upstream of abstractions, which serves to reduce potential differences among scenarios.
- [382] The periods of sustained dry are predicted to occur on average every 15 years. Implementation of regular flushing flows would assist in maintaining levels of clear substrate, channels and to some degree vegetation clearance. Under the proposed Rule 2 as recommended in the Officer's Reply, cessation of takes will provide some degree of mitigation from prolonged low flow effects.

Wetlands

- [383] Hydrologically there is an interconnectedness of the river, aquifers and groundwater and riparian wetlands. In an effort to quantify this connectivity in the lower Waitaki two flow trials were conducted in 2001 and 2005. This showed that groundwater levels within 50m of the River respond almost immediately to flow changes. In the case of the monthly minimum flow regime consented for NBHP (effectively a 256 m³/s flow reduction with the river at minimum flows most of the time), this was conservatively estimated to be up to 0.5m level drop for the reach between Waitaki Dam and Stonewall/Black Point.
- [384] Dr Ryder refers to a low flow trial²⁰⁰ in June-July 2008 in which water levels were measured in six wetlands, covering a good geomorphic spread and range of wetland types. This trial reduced river flow from 320 to 170 m³/s for five weeks. From these measurements water level changes of 0 – 16cm per 100 m³/s flow reduction were calculated.²⁰¹ The greatest water level change (0.16m) was

²⁰⁰ NBHP Environment Court, Evidence of I Fraser, para [267]

²⁰¹ Section 32 Report, Appendix 4, Dr Ryder, Ecological Considerations report, pg 52, Table 8,

observed in the Fettercairn II wetland which is located at the confluence of the Hakataramea and Waitaki Rivers.

- [385] Given the Fettercairn Wetland had the greatest water level change, he applied the 16cm per 100 m³/s flow reduction calculation to assess the effect of flow reduction using Rule 2, Table 3A in Plan Change 3 as notified. Dr Ryder²⁰² calculates that the greatest reduction in wetland water level would be 7.2cm occurring during spring/ summer (October to March), if minimum flows reduced from the 150 m³/s in the Allocation Plan to the monthly minimum flow regimes proposed under the notified Plan Change.
- [386] In further analysis²⁰³ using measured data from December 2007-January 2008,²⁰⁴ a smaller water level reduction of <4.8cm was calculated for the Fettercairn Wetland (wetland 39²⁰⁵) under the notified Plan Change scenario. We consider that subsequent amendments to the proposed minimum flows proposed during the hearing would not significantly alter the calculated effect. We also note that the Fettercairn Wetland, which is the most sensitive to flow reduction, is 8km downstream of the Waitaki Dam before any significant abstractions (aside from NBHP if it is ever implemented) occur. The most affected terrace wetlands, of which there are about 130ha, are downstream of Black Point.
- [387] Dr Ryder concludes that the change in river water level as a result of a flow reduction from 150 to 102 m³/s (i.e. all 'existing consents' being implemented) will be a maximum of 8.9 cm, downstream of Black Point. However, this reduction is mitigated by proposed Rule 2(4)(b) (as notified) which would require existing consents to cease taking for two days if river flows are continuously below 150 m³/s for 10 days. In that case, Dr Ryder applied the level reduction rule from wetland 39 (<10cm per 100m³/s), indicating a 'worst-case' reduction in water level of <4.8cm for wetlands downstream of approximately the 55km point (Black Point).
- [388] Dr Ryder considers that wetland vegetation and bird communities are unlikely to be affected by a maximum of 4.8cm reduction in water level over a 10-day period other than a temporary reduction in bird feeding habitat. However, Dr Ryder comments that water level reductions could potentially impact on fish populations by reducing the amount of habitat available. Further, in extreme cases prolonged reductions in water level may result in reductions in dissolved oxygen levels and increased temperatures, which stress fish and ultimately lead to mortality.

²⁰² Section 32 report, Appendix 4, Dr Ryder, Ecological Considerations Report, pg 53

²⁰³ The Ryder s32 Memorandum was produced in response to Ngāi Tahu concern about the effect on wetlands of the revised minimum flows for pre 2006 consents in the proposed plan change. The memorandum was based on existing information on six identified terrace wetlands levels located upstream of Black Point. The water sources for these wetlands were mostly from springs and small streams, while the six wetlands were located away from direct surface water and overland influences of the river.

²⁰⁴ Section 32 report, Appendix 4b, Lower Waitaki Rivers and Riparian Wetlands Memorandum, pg 17

²⁰⁵ Ibid

- [389] Dr Ryder referenced data from the HDI hearing²⁰⁶ that, while not an exact reflection of what is proposed under this plan change, indicates that the predicted low flow days in any one year remains relatively low – an average of 11 low flow days per year for PC3 compared with about 5 days for the existing flows.
- [390] Dr Ryder further comments that a drop in wetland levels is likely to be mitigated to some degree by the ‘dampening’ and or attenuation of flow movement between the river braids and the wetlands.
- [391] Dr Ryder notes that based on historic data the likelihood of the proposed 10 day Rule 2(4)(b) (now Rule 2(4)(bb)(ii)) ever being applied due to a situation of a 10 day flow below 150 m³/s requiring existing users to cease water take would be an uncommon occurrence.
- [392] Ms D Robertson,²⁰⁷ agreed with the conclusions of the Ryder Consulting report and memorandum appended to the Section 32 Report. In reaching this conclusion, she relied on the temporary and intermittent occurrence of low flows. She had reached a similar conclusion in evidence for the HDI hearing where she concluded that water level in wetlands with direct hydrological links to the River would be on average the same, regardless of which minimum flow was in place, on all but 28 days of the year. On those 28 days the water levels would be at the lowest under both minimum flow regimes, but up to 9cm higher at the 150 m³/s flow.
- [393] Ms Robertson considered that plant species present are species that tolerate fluctuating water levels, are dominated by willows and those species are expected to remain under the slightly lower water levels. While an increase in frequency and duration of dry conditions may stress plants at their hydrological limit, it is not expected to cause a change to wetland composition. She further comments that the occasional nature and limited duration of these low flow events in the context of the wide annual range of flows, including flood flows, would be limited and temporary of nature. She noted that the vegetation and fauna in the wetlands are currently exposed to a wide range of hydrological conditions and does not expect the subtle differences in the PC3, NT/MEL, F&G and WAP 2005 flow regimes to affect overall condition, composition and functioning of wetlands.
- [394] Ms Robertson opined that all four modelled flow regimes would continue to provide for the life-supporting capacity of the wetlands, including terrestrial and aquatic vegetation, macroinvertebrates, fish and birds (including passage of fish), and provide for the values that contribute to moderately or highly significant wetlands.
- [395] Finally, Dr Ryder referred to HDI hearing evidence²⁰⁸ that shows the half-hourly machine

²⁰⁶ Section 32 Report, Appendix 4b, Dr Ryder, Lower Waitaki Rivers Rivers and Riparian Wetlands Memorandum, Fig19 based on evidence of Henderson from the HDI hearing

²⁰⁷ Evidence of Ms D Robertson for Meridian

²⁰⁸ HDI Hearing, Evidence of I Jowett, Figure 8

discharges from the Waitaki Power Station (1996-2000). This indicates the average fluctuation in flows within a day was about 80m³/s, and over a 30 day period the average fluctuation is about 300m³/s. Dr Ryder suggested that these daily fluctuations will have a greater influence on downstream ecology than the changes in the monthly minimum flows proposed under any of the flow regimes proposed in this hearing.

- [396] The ability to determine accurately the ecological effect of sustained low flows or low flows during dry periods is compounded by factors such as the seasonal timing, strength of hydrological river connections, inflows from irrigation, and tributaries' daily fluctuations.
- [397] Riparian wetlands connected hydrologically or by surface water to the River are most directly subject to the effects of reduced flows in the River below Black Point. The Lower Waitaki River is subject to large fluctuations on a daily basis due to the mechanics of the hydro system, and the ecosystem of wetlands connected hydrologically to the River have been subject to artificial changes in water levels over time.
- [398] The daily fluctuations in flow generated by operation of the Waitaki Power Station will, to some degree, mask the small differences between the various flow scenarios under consideration.
- [399] We agree that the effects on wetlands are substantially mitigated by the fact that it is only wetlands downstream of Black Point which would be subjected to the highest of the calculated reductions in water level. The calculations, for wetlands downstream of Black Point indicate a 'worst-case' reduction in water level of <4.8cm or at most 8.9cm.
- [400] This change sounds small, but we are sensitive to the fact that many wetlands are extensive shallow systems in which a small loss of water level may result in widespread areal impacts because of the marginal area being 'dried out'. We heard no evidence on the bathymetry of the wetlands but are reassured by the limited extent of affected wetlands below Black Point.

Preliminary Conclusions on Water Quality and Ecology

- [401] There has been a common theme throughout this discussion of low probability but potentially more than minor adverse effects of low flows around the proposed 100 m³/s minimum during very dry seasons of a recurrence interval exceeding about once every 15 years. We acknowledge that these conditions may occur due to low inflows into Waitaki Dam, although those inflows are in turn affected by flow releases from upstream dams.
- [402] Among the water quality and ecology effects summarised above, we are most concerned about the risks to braided river birds of prolonged low flows during the September-December breeding season. We base this assessment on the very high value of the River for birds, and the possibility of increased mammalian predation risk at reduced flows. We considered that the effects on braided

river birds and other ecological values of the flow regimes are not minor nor neutral.

[403] From the standpoint of precaution and despite the uncertainties, we were concerned by Dr Sanders statement²⁰⁹ that minimum flow limits would result in unacceptable risk to birds, if they caused the river to be held for prolonged periods (weeks) at flow below 120 m³/s, during September to December, more than once every ten years.

[404] Our preliminary conclusion was that there are concomitant effects of prolonged low flows which are:

- Reduced water quality potentially making swimming and the riverbed's appearance less appealing during lengthy dry periods;
- A potential reduction in the densities and productivity of lower Waitaki benthic invertebrates
- Consequential effects on salmonid populations, and to a lesser extent native fish
- Potential drying of marginal areas of wetlands between Black Point and the coast.

[405] Dr Ryder²¹⁰ stated that it is likely that the risk of adverse ecological effects occurring increases as the duration of a low flow event increases. He anticipated that if low flow events of more than 30-60 days in duration were to occur every 1-3 years, the effects on fish populations in particular would become more than minor. The result would be a significant overall reduction in the size of the population, due to reduced habitat and recruitment. Unfortunately, he did not define what he considered to be a "*Low Flow Event*".

[406] We acknowledge that the proposed implementation of a regular flushing flow would mitigate the duration of the effects identified above. However, we were concerned that these mitigations may not go far enough in mitigating effects on braided river birds. We heard that it is the minimum flow along with flow variability from hydro generation at low flows which pose some risk to braided river birds. The issue of flow variability is discussed further under Theme 6 shortly.

Minute 11

[407] Our concern of the extended low flows on the water quality and ecology were such that we took the unusual course of issuing a Minute seeking assistance on this important issue, namely Minute 11.

[408] We sought further assistance as to the likely frequency and duration of those flows in the lower river (<100, <120, <150, m³/s), in order to assess and potentially mitigate the risks mentioned by Dr Ryder, Dr Sanders and other experts.

²⁰⁹ Dr Sanders, response to questions, para [93]

²¹⁰ Responses to panel questions, paras [67-68]

[409] We sought comment and analysis about the likely occurrence and duration of the nominated low flows, and whether any risks should be mitigated by plan provisions within scope.

[410] We received responses on this issue from:

- (a) Meridian – submissions from counsel Mr Christensen and further evidence from Mr Henderson;
- (b) Ngāi Tahu – submissions from counsel Mr Winchester;
- (c) the Lower Waitaki River Management Society – submissions from counsel Mr Reeve;
- (d) the Regional Council – we received submissions from counsel Mr Maw and additional evidence from the following:
 - Ms Jeanine Topélen;
 - Dr Greg Ryder;
 - Dr Mark Sanders; and
 - Mr Nick Regnault.

[411] We are grateful for the responses received, which we discuss briefly under the following headings:

- (a) hydrology;
- (b) ecology; and
- (c) braided river birds.

Further evidence on hydrology

[412] We received additional information provided by Mr Henderson on behalf of Meridian Energy. This consisted of frequency and duration flows below 100m³/s, 120m²/s and 150m³/s under two scenarios (Existing and MT/MRL) and for two lengths of record (July 1931-June 2013 and July 1970-June 2013).

[413] Mr Henderson presented flow distribution curves for both sets of data immediately below the Waitaki Dam. This showed that flows are always greater than 150m³/s as modelled by SPECTRA for the various scenarios.

[414] Mr Henderson pointed out²¹¹ that major takes occur and are planned at Black Point to a total of approximately 54m³/s and Bells Pond to a total of approximately 15m³/s, making a total of 69m³/s out of approximately 75m³/s of the existing and consented abstraction below the Waitaki Dam. Thus the full impact of consents is felt below Bells Pond.

[415] From the flow distribution curves, Mr Henderson was able to calculate the percentage of time and weeks per year for which each scenario is below each of the three flow threshold at Bells Pond,

²¹¹ Statement dated 31 March 2016 at [9]

which he set out in his Table 1, reproduced here:

Percentage of time and weeks per year for which each scenario is below each of the three flow thresholds at Bell's Pond, using all data (Part A, 1931 – 2013), and recent data (Part B, 1979 - 2013)

Part A	Bell's Pond Existing		Bell's Pond NT/MEL		Differences	
1931 – 2013	% of time	Weeks/ year	% of time	Weeks/ year	% of time	Weeks/ year
<150 cumecs	8.4%	4.4	9.8%	5.1	-1.4%	- 0.7
<120 cumecs	3.9%	2.0	4.2%	2.2	- 0.3%	- 0.1
<100 cumecs	2.3%	1.2	Min 104	0	+ 2.3%	+1.2
Part B	Bell's Pond Existing		Bell's Pond NT/MEL		Differences	
1979 – 2013	% of time	Weeks/ year	% of time	Weeks/ year	% of time	Weeks/ year
<150 cumecs	6.6%	3.4	7.8%	4.1	- 1.2%	- 0.7
<120 cumecs	2.2%	1.1	2.4%	1.2	- 0.2%	- 0.1
<100 cumecs	1.2%	0.6	Min 104	0	+1.2%	+0.6

[416] As our main concern was the bird nesting season, Mr Henderson presented flow distributions for 1 September to 31 December for the two sets of data. From the 1931-2013 data he detailed in Table 2 the percentage of time and weeks per season below each of the three threshold flows in the bird nesting season for the Existing scenario and the MT/MEL. We reproduce Table 2 here.

Percentage of time and weeks per bird nesting season for which each scenario is below each of three flow thresholds at Bell's Pond, using all data (1931 – 2013)

	Bell's Pond Existing		Bell's Pond NT/MEL		Differences	
	% of time	Weeks/ season	% of time	Weeks/ season	% of time	Weeks/ season
<150 cumecs	13.2%	2.4	16.0%	2.9	- 2.8%	- 0.5
<120 cumecs	7.8%	1.4	8.4%	1.5	- 0.6%	- 0.1
<100 cumecs	4.5%	0.8	Never	0	+ 4.5%	+0.8

[417] As the run length, or duration, of low flow periods was considered to be important by the ecological scientists, Mr Henderson assessed from the data the maximum run length for each year of the historical record for the two scenarios.

- [418] For the all data period, under the existing scenario, a low flow period of three weeks of under 120m³/s would be expected every ten years on average. The equivalent length of low flow under the MT/MEL scenario would be four weeks once every ten years on average.
- [419] Using only data from the recent data period under the Existing scenario, a low flow period of 1.6 weeks would be expected every ten years on average. The equivalent length of low flow under the MT/MEL scenario would be 1.9 weeks once every ten years on average.
- [420] Mr Henderson, and Ms Topélen whose evidence we discuss shortly, both considered the flow data and the modelling results to be conservative, as they assume all water consented or allocable for abstraction is taken when available. They also considered that the data sets used are the best means currently available to assess and illustrate likely effects on flows in the Lower Waitaki River.
- [421] Ms Topélen detailed in her statement of evidence dated 15 April 2016 how she carried out additional analyses to address our concerns raised around the frequency and duration of flows in the Lower Waitaki River. The record used to model the residual flow scenarios was from 1 January 1979 to 29 April 2015, but only complete hydrological years were included in the analysis.
- [422] A summary of the results of her analysis are presented in Table 1 of her evidence.²¹² We reproduce her Table 1 on the following page:

²¹² 15 April 2016 at [4]

Frequency and duration of events when residual flow is below 150m³/s throughout the year, 100m³/s throughout the year and 120m³/s during the period September to December.

	Residual flow above Black Point					Residual flow below all abstractions				
Flows below 150m ³ /s any time of year	Current	WAP	PC3 caucus option (no reserved water taken)	PC3 caucus option (all reserved water taken)	PC3 caucus option (all reserved water taken) (Wainono exempt from cessation flow)	Current	WAP	PC3 caucus option (no reserved water taken)	PC3 caucus option (all reserved water taken)	PC3 caucus option (all reserved water taken) (Wainono exempt from cessation flow)
Annual average number of days flow <150m ³ /s	7.2	0	0	12.8	12.8	30.5	42.9	33.9	42.8	42.8
Annual average number of events flow <150m ³ /s	2.3	0	0	4.4	4.4	10.2	13.3	10.9	13.3	13.3
Average duration of events flow <150m ³ /s	2.7	0	0	3.2	3.2	2.9	3.1	3.0	3.1	3.1
Average max duration of events <150m ³ /s	4.7	0	0	6.0	6.0	8.8	11.6	10.2	11.6	11.6
Absolute max duration of events <150m ³ /s	21	0	0	28	28	32	62	46	62	62
Flows below 100m ³ /s any time of year	Residual flow above Black Point					Residual flow below all abstractions				
Annual average number of days flow <100m ³ /s	0	0	0	0	0	2.6	0	0	7.3	7.3
Annual average number of events flow <100m ³ /s	0	0	0	0	0	0.8	0	0	2.1	2.1
Average duration of events flow <100m ³ /s	0	0	0	0	0	2.3	0	0	3.5	3.5
Average max duration of events <100m ³ /s	0	0	0	0	0	3.4	0	0	6.1	6.1
Absolute max duration of events <100m ³ /s	0	0	0	0	0	18	0	0	24	24
Flows below 120m ³ /s any time of year	Residual flow above Black Point					Residual flow below all abstractions				
Annual average number of days flow <120m ³ /s	0	0	0	0	0	4.6	0	5.0	6.9	6.9
Annual average number of events flow <100m ³ /s	0	0	0	0	0	2.1	0	2.2	2.8	2.8

Flows below 120m ³ /s any time of year	Residual flow above Black Point					Residual flow below all abstractions				
Average duration of events flow <120m ³ /s	0	0	0	0	0	2.3	0	2.2	2.4	2.4
Average max duration of events <120m ³ /s	0	0	0	0	0	3.5	0	3.4	3.8	3.8
Absolute max duration of events <120m ³ /s	0	0	0	0	0	16	0	16	16	16

NB The flow record at Kurow starts 1 January 1979 and data up to 29 April 2015 was included. The record has a gap from 23 March 1983 to 5 November 1984 -> hydrological years 1978, 1982, 1983, 1984 and 2014 were excluded when analysis was done for whole year. When analysis was done for the period September to December 1978 1983 and 1984 were excluded.

[423] The statistics for the different scenarios listed in Table 1 are grouped for events when flows are below 150m³/s and below 100m³/s any time during the year, and events when flows are below 120m³/s during September-December (bird nesting season). From her analysis Ms Topélen concluded:²¹³

- (a) residual flows above Black Point are unlikely to go below 100m³/s under any of the flow scenarios;
- (b) residual flows above Black Point are unlikely to go below 120m³/s during the bird nesting season under any of the flow scenarios;
- (c) residual flows below all abstractions are likely to go below 100m³/s under current minimum flow provisions on average once a year and for two consecutive days;
- (d) residual flows below all abstractions are likely to go below 100m³/s under PC3 (all reserve water consented to be taken) minimum flow provisions on average two times a year and for four consecutive days;
- (e) residual flows below all abstractions are unlikely to go below 100m³/s with WAP and PC3 (no reserved water consented to be taken) minimum flows conditions in place; and
- (f) residual flows are likely to go below 120m³/s during bird nesting season under all scenarios except WAP. This will, on average, occur two to three times per season and for two consecutive days. The maxim duration of 16 consecutive days relates to October 1982.

[424] Although the outputs of the models presented by Mr Henderson and Ms Topélen cannot be compared directly, as approaches and assumptions differ, the relative differences in results of their analysis and observed trends are similar. This gives us confidence that the hydrological effects of the caucus scenario (set out in Appendix B of this Recommendation) would not reach the thresholds described by Dr Ryder and Dr Sanders referred to above and discussed further below.

Further evidence on ecological effects

[425] In response to Minute 11, Dr Ryder presented a further statement of evidence.²¹⁴ He considered the potential effects of the low flow events on water quality and aquatic biota by breaking down the issues into five broad groups, namely:

- (a) the changes in in-stream habitat due to the difference in flow;
- (b) the frequency of the occurrence of the low flow event;
- (c) the duration of the low flow event;
- (d) the timing of the low flow event (eg what season they may occur in); and
- (e) the length of river affected by the reduction in flow.

²¹³ At [11]

²¹⁴ Statement of evidence of Greg Ryder, 15 April 2016

[426] After a detailed analysis of the five groups, he concluded that:²¹⁵

- (a) the effects on aquatic biota and water quality of low flow events in the Lower Waitaki River under PC3 would be minor or less than minor, and the river eco-system would remain as it is now;
- (b) low flow events that would occur are on average likely to be short in duration (a few days) and occur only a few times each year. Such events already occur now and the River continues to support healthy and abundant invertebrate and fish communities, and reasonably good water quality;
- (c) mitigation (over and above that already built into PC3) to avoid or reduce the effects of these events on river ecology and water quality is unnecessary; and
- (d) these assessments relate largely to the River well downstream of Black Point. Upstream of Black Point these low flow excursions are even less likely to occur.

Further evidence on effects on river birds

[427] In response to Minute 11, Dr Sanders presented a further statement of evidence.²¹⁶ He considered the potential effects of low flow events on river birds, with a focus on periods of relatively low flow during the breeding season (1 September – 31 December).

[428] Dr Sanders relied on the hydrological analysis and data provided by Ms Topélen rather than the analysis provided by Mr Henderson. This was because the analysis of Mr Henderson relies on the SPECTRA model, which produces outputs in terms of “weeks”, whereas he considered the daily data provided by Ms Topélen to be more relevant.

[429] We note that Dr Sanders prefaced his analysis by the general comment that the term “*low flow*” is a relative term. He emphasised that all of the flow scenarios under consideration involve larger flows by comparison to other braided rivers in New Zealand.

[430] He emphasised the fact that all consented abstractions occur, or would occur, downstream of Black Point, with only 6m³/s consented upstream of this location.²¹⁷ Dr Sanders pointed out that flows lower than 100m³/s and 120m³/s do not occur between the Waitaki Dam and Black Point, apart from during periods of naturally low inflows. These happen under all the modelled scenarios and incidentally would have occurred more frequently under the natural flow regime.

[431] According to Dr Sanders,²¹⁸ a large proportion (more than 50% of some species) of the key bird species of concern, such as black-fronted tern and banded dotterels, occupy the River upstream of

²¹⁵ Statement 15 April 2015 at [34]-[36]

²¹⁶ Statement of evidence of Mark Sanders, 15 April 2016

²¹⁷ Statement of evidence 15 April 2016

²¹⁸ Statement of evidence 15 April at [10]

Black Point. They are therefore unaffected by abstraction downstream of Black Point.

- [432] As for flows below Black Point, Dr Sanders presented Table 1²¹⁹ extracted from summary data provided by Ms Top  len, which shows the frequency and duration of flows less than 120m³/s below Black Point during the bird breeding season for three modelled scenarios. We reproduce his Table 1 below:

Frequency and duration of flows less than 120m³/s, below Black Point, during the bird breeding season (September to December), as three modelled PC3 scenarios, the modelled operative plan (the ‘WAP’), and the actual flows recorded from 1979 to 2015. Source: ECan.

Flows below 120 during the period September to December	Residual flow – current	Residual flow – WAP (town supply excluded from release)	Residual flow – PC3 caucus option (no reserved water taken)	Residual flow – PC3 caucus option (all reserved water taken)	Residual flow – PC3 caucus option (all reserved water taken (Wainono exempt from cessation flow))
Annual average number of days flow <120m ³ /s	4.6	0	5.0	6.9	6.9
Annual average number of events flow <120m ³ /s	2.1	0	2.2	2.8	2.8
Average duration of events flow <120m ³ /s	2.3	0	2.2	2.4	2.4
Average max duration of events <120m ³ /s	3.5	0	3.4	3.8	3.8
Absolute max duration of events <120m ³ /s	16 ^a	0	16	16	16

^a 16 days in Spring, 1992. All other events were less than 8 days.

- [433] Dr Sanders carried out a detailed analysis of how birds would probably be affected during the longest duration of flows less than 120m³/s of 16 days in the spring of 1992.
- [434] Dr Sanders considered that differences between existing flow regimes and the modelled scenarios

²¹⁹ Statement of evidence 16 April 2016 at 4

to be negligible.²²⁰ He concluded:²²¹

- (a) the likelihood of adverse or positive effects on river birds would be indistinguishable between the various PC3 scenarios and the current consented environment;
- (b) mitigation with regard to birds would not be necessary as a result of PC3. No methods could be implemented by way of flow-related rules in PC3 that might benefit birds or mitigate any putative risk from low flows.

Findings on water quality and ecology

[435] Our concerns raised in Minute 11 have been addressed. The frequency and duration of low flow levels have been addressed by Ms Topélen and Mr Henderson. Drs Ryder and Sanders have assessed the ecological effects of these low flow events.

[436] We accept that if the operation of the Waitaki Dam continues as modelled by Mr Henderson and Ms Topélen the effects are as outlined by Drs Ryder and Sanders. We do have some residual concerns that Meridian may at times reduce their flow releases by up to 30m³/s as indicated by Mr Page. However, we are reassured that at the time of consent renewal, adverse effects arising from changes to the current flow release regime from Waitaki Dam, that are not part of the environmental flow and level regime set by the Allocation Plan, could be addressed by consent conditions under Rule 15A. Alternatively, such matters would be addressed during any consent review.

[437] Dr Ryder concluded that the effects associated with the flows that can be anticipated under the PC3 flow regime are not materially different from what currently occurs. Dr Sanders is of a similar opinion. Neither of them consider any mitigation is needed through manipulation of flows.

[438] We note that mitigation measures of the type described by the Lower Waitaki River Management Society in their response can be considered in the replacement of consents for hydro-electricity consents. Rule 15A provides for consideration of:

Any mitigation measures to address adverse effects (including effects on Ngāi Tahu culture, traditions, customary uses and relationships with land and water), except for changes or alterations to environmental flow level regimes, minimum lake levels, annual allocation to activities, or the provisions of flows into the Lower Waitaki River, set by this Plan.

Tāngata whenua cultural values

[439] Ms Mandy Waaka-Home gave evidence on behalf of the three kaitiaki Rūnanga of Arowhenua, Waihao and Moeraki. Ms Waaka-Home²²² submitted that the current mauri of Waitaki River is in

²²⁰ Statement of evidence 16 April at [12]

²²¹ Statement of evidence 16 April at [18]-[19]

²²² Evidence of Ms Waaka-Home, Ngā Rūnanga and Te Rūnanga o Ngāi Tahu, at [4.3]

an 'OK state'. However, she believed it could be a lot better and said aspects of importance included the River's 'cleansing' capabilities, and the capacity to nourish mahinga kai and provide flows that maintain the riverbed braiding features. She also said that minimising the cross mixing of the Waitaki waters with those of other catchments was an important issue.

[440] Ms Waaka-Home²²³ considered that the minimum flow and allocation regime of the Allocation Plan goes some way toward protecting the mauri of the river, but due to pre 2006 consents sitting outside of the Allocation Plan's provisions it was unable to be fully implemented. This meant that the Existing Flow Regime has a lower minimum flow than the Allocation Plan and of the proposed alternative regimes. A further consequence is that the requirement of the Allocation Plan to provide flushing flows is currently not required as part of Meridian's existing consent. Therefore, the current operating regime does not adequately provide for Ngāi Tahu values of mauri and mahinga kai.

[441] Ms Waaka-Home²²⁴ was supportive of the Plan Change flow regime, however her concerns were that it did not provide a suitable level of reliability of supply for mahinga kai purposes.

[442] Mr Winchester, Counsel for Ngāi Tahu, submitted²²⁵ that the Ngāi Tahu / Meridian flow regime provides the most appropriate policies and rules for achieving Objective 1 of the Allocation Plan. He stated that this would be achieved through reliability of the mahinga kai allocation and where that allocation remains in-stream, the Waitaki River will be enhanced and the mauri improved.

[443] Ms Waaka-Home²²⁶ stated it was for this reason that Ngāi Tahu engaged with Meridian to identify a flow regime that would achieve their mahinga kai objectives, whilst meeting the reliability needs of the pre-plan and post-plan consent holders, while at the same time ensuring that the mauri of the Lower Waitaki River was not impacted upon. Ms Waaka-Home²²⁷ said the Ngāi Tahu / Meridian proposed regime will provide better levels of protection and enable tāngata whenua to uphold their tautiaki (kaitiaki) responsibilities.

[444] Ms Waaka-Home²²⁸ observed that kai and cultural materials can be enhanced by artificial intervention where water is available to assist such purposes. She considered that the benefits would include:

- Wetlands being reinstated;
- Species being reintroduced or relocated between sites within a catchment;
- Species could be farmed (aquaculture);

²²³ Evidence of Ms Waaka-Home, Ngā Rūnanga and Te Rūnanga o Ngāi Tahu, at [4.5]

²²⁴ bid at [4.6]

²²⁵ Legal submissions of Mr Winchester, Te Rūnanga o Ngāi Tahu, at [9.4]

²²⁶ Evidence of Ms Waaka-Home at [4.8]

²²⁷ Ibid at [5.4]

²²⁸ Ibid at [8.1]

- Substitute habitats being created using the many artificial waterways in the Waitaki.

[445] Ms Ann Te Maiharoa-Dodds²²⁹, gave evidence that during her lifetime she had ‘witnessed a profound reduction in the mauri of the Waitaki’, and recalled as a child the bountiful harvest and range of mahinga kai that the Waitaki provided the whānau on their visits to the River. Ms Te Maiharoa-Dodds said it may be unrealistic to seek to restore the Waitaki to its pristine natural state, but it is a mistake to take its present condition and the current bird life as a base to work from. She stated that Waitaha supports the continuation of the existing Allocation Plan as a contract between the River, generators and irrigators, and does not support further reduction in the minimum flow.

Finding

[446] In assessing the effects of the proposed regimes on the mauri of the Lower Waitaki River we acknowledge that the best people to tell us about that are the cultural guardians or kaitiaki of the Waitaki River and catchment. While there may be some difference in view between Ngāi Tahu Whānui submitters and Ms Anne Te Maiharoa-Dodds for Waitaha, it was evident that the attachment culturally and spiritually of mana whenua to the ‘Waitaki’ is profound.

[447] The duty of kaitiakitanga is evident in the commitment to find a solution that best serves the cultural and spiritual needs of the manawhenua, whilst also providing for other users and interests in the Waitaki River.

[448] We note that the Allocation Plan is unable to be fully implemented due to pre-plan consents that sit outside the Allocation Plan’s minimum flow provisions.

[449] An implemented Allocation Plan has the higher low flows, while the 7DMALFs for the PC3, NT/MEL and F&G scenarios are all similar, and the Existing and Consented scenarios are at the lower end of low flows. The reserved mahinga kai water would remain in-stream until applications have been approved for consumptive use of this water. Even then, whether the reserved water is used in riparian wetlands or in locations with an hydraulic connection to the River, there are potential benefits for river flows, ecological values and habitats.

[450] The Ngāi Tahu / Meridian proposed flow regime best meets the spiritual and cultural needs of tāngata whenua. However, we understand the Caucus Option to be similar to the NT/MEL scenario and would similarly meet the needs of tāngata whenua.

Economic impacts

[451] We heard evidence and submissions to the effect that if Plan Change 3 was made operative, and if Meridian’s consents and WIC’s consents were reviewed to align with the Plan Change, then there

²²⁹ Evidence of Ms Anne Te Maiharoa-Dodds, LWRMS & Waitaha Taiwhenua o Waitaki Trust Board Inc, at [11]

would be significant economic benefits. The Council's section 32 report addressed this issue, and attached as Appendix 5 an evaluation by Harris Consulting²³⁰ (**the Harris report**).

[452] The Council provided data²³¹ on the number of days of restricted irrigation over the irrigation season (September-April) under the following three scenarios:

- (a) current – the situation that irrigators currently experience as per the existing Allocation Plan prior to renewal of any existing consents;
- (b) renewal as per the Allocation Plan – the situation that irrigators would experience under the current Allocation Plan after the renewal of their consents; and
- (c) renewal as per Plan Change 3 as notified – the situation for irrigators after renewal once the plan change has been implemented.

[453] The impact of the three scenarios on the reliability of supply for existing irrigators (with consent issued pre July 2006), new irrigators (with consent issued post July 2006) and future irrigators (consents still to be issued) was modelled. The reliabilities assessed were:

- (a) current 100% reliability for existing irrigators;
- (b) current plan post-renewal reliability for existing and future irrigators;
- (c) proposed plan post-renewal reliability for existing and future irrigators; and
- (d) current plan 95% reliability for new irrigators.²³²

[454] We note that the data provided by the Council is represented as annual totals, and is represented by restriction in supply rather than restrictions in supply at times of demand. As such, as the authors noted, it would tend to over-estimate the impact of the restrictions, because there would be some periods of restriction when there is sufficient soil moisture for plant growth to continue.

[455] The Harris report concluded that:

- (a) the reliability as a result of the Plan Change as notified would have significant economic benefits (compared to the operative Allocation Plan provisions);
- (b) the Plan Change would maintain the reliability of supply and the economic benefits derived by the existing consent holders under their current consent conditions;
- (c) if the relevant existing consents were renewed under the provisions of the proposed Plan Change, there would likely be approximately \$40m additional GPD annually, and 400FTEs (full time employment equivalents), compared to if those consents were replaced under the Allocation Plan in its current form; and
- (d) the Plan Change should reduce application and processing costs for consent applications

²³⁰ Section 32 Report, Appendix 5, Economic impacts of changes to flow, February 2014

²³¹ This data covered the period 1980-2013

²³² Section 32 Report, Appendix 5, Harris Consulting, Economic impacts of changes to flow at 5 and 6

although it is not possible to accurately quantify such costs.

[456] Mr Davis, an agricultural consultant called by WIC, also carried out a comparative economic assessment as to the financial cost to the farmers of the WIC's irrigated area, due to the increased irrigation restrictions if the Fish & Game proposal was to be adopted.

[457] Mr Davis²³³ calculated that under the Fish & Game proposal the number of days with irrigation restrictions would increase 16 days at a cost to WIC farmers of some \$32m per annum. Mr Scarf's data²³⁴ suggested a much lower number of days would be under restriction, and by inference a much lower financial impact.

[458] Dr Victoria Kahui, an economist called by LWRMS, evaluated the Harris report and noted²³⁵

The data show restriction in supply (rather than restriction in supply at times of demand), which will tend to over-estimate the impact of restrictions.

[459] Dr Kahui also noted the absence of adequate explanation for certain data, and lack of any information on a number of significant economic assumptions, namely:

- (a) there was no information on whether there has been a correct use of economic multipliers;
- (b) the extent to which data may differ if existing irrigators move into the same or higher priority band upon renewal;
- (c) whether discount rates should apply and what price variables for dairy, arable, sheep and beef may apply; and
- (d) that the Harris report had only looked at the economic benefits of higher reliability, not the benefits of additional irrigation.²³⁶

[460] Modelled economic impact assessments should be treated as indicative only to the extent they rely on the quantum of the inputs and cannot accurately take into account the variable responses of human beings.

[461] One matter we do accept, as did the authors of the Harris report, is that being able to satisfy irrigation demand has a direct relationship with economic benefit. Accordingly, we asked the authors of the Harris report to re-run the economic model provided as part of the s32 report to incorporate demand, as set out by Mr McTavish.²³⁷ This comparison sets the "book ends" for the economic benefits associated with Plan Change 3 as notified. Their report concluded that the gain from moving from the current Allocation Plan to Plan Change 3 is \$6.9m per annum in operating profit for the supply reliability analysis, and \$2.8m per annum in operating profit using McTavish

²³³ Evidence of J Davis for WIC at [33]-[35]

²³⁴ Evidence of F Scarf for Fish & Game, and rebuttal at pg 2

²³⁵ Evidence of V Kahui for LWRMS at [16]

²³⁶ Ibid at [96]

²³⁷ Evidence of D MacTavish for LWRMS, Table 3

demand reliability figures.

Finding

- [462] We accept that there are some misgivings that could be directed to the methodology adopted in the Harris report. However, we are conscious that if, as a consequence of higher reliability of supply, more water is available for irrigation, then there must be some economic benefit. On the quantum of that benefit, all we can conclude is that it would likely be between \$2.8m per annum to \$6.9m per annum. We are therefore satisfied that implementing Plan Change 3 would have considerable economic benefit.

Reliability of supply for existing and future water users

- [463] Evidence from several submitters²³⁸ questioned the high reliability (security) of supply that proposed Plan Change 3 will provide for irrigators. The matters for consideration here are (a) whether including the proposed *Reasonable Use test for Irrigation* schedule (which affects future irrigation consent reliabilities) is justified, and (b) whether the differential reliabilities for existing and post-plan consents should be perpetuated. The need for and benefits of a high level of reliability – which we understand is currently close to 100% - were vigorously stated by irrigator witnesses.
- [464] Mr Scarf calculated that the application of the proposed *Reasonable Use test for Irrigation* schedule, which would apply to the renewal of irrigation consents, would allocate sufficient water to meet a 650mm per year water deficit, whereas the deficit occurring once every ten years is about 510mm. In comparison, Mr MacTavish's calculated annual average water deficit is 390mm.
- [465] Mr Scarf concluded that the proposed peak rate of take of 80 m³/s could reasonably irrigate 160,000ha and that the proposed 1300Mm³ total annual allocation below the Waitaki Dam in Table 5 (see our Theme 6) might be able to service 200,000ha.²³⁹ The blanket application of the Reasonable Use test by Mr Scarf was contested by WIC,²⁴⁰ who pointed out that at consent renewal the test would be applied to the detailed environmental conditions applying within each scheme. They also point out that the 'system capacity' (hence peak allocation rate) needs to allow for water losses (inefficiency). We accept both these assertions.
- [466] Mr Stewart carried out a similar analysis²⁴¹ comparing reliability under the Allocation Plan, the proposed plan change and the Ngāi Tahu/Meridian scenarios. He concluded that the number of days of restricted take for reserved water and post-plan consents would be 0 to 57 days (average 20 days per season), 0 to 23 (average 5.5 days), and for the NT/MEL scenario 0 to 23 days (average

²³⁸ Evidence of Mr Scarf for Fish & Game; Mr Stewart for Ngāi Tahu, Mr MacTavish for LWRMS

²³⁹ Evidence of Mr Scarf, pages 5-6

²⁴⁰ Evidence of Mr Johnston, Mr McIndoe, Rebuttal evidence for WIC and others

²⁴¹ Based on 1979-2014 daily flow data at Kurow (not 1931-)

0.4 days). We note that actual reliability in all cases may actually be higher because the analyses assume all allocated water is released regardless of actual demand.

- [467] Mr MacTavish compared four scenarios²⁴² with various assumptions about actual irrigation demand factored in. His assessment of irrigation demand was used in a re-assessment of the economics, discussed shortly.
- [468] Mr Scarf also analysed the comparative reliability of the Allocation Plan, the proposed plan change and a Fish & Game alternative.²⁴³ However, for the methodological reasons raised in rebuttal by Ms Johnston and Mr McIndoe, we have been unable to give much weight to his analysis, except to say the relative reliabilities will be as Mr Scarf has identified.
- [469] Rule 2(4)(b) in Plan Change 3 (as notified) proposed a cessation of takes for 48-hours whenever flows are below 150 m³/s for ten consecutive days, and the Caucus Option retains this. The Council's s42A Reply provides an assessment of how often this lower flow release would apply. It concludes that, based on the synthesised flow series since 1926, calculated natural inflows into Lake Waitaki are less than 150m³/s almost every year. However, most low flow events occur outside of the irrigation season. Within the irrigation season, flows mostly drop below 150m³/s in only April and September. Low flows often occur in a single event that extends over a long time period. In 22 of the 87 years of record the flow drops below 150m³/s for ten consecutive days or more during the irrigation season. The longest duration of low flow was 48 days in 1976 (September-October). So we would expect this cease take rule to apply approximately one summer in every four.
- [470] Several submitters queried why Plan Change 3 perpetuates the differential reliabilities of existing (pre-plan) consents versus post-plan consents, which have a lower reliability of supply. This differentiation is reflected in the Allocation Plan, the Zone Committee recommendation has not suggested it be changed, and we have not received any substantive evidence that would warrant making that change.

Finding

- [471] Because we understand the *Reasonable Use Test for Irrigation* schedule is to be inserted into the Allocation Plan to bring a consistent approach to irrigation water allocation throughout Canterbury - and we note the schedule will tighten up the Allocation Plan's 4-years-in-5 to a 9-years-in-10 allocation standard – we are not persuaded that any changes to that schedule are necessary. The current allocations to irrigation consents will be able to be reviewed downwards when those consents expire, through application of the Reasonable Use test.
- [472] There has been no persuasive argument advanced for changing the relative reliabilities of supply

²⁴² Evidence of Mr MacTavish for LWRMS, Table 5

²⁴³ Evidence of Mr Scarf, pgs 8-10 and rebuttal evidence, also based on 1979-2014 flow data

for existing (pre-plan) and post-plan consents, so no change is recommended, beyond the changes resulting from application of the Reasonable Use test when water take consents are renewed.

- [473] Having accepted inclusion of the tighter *Reasonable Use Test for Irrigation* schedule, our recommendation needs to focus primarily on whether the environmental effects of the proposed allocations are acceptable at the lower minimum flows proposed, because the location and nature of future uses of water made available under the proposed allocation limits is inherently uncertain.

Natural character and landscape

- [474] We have already referred to the evidence of Ms Pfluger, who described to us the natural character and visual amenity aspects of the Lower Waitaki River.
- [475] As for natural character, she was of the view that the River would continue to retain those natural elements and natural patterns that are evident today, and that the differences in proposed flow regimes would not lead to any modifications.²⁴⁴
- [476] She concluded that from a visual amenity point of view, the difference in flows under the proposed regimes is unlikely to be detectable, as they would lead to very subtle visual differences.²⁴⁵

Finding

- [477] We are satisfied that in natural character, landscape and visual terms, we would not expect any of the flow regimes to materially change the overall appearance or character of the River.

Recreation

- [478] Mr Henderson provided modelled analyses of the amount of time that flows would fall below flow thresholds of 130, 150 and 200 m³/s during the summer (October-March) and winter (June-August) salmon angling seasons.²⁴⁶ Below Bell's Pond flows are lower for longer under the Plan Change and the NT/MEL flow scenario described earlier than for the F&G and WAP scenarios. The range of flow scenarios set out in Mr Henderson's evidence was considered by Mr Greenaway, an independent consultant on recreation, called by Meridian.
- [479] Mr Greenaway, whose evidence was uncontested, carried out an extensive assessment of the main recreational activities against the different flow scenarios and formed the opinion that they presented little difference in value for recreation in the Lower Waitaki River. He was of the view that the activity most influenced by the frequency and duration of lower flows is salmon fishing. He concluded that the differences in angling outcomes amongst the different flow regimes are

²⁴⁴ Evidence of Ms Y Pfluger for Meridian at [46]

²⁴⁵ Evidence of Ms Y Pfluger for Meridian at [50]

²⁴⁶ Evidence of R Henderson for Meridian at pages 32-36

likely to be marginal.²⁴⁷

[480] In response to our questions about minimum flows, Dr Ryder noted²⁴⁸

...‘unacceptable’ effects to salmon angling habitat may occur when flow drops below 150 cumecs for prolonged periods of time during the salmon angling season. However, under PC3 and other proposed flow regimes, median flows remain elevated and near optimum for angling. If the median flow during the angling season were to drop below 150 cumecs, this could potentially result in a significant adverse effect on salmon angling, but this is unlikely to occur under PC3.

Finding

[481] We are satisfied that effects on recreation would be limited for any of the flow scenarios.

The most appropriate scenario

[482] We are now required to consider what the most appropriate flow scenario is to meet the objectives of the Allocation Plan. It should be clear from our discussion relating to the effects of the respective scenarios that, overall, we consider there to be marginal differences as to the effects on the environment. The Fish & Game scenario would be the most ecologically beneficial, followed by the Caucus Option marginally behind.

Finding

[483] Having considered the evidence and submissions we conclude that the most appropriate option is the Caucus Option. Our reasons for so doing include that the Caucus Option would:

- (a) provide for the maintenance of the integrity of the mauri of the River (Objective 1(a) of the Allocation Plan);
- (b) better sustain existing in-stream mahinga kai and associated cultural values and support targeted mahinga kai enhancement programmes (Objective 1(a) of the Allocation Plan);
- (c) adequately sustain, safeguard and maintain the existing quality of the River (Objectives 1(b), (c), and (d) of the Allocation Plan);
- (d) better provide for agriculture and horticultural activities (Objective 2(c) of Allocation Plan);
- (e) better provide for consistency and certainty for hydro-electricity generation (Objective 2(d) of Allocation Plan);
- (f) in allocating water, recognise beneficial and adverse effects on the environment (Objective 3 of Allocation Plan);
- (g) facilitate a high level of efficiency in the use of allocated water (Objective 4 of Allocation Plan);

²⁴⁷ Evidence of R Greenaway for Meridian at [75]

²⁴⁸ Response to Questions of Hearing Commissioners on Expert Evidence & Council Reports, June 2015, para 72

- (h) provide for practical and fair sharing of allocated water during times of low water availability (Objective 5 of Allocation Plan); and
- (i) provide immediate, higher reliability for abstractive activities due to Meridian's undertaking to provide for Rule 7 abstraction flows for pre-plan consents.

[484] We are comforted in our conclusion by the fact that it reflects the evaluations made under s32 and s32AA by the Council officers. We accordingly recommend the Caucus Option.

[485] Before leaving this theme, we address some additional relevant or related matters below.

Implementation considerations

[486] Having weighed up the effects of the flow regimes proposed, we turn to the implementation process. The ability to implement our preferred flow regime, and the timing of that, are fundamental to achieving the outcomes evaluated above.

[487] There are implementation challenges with the LWRMS option in that Meridian cannot be compelled to release more water for the purposes of downstream abstraction, as to do so may be challenged as a derogation of grant, discussed earlier. Nor are we persuaded to further relax the minimum water levels in Lake Pūkaki to accommodate this option, as that goes well beyond the scope of the changes sought for the Lake.

[488] Fish & Game stated that their alternative regime better provided for their interests, is achievable for Meridian, and provides an acceptable level of reliability for irrigators. WIC and Hunter Downs Development Company oppose this option on the grounds of reduced reliability for irrigators. We are not persuaded that the reduction in reliability is sufficient to discard this option; however the likely delay in implementation, given Meridian's opposition to this option, means we have not recommended it.

[489] For the Meridian/ Ngāi Tahu option, the s42A Report points out that there is an element of derogation of grant in the changes sought in Table 6, however if a variation of consent is accepted by Meridian – whose consent would be derogated, albeit in a very minor way – we consider that overcomes that objection.

[490] The latter option has been superseded in the caucus process by the Caucus Option. Meridian and WIC are both in support of the Caucus Option. Hunter Downs Irrigation Scheme was not a party to the Caucus Option, but the Council understands they support it. This leaves six consent holders who are not represented by WIC and have not made submissions. The sum of their concern is less than 0.5m³/s. Derogation could arise in this case but we agree that the volume is not enough to frustrate the implementation of the Plan Change.

[491] We noted as an implementation issue that proposed Tables 3A-C as suggested to us in the hearing

and the Caucus Option were complex and confusing. We sought an explanation of the application of the tables²⁴⁹ and suggested they could be simplified into a single Table 3A.²⁵⁰ The recommended alternative has been included in the marked up change in Appendix B.

- [492] In relation to Rule 7, which was revised as proposed in Minute 8, we have subsequently noted that delivering on the intent of the Reply version, the flow releases specified in new clauses (a) and (b) should be subject to the maximum additional flows of Table 6. We set out the amended rule which we now recommend as follows, including changes to the Minute 8 wording accepted by Council:

In addition to the minimum flows and flushing flows of the environmental flow regime for the Lower Waitaki River, the consent-holder for the Waitaki Dam shall provide flows in the Lower Waitaki River sufficient to meet the actual requirements of activities identified in Policy 46(ii) (at their points of taking), where those actual requirements will not be met by a flow of 150m³/s¹, such that:

- [a] Whenever the calculated natural inflows above the Waitaki Dam for the rolling average of the preceding 7 day period exceed 190m³/s, the additional flows shall be up to a maximum of the flows in Table 6

or

- [b] Whenever the calculated natural inflows above the Waitaki Dam for the rolling average of the preceding 7 day period are between 150m³/s and 190m³/s, the additional flow to be provided shall be equivalent to the difference between 150m³/s and the calculated natural inflow, up to a maximum of the flows in Table 6;

Table 6: Provision of flows into the Lower Waitaki River

Month	Flows to be provided above the minimum flow of 150m ³ /s (in m ³ /s)
October to March	40
April and September	22
May and August	12
June and July	8

or

- [c] Whenever the calculated natural inflows above the Waitaki Dam for the rolling average of the preceding 7 day period are equal to or less than 150m³/s, no additional flows shall be required to be provided.

¹ Water level recording site number 71104, and based on an average over a 24 hour period

Theme 2 – allocation of water for enhancement of mahinga kai and the augmentation of Wainono Lagoon

- [493] Plan Change 3 (as notified) proposes to reserve water for the purpose of enhancing mahinga kai and for augmenting flows into Wainono Lagoon to the north. The allocation limit for the Lower Waitaki River (refer Table 3, line xvii(c)) remains unchanged at 90 m³/s. Plan Change 3 (as notified) proposed an addition to Policy 12 and its explanation, and amendments to Rule 2.

- [494] The proposed new clause notified to be inserted in Policy 12 between clauses (f) and (g)says:

²⁴⁹ Council response of 28 August 2015 to Minute 8

²⁵⁰ Memorandum of Mr Regnault for the Council dated 12 November 2015

Considering opportunities to enhance mahinga kai, provided that Te Rūnanga o Arowhenua, Te Rūnanga o Waihao, Te Rūnanga o Moeraki have been consulted:

[495] Rule 2 as notified proposed an amendment to Table 3 line xvii(c) to read:

An allocation limit of 79m³/s, not counting any flows abstracted from the lower Waitaki River above Black Point that are returned to the lower Waitaki River above Black Point; plus an allocation of 10m³/s reserved for enhancing mahinga kai and Te Rūnanga o Arowhenua, Te Rūnanga o Waihao, and Te Rūnanga o Moeraki have been consulted; plus an allocation of 1m³/s reserved for augmentation flows for Wainono Lagoon.

[496] The proposed changes would reserve 11 m³/s of the 90 m³/s allocation (specified in Rule 2, Table 3 (notified as Table 3B)) for mahinga kai and the enhancement of Wainono Lagoon. It proposes an allocation of 10m³/s for mahinga kai projects, either within or outside the catchment, that align with Ngāi Tahu values and an allocation of 1m³/s for augmentation of flows into Wainono Lagoon.

[497] However before considering the Council's proposal as set out in the Appendices of the Section 32 Assessment of Proposed Plan Change 3, we address two legal issues raised as a consequence of submissions:

- (a) is mahinga kai a reservation to a class of people; and
- (b) is a rule that requires the consent of Ngā Rūnanga valid?

Is mahinga kai a reservation to a class of people?

[498] During the hearing a question of law was raised as to whether the proposed mahinga kai provisions in Plan Change 3 (as notified) were legally permissible. The case of ***Hauraki Marae Trust Board v Waikato Regional Council***²⁵¹ established that it is not legally permissible for an allocation of a resource to be set aside for the exclusive use by a particular person or group of people. In that case, the Hauraki Māori Trust Board (**Trust Board**) sought a particular percentage of coastal space within a marine farming zone to be set aside exclusively for use by the Trust Board.

[499] The High Court held that this type of allocation (ie one where it was exclusively for use by a particular person or group of persons) was not possible under the RMA. The Court's reasoning recognised that s5 of the RMA is to promote sustainable management of natural and physical resources, but that the extended definition of "sustainable management" in subsection (2) does not provide for management to specific groups, but rather to enable people and communities generally.²⁵²

[500] Mr Winchester, counsel for Ngāi Tahu argued that, in relation to mahinga kai, the focus of methods and Plan Change 3 was not to provide an allocation of water to a particular group for mahinga kai, but rather to provide an allocation of water that can be used for the purpose of enhancing mahinga

²⁵¹ High Court Auckland, CIV-2003-485-999, 4 March 2004

²⁵² ***Hauraki*** at [53] to [54]

kai. It is, said Mr Winchester, not an allocation that is “personal” to Ngāi Tahu, and it would still be the Council’s job to assess resource consent applications for use of that allocation to ensure that they were appropriate. In other words, anyone would be able to seek a resource consent to use the allocation (not solely Ngāi Tahu), so long as the proposed activity was for enhancing mahinga kai. The RMA provides for the allocation of water under a Regional Plan.²⁵³

[501] He further argued that, the RMA expressly provides that a rule may, (inter alia) allocate a resource among competing types of activities.²⁵⁴ Thus, while the RMA does not authorise a regional council to include provisions which would give preference or priority to tāngata whenua or other specified parties,²⁵⁵ under the RMA anyone may apply for a resource consent irrespective of ownership or relationship (whether cultural or otherwise).²⁵⁶

[502] We agree with counsel. While the RMA is prescriptive to a point, it is also designed to afford individual regional councils the ability to adequately address the needs of the region in formulating a regional plan. To achieve this it is necessary for a regional council to consider certain principles in Part 2 of the RMA and to comply with the requirements of formulating or amending a regional plan. We find that the enhancement of mahinga kai is an activity, and that where appropriate that activity may be provided for in a regional plan.

[503] We agree that *Hauraki* confirms that, although an allocation cannot be exclusively for a class of people, as this would be akin to granting a consent and/or effectively providing for transfer of the management of the resource, there is nothing to prevent provisions that give effect specifically to cultural aspects of Part 2 (ie to sections 6(e) and 7(a) of the RMA):²⁵⁷

...While I have held that the RMA does not permit the preferential allocation of space in the coastal marine area to tangāta whenua, there is nothing to prevent the inclusion of provisions in the proposed plan which would give effect to ss6(e) and 7(a) in particular.

Is a rule that requires the consent of Ngā Rūnanga valid?

[504] The proposed change to allocate water for projects that would enhance mahinga kai purposes would require a discretionary consent. It would also require, as proposed by the Plan Change as notified, Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki (Ngā Rūnanga) to be consulted.

[505] Mr Winchester submitted that the provision for Ngā Rūnanga engagement needed to be stronger, on the basis that Ngāi Tahu are best placed to assess whether a proposed activity does in fact

²⁵³ Section 30(1)(fa)(i) and (iv) of the RMA

²⁵⁴ Section 30(4)(e) of the RMA

²⁵⁵ See *Hauraki Māori Trust Board* at [57]

²⁵⁶ Section 88 of the RMA; *Hauraki Māori Trust Board* at [58]

²⁵⁷ *Hauraki* at [70]

enhance mahinga kai.

- [506] He sought, on behalf of Ngā Rūnanga, to add a new condition that requires written approval from Ngā Rūnanga for an application to abstract water from the mahinga kai allocation to be considered a discretionary activity. If written approval was not obtained, then the application would be assessed as a non-complying activity.
- [507] Mr Maw, for the Council, submitted that the amendment sought was beyond the scope of submissions, and would be illegal.
- [508] As for scope, we agree with Mr Maw that there is no scope to amend the provision to provide written approval from Ngā Rūnanga. Ngā Rūnanga's submission did not address this amendment to the notified Policy 12(g), or raise any issue in relation to consultation with Rūnanga. No other submission sought that anything more than consultation occurs in relation to the use of the mahinga kai allocation. We find that there is a real risk that persons directly or potentially affected by changes proposed have been denied an opportunity to respond. We find that this change proposed by Ngā Rūnanga does not fall within the scope of an original submission, PC3 as notified, or somewhere in between.
- [509] We also agree that to make such a provision would not be authorised by the RMA. As Mr Maw pointed out, the starting point for considering this question is s77D of the RMA. Section 77D authorises a local authority to make a rule specifying the activities for which the consent authority:
- (a) requires public notification;
 - (b) precludes public notification; and
 - (c) precludes limited notification.
- [510] Likewise, the notification provisions as they relate to resource consent applications (sections 95-95G) provide that a consent authority must give, or is precluded from giving, public or limited notification where a rule requires it.
- [511] We agree that allowing a rule that requires limited notification to specific persons would fall outside of any of the three scenarios contemplated by s77D and would inappropriately fetter the discretion of a consent authority to determine whether notification is required in accordance with section 95-95G. Mr Maw referred us to *Minister of Defence v Clutha District Council*²⁵⁸ where Judge Skelton, as he then was, was asked to determine an appeal by consent. In a Minute to the Parties which formed the decision, Judge Skelton held that a rule that makes an activity which fails to comply with noise standards, a controlled activity, provided written approval of affected parties is received, is an unauthorised mixture of the provisions of s94 (now section 95D) and is contrary to s76 of the RMA. The Act does not authorise a rule classifying an activity according to whether

²⁵⁸ CA 49/98 at [2]

potentially affected persons agree or disagree.

[512] In that case His Honour went on to state:

So far as notification is concerned, section 94(1)(b) authorises non notification of a controlled activity if the Plan expressly permits this without the need to obtain written approval of affected persons. The proposed rule seems to require the opposite. I am also concerned about the provision in the rule that says that applications will generally not be notified. I know of no statutory authority for such a provision.

[513] It is our view that the same principles apply to rules providing for discretionary activities. It would be an unauthorised mixture of s95B (limited notification of consent applications), s77D (rules specifying activities for which consent applications must be notified or are precluded from being notified) and s68 (Regional rules), to create a rule that classified an activity dependant on whether the written approval of Ngā Rūnanga had been obtained.

[514] To reserve such a discretion to a third party such as Ngā Rūnanga would effectively abdicate the Council's discretion as part of the resource consent process.

[515] Notwithstanding, for the reasons given later in this section, we would decline such a condition or rule on its merits as being inappropriate.

What does mahinga kai enhancement include?

[516] The allocation for mahinga kai effectively prioritises 10m³/s of the 90m³/s allocation in Rule 2. There was widespread support in submissions for the concept of reserving water; however several submitters request that the purpose be widened to include general environmental restoration. The wording of the Plan Change as notified does not preclude environmental enhancement where this aligns with enhancement of mahinga kai. It was also made clear by Ngāi Tahu witnesses that if all or part of this allocation was left in the River, it must be to enhance the environment, not for extraction further downstream. We concur, as discussed shortly.

[517] PC3 (as notified) proposed an amendment to Policy 12 and to the Policy 12 Explanation by inserting new clauses as follows;

Policy 12(g)

considering opportunities to enhance mahinga kai, provided that Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki have been consulted.

Explanation

Water has been allocated for projects that will enhance mahinga kai and therefore the values held by Ngāi Rūnanga, both within and beyond the Waitaki catchment. One of the projects is augmentation flows of the Wainono Lagoon.

[518] Subsequently the s42A Report (April 2015) recommended amending the definition of mahinga kai

in response to submissions from Mr Highton (3516) and LWRMS (3206) who were concerned that reserved mahinga kai water might be used outside of the Waitaki catchment, might result in the spread of didymo to other catchments and or be used for commercial activity. The recommended amendment read as:

Food and other resources, gathered in accordance with customary traditions, ~~the gathering of these resources and the areas that they are sourced from.~~ “

[519] The Hearing Panel issued (May 2015) a request to the s42A Report authors for written responses on two issues arising from evidence on the use of mahinga kai water.

[520] One of the issues raised was that noting mahinga kai water could be used for consumptive uses, what was the Councils position on this? The s42A Report authors response (5 June, 2015) was that the Council is neutral on the use of mahinga kai reserved water for consumptive uses, stating that PC3 anticipates the water would be available for a range of activities that enhance mahinga kai activities.

[521] The other issue raised was could or should the definition of mahinga kai or an alternative construction in PC3 be adopted to address a perceived limitation to the most beneficial use of the water, eg; to include use for environmental enhancement?

[522] Mr Maw, counsel for the Council, responded noting that the Allocation Plan provides a definition of mahinga kai, as follows;

Food and other resources, the gathering of those resources and the areas that they are sourced from,

[523] Mr Maw stated that Plan Change 3 (as notified) did not seek amendment of this definition, and that changing the definition was outside the scope of PC3, but that alterations to the allocation provisions proposed in PC3 were within scope of PC3. We agree.

[524] Mr Regnault, s42A officer, responded by saying that the reserved mahinga kai water is intended to enhance mahinga kai including those with a commercial aspect. He observed that historically mahinga kai had elements of commercial activity through being a tradeable commodity. However, he considered that it was important that the reserved water not be taken up for activities for which water has already been allocated in the Allocation Plan and as a consequence recommended in the s42A Report an amendment to the notified wording of proposed Policy 12(g) and the explanation to that policy as follows;

Policy 12

...

(g) Considering opportunities to enhance mahinga kai that has been gathered in accordance with customary traditions, provided that Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki have been consulted;

Proposed Explanation

Water has been allocated for projects that will enhance mahinga kai and therefore enhance the values held by Ngā Rūnanga, both within and beyond the Waitaki catchment. One of the projects is augmentation flows for the Wainono Lagoon.

- [525] That proposed amendment to Policy 12(g) and its Explanation has the effect of adding a qualifier to the use of water allocated for enhancement of mahinga kai to those circumstances where that resource has been gathered in accordance with customary traditions'.
- [526] We heard from Ngāi Tahu on this matter at the hearing day held at Waihao Marae. Mr David Higgins, for Ngāi Tahu, explained the traditional means and importance of mahinga kai in practice and places where this occurred.
- [527] Ms Mandy Waaka-Home in her evidence for Ngāi Tahu stated that it is inappropriate to restrict the meaning of mahinga kai, further that there have been many changes to land use that have in turn resulted in habitat and species loss, as well as laws that dictate 'where, when and how' what is fished. Ms Waaka-Home told us whānau practices have adapted over time and many artificial drains, canals and storage ponds have become substitute mahinga kai places. She emphasised that freshwater is crucial to the maintenance of mahinga kai and cultural materials can be enhanced by artificial intervention.
- [528] Ms Waaka-Home told us that wetlands can be reinstated or created, species reintroduced or relocated, species farmed and substitute habitats can be created using artificial waterways. The importance of cultural context was stressed, eg; a farmer may recreate a wetland, yet without situating the development within the appropriate cultural context the wetland may never be a mahinga kai.
- [529] Counsel for Ngāi Tahu, Mr Winchester, stated that Ngāi Tahu are seeking to:
- (a) provide a means for a relationship between the river and the Rūnanga by providing for enhancement of mahinga kai values, in a contemporary setting;
 - (b) allow water from the mahinga kai allocation to stay 'in-stream' when it is necessary in exercising kaitiakitanga to reduce the impact of lower minimum flows in the Waitaki River; and
 - (c) provide opportunities to use some or all of that mahinga kai allocation to enhance mahinga kai values elsewhere in the catchment when appropriate.
- [530] Mr Winchester referred²⁵⁹ to the Ngāi Tahu/Meridian regime which set a 100% reliability for the 10m³/s mahinga kai allocation. He stated that the mahinga kai allocation may remain 'in stream' to benefit the lower Waitaki catchment, that after water is spilled from the Waitaki Dam, it could remain in stream (thereby enhancing mahinga kai), rather than being able to be extracted for "any other activity".

²⁵⁹ Legal submissions at [7.6]

[531] Mr Winchester stated:²⁶⁰

... to impose such a limitation within the Plan on how the mahinga kai allocation can or should be used is neither necessary nor reasonable. It would not only devalue the allocation, but would also artificially constrain Ngāi Tahu in the way that their relationship with the River is expressed, and in the way that they exercise their kaitiaki role over the River and its associated resources.

[532] Ms Murchison, an expert planning witness for Ngāi Tahu, in response to a question from the Panel, provided proposed wording to amend the as notified Policy 12(g) as follows:

Enable enhancement of mahinga kai and associated values for ngā rūnanga through the provision of fresh water for that purpose.

[533] In the s42A Officers Reply (July 2015), Mr Regnault reiterated that he was concerned to see that reserved water is not inadvertently taken up by an activity that is already catered for in the Allocation Plan. His concern was based on the broad definition of mahinga kai in the Allocation Plan. Activities that meet the definition of mahinga kai without promoting the values held by Ngā Rūnanga are not supported by Council. He suggested this can be addressed by careful drafting of the policy directive, and inclusion of a separate annual allocation for the enhancement of mahinga kai. Combined, these provisions should provide sufficient direction in consent applications to ensure the reserved water is used for its intended purpose, without unnecessarily or inappropriately restricting the practice of mahinga kai.

[534] Consequently, in light of the evidence from Ms Waaka-Home (7.1-7.2) and the submissions of Mr Winchester, counsel for Ngāi Tahu, Mr Regnault proposed in the s42A Reply redrafting the as notified Policy 12(g) to read:

~~...Considering opportunities to enhance~~ enhancing mahinga kai and the associated values held by Ngāi Tahu,
provided that Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki have been consulted.

[535] Mr Regnault states that 'the advantage of including reference to 'associated values' is that it clarifies the purpose of the enhancement; that is to say, the purpose of enhancing mahinga kai is not the outcome of itself, but extends to the value of that mahinga kai for Ngā Rūnanga'.

[536] He concluded that the proposed rewording safeguards the water for its intended purpose, and addresses in part the desire of Ngāi Tahu for more involvement in the use to which this water is put by reinforcing the need for applicants to consult those that hold and practice the values associated with and derived from mahinga kai. We concur. Policy 12(g) as recommended in the Officer's Reply enables reserved water to be allocated for mahinga kai purposes. As it is written the establishment of this allocation block requires consultation with Ngā Rūnanga which was clearly not the intent. Rather, the intent was that consultation should occur at the time an application to abstract water for mahinga kai purposes is made. We accordingly recommend an

²⁶⁰ Ibid at [7.11]

amendment to the proposed Policy 12(g) to rectify this, and in addition have substituted ‘tāngata whenua values’ for ‘Ngāi Tahu values’ for consistency. We recommend Policy 12(g) (now Policy 12(ga)) as follows:

To establish an allocation to each of the objectives listed in Objective 2 by

- (ga) reserving water within the lower Waitaki for the enhancement of māhinga kai, and the associated tāngata whenua values, and for the purpose of the augmentation of flows into Wainono Lagoon.

[537] As a consequence, we recommend an addition to Policy 11 be made to suggest the need for consultation with tāngata whenua at the time the application to abstract is made. We recommend the following addition:

In considering effects when allocating to activities under the provisions of this Plan:

- a. Tāngata whenua values are those held by Ngāi Tahu, and with respect to allocations to māhinga kai activities within the lower Waitaki River, those held by Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki_
- b. ...

Reliability for māhinga kai water

[538] Ngāi Tahu requested that the reliability for māhinga kai water should be equivalent to new or post-plan irrigators. The relief sought was to ‘insert’ māhinga kai water between pre-plan and post-plan consents (refer Tables 3B and 3C of their submission, 3437), so that post-plan consents have a higher minimum flow (and therefore less reliability) than reserved water. This has reliability impacts on post-plan consents already granted, and would require the minimum flow conditions on those consents to be reviewed.

[539] In the second week of the hearing the Hearings Panel directed Meridian, Ngāi Tahu, WIC and Council to caucus on alternative flow regime options to address concerns relating to the minimum flow conditions on consents being linked to māhinga kai water. The concerns to be addressed related to the level of certainty required for resource consent conditions, administrative efficiencies and the possibility of derogation.

[540] Mr Regnault in his s42A Reply (July 2015) stated that the Meridian example consent condition in paragraph [50] of Mr Page’s evidence- in-chief addressed the link of minimum flows of consents with the uptake of reserved water and the timing of annual reviews to update minimum flows.

[541] The Meridian proposed condition identifies cessation of flows being set at the lesser of:

- (a) a cessation flow if no māhinga kai abstraction is consented, or if consented that consent is not given effect to; or
- (b) a cessation flow if Canterbury Regional Council advises that māhinga kai abstraction is consented and that consent is given effect to.

- [542] The outcome was a flow regime whereby the reserved water remains in the River until such time as it is taken and cessation flows for all consents are linked to the uptake of reserved water. This has the effect of lifting the proposed cessation flow for pre-plan consents above the notified PC3 (which in turn lifts the cessation flows for post-plan consents also).
- [543] Under the Meridian proposal, when the reserved water is consented for removal from the River it will have the same minimum flow, and reliability as other post-plan water during irrigation season.

Finding

- [544] We are persuaded that the practice of mahinga kai evolves and adapts over time to meet changes in the environment and legal access to resources and adoption of new technology including commercial activity. To restrict such evolution and adaption of mahinga kai practice would be unreasonable.
- [545] We adopt the recommended wording of the s42A Reply, with the exception that the last part – “provided that Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki have been consulted” - is unnecessary as proposed Rule 2²⁶¹, Table 3B requires Ngāi Tahu to be consulted in respect of the allocation process.
- [546] An applicant for resource consent to enhance mahinga kai would need to demonstrate that mahinga kai was indeed going to be enhanced. Further, they would need to reflect accurately the ‘values held by tāngata whenua’ in any proposal. In all likelihood, the applicants are likely to be one of or involve one or more of the Papatipu Rūnanga or involve a third party lodging a joint application. The consent authority would need to assess the veracity of any application on its merits of mahinga kai enhancement.
- [547] The reliability of reserved water being available to support mahinga kai enhancement is best provided for by the Caucus Option. This provides for reserved water to remain in the River until it is taken for mahinga kai enhancement. Reliability is further strengthened by the minimum flows for all consents being linked to any uptake of reserved water.
- [548] The reserved water, when consented, will have the same cessation flow and at least the same reliability as post-plan water during the irrigation season.

Reliability for augmentation water for the Wainono Lagoon

- [549] PC3 reserves 1m³/s of water and an annual volume of 32Mm³ for the purposes of augmenting flows into Wainono Lagoon. Caucusing of the flow regime considered the relative priority of

²⁶¹ Subject to change should the MEL/ Ngāi Tahu option prevail and the three Tables 3A, 3B or 3C are incorporated

abstraction, including abstraction for augmentation water.

- [550] Following the caucusing, water for the purpose of augmentation flows was given the cessation flow that will be set in accordance with Rows 8 and 9 of Table 3A. Rows 4 and 5 do not apply because the consent application for augmentation will not be a consent listed in Schedule 3. Rows 6 and 7 do not apply because these are for water reserved for enhancement of mahinga kai.
- [551] This means that under the recommended provisions of PC3 augmentation water has the same priority as consents that have been granted since the Allocation Plan was made operative in 2006.
- [552] During the course of our deliberations we became concerned about the reliability of the augmentation water reserved for the Wainono Lagoon. Given that the purpose of the augmentation flow is environmental enhancement, we questioned whether placing it in the lowest reliability band was what was intended. Accordingly, we asked the Council and any party who wishes to respond to confirm whether it was intended to place the augmentation water in the lowest priority band.
- [553] Several parties have responded to the issue of reliability of the augmentation water reserved for Wainono Lagoon referred to in Minute 11. In summary, parties consider as follows:
- (a) Ngāi Tahu note that abstraction for augmentation flows would “piggy-back” on Hunter Downs or an alternative scheme. Ngāi Tahu consider that giving augmentation water priority over existing takes has the potential to make it inconsistent with Policy 46 of the Allocation Plan;
 - (b) Meridian noted that it may be impractical for augmentation flows to be more reliable than what the existing Hunter Downs infrastructure can deliver;
 - (c) WIC agreed with Meridian’s response and stated that priority afforded to augmentation flow should be consistent with that which applies to the Hunter Downs Irrigation Scheme and other post-plan consents;
 - (d) Hunter Downs request provisions that support an average continuous flow of 1m³/s throughout the year. They request several drafting amendments to Rule 2(4) in Table 3A;
 - (e) the Lower Waitaki River Management Society favour amendments to Table 3A to clarify unambiguously that the Wainono Augmentation Flow Allocation has priority over all other takes;
 - (f) the Regional Council, through its officers, consider that the reliability of augmentation water should be 100%, even in periods when calculated natural inflows are low. The Council considered that reliability for augmentation water would best be guaranteed by exempting it from a cessation flow. This could be achieved by amending Rule 2(2) as follows (deletions shown in ~~strike through~~ and insertions shown in double underlining):

2 Water taken for essential drinking, stock drinking-water, maintaining fire-fighting capacity, ~~and for the processing and storage of perishable produce,~~ and for augmentation flows of Wainono Lagoon, is

exempt from cessation flow, minimum flow and level and flow sharing regimes.

- [554] Since caucusing took place, the hearing of the proposed Plan Change 3 (South Coastal Canterbury Streams) to the LWRP has begun. This plan change addresses, among other matters, the reliability needed for augmentation of Wainono Lagoon.
- [555] Mr Norton, the Council's technical lead for the South Coastal Canterbury Streams Plan Change, has provided a statement of evidence on the necessary reliability of augmentation.²⁶²
- [556] Mr Norton considered that the potential benefits of augmentation would be considerable, and that to realise those benefits, a continuous uninterrupted flow of water is necessary. He concluded that the relative environmental benefits for the Wainono Lagoon outweigh the benefits of retaining 1m³/s in the Waitaki River, under all flow conditions.
- [557] Ms Topélen's evidence addresses the duration and frequency of prolonged low flow below the Waitaki Dam. She concluded that providing water reserved for Wainono Lagoon augmentation with an exemption from minimum/cessation flows would not have a significant effect on residual flows.²⁶³
- [558] Dr Ryder and Dr Sanders addressed the ecological effects and the effects on braided river birds in the event that augmentation water should be given 100% reliability. They concluded that the ecological effects and effects on braided river birds would be unnoticeable.
- [559] We agree with Mr Regnault²⁶⁴ that the reliability of augmentation water should be 100%, even in periods when calculated natural inflows are low. We consider the provisions of PC3 should be amended to allow for the water to be taken continuously by implementing the recommendation put forward by the Regional Council and as set out above.
- [560] Providing an exemption from cessation flow for augmentation water would give it greater reliability than the Hunter Downs consent. While this may mean abstraction is operationally impractical with existing infrastructure, providing an exemption allows for these limitations to be overcome, should it be necessary to achieve continuous flow.
- [561] We consider that providing an exemption to the cessation flow for augmentation water meets Policy 46 in that it provides for a continuous and uninterrupted abstraction of 1m³/s, which is the actual requirement for augmentation.

Finding

- [562] Accordingly, for the reasons set out above, we consider that reliability for augmentation water is

²⁶² Statement of evidence of Mr Edward (Ned) Norton dated 15 April 2016

²⁶³ Statement of evidence dated 15 April 2016, Table 1 and [11(e)]

²⁶⁴ Statement of evidence dated 15 April 2016 [17] ff

best guaranteed by exempting it from a cessation flow and amending Rule 2(2) as recommended by the Council, save for omitting the word ‘of’ before ‘Wainono Lagoon’ and inserting the word ‘to’, for clarity. We set out the amended rule as follows (deletions shown in ~~strike through~~ and insertions shown in double underlining):

2 Water taken for essential drinking, stock drinking-water, maintaining fire-fighting capacity, ~~and for the processing and storage of perishable produce, and for augmentation flows of to Wainono Lagoon,~~ is exempt from cessation flow, minimum flow and level and flow sharing regimes.

Theme 3 – inclusion of tributaries in Table 3

- [563] Plan Change 3 (as notified) implements a recommendation of the Effectiveness & Efficiency Review to clarify that the environmental flow and level regimes in Table 3 in the Allocation Plan should apply to tributaries. The lack of specificity in Table 3 has meant that allocation limits have not extended to tributaries in all cases. However, it cannot now be applied without reconsidering the allocation limits themselves, as to do so will create situations of over-allocation. PC3 proposed to amend the Awakino River only, as the issue of over-allocation does not arise (refer Table 3, line xviii). We were advised by the Council officers in the s42A Reply that other water bodies would be updated in a future plan change when their environmental flows are reviewed.
- [564] The three submissions received on this amendment seek that it be extended to the Hakataramea River by adding the words “and tributaries” in Table 3 (xix) (Irricon, 3532 and 3253), or that it be retained as worded (Alan Mark, 3288; Fish & Game 3337). It is beyond the scope of this plan change to amend the environmental flow regime for the Hakataramea River, and to include all tributaries in the regime, however desirable, would exceed the allocation limit, which would create a situation of over-allocation and contravene the NPSFM. We were advised that the Council is working with the Zone Committee and community to address allocation issues in the Hakataramea River.

Finding

- [565] For the reasons given by the Council Officers, we recommend only the amendment as proposed in the notified Plan Change, save that Table 3 would be Table 3B in Appendix B.

Theme 4 – exemption to minimum flows during low inflow periods

- [566] Plan Change 3 (as notified) proposes to simplify the exemption to the requirement to maintain the minimum flow of 150 m³/s in Rule 2, Table 3B at line xvii(a) by basing the minimum flow during those periods on the calculated natural inflows.
- [567] Calculated natural inflows are also proposed to be defined in the table of Definitions and Abbreviations as:

The combined natural inflows into Lake Tekapo, Pūkaki and Ōhau and from the Ahuriri catchment that would have occurred if the Waitaki Power Scheme had not been installed.

- [568] Meridian (3472) supports the amendment to Table 3 line xvii(a) as notified. Several submitters (Irrigation NZ, 3308; North Otago Irrigation, 3401; WIC, 3357 and 3358; Waitaki Independent Irrigators, 3525) wanted confirmation that the use of a 7 day period is the most effective and efficient method.
- [569] We agree that the 7 day period provides a more immediate mechanism than does the Allocation Plan version which delays the response for several months. It better implements Objective 5, which seeks to provide for a practical and fair sharing of allocated water during times of low water availability. It is fairer because downstream abstractors will have a more immediate experience of low inflows.
- [570] Fish & Game (3334) requested that the Council should retain responsibility for determining calculated natural inflows independent of Meridian. We consider this a technical question, but the method for determining natural inflows will need to be acceptable to the Council.
- [571] Fish and Game also sought amendments to Rule 7 and Table 6. Those amendments would require the release of additional flows (above the minimum flow of 150m³/s), into the Lower Waitaki River. The volume of those flow releases would be determined on the basis of the calculated natural inflows above the Waitaki Dam, and would be released irrespective of the actual requirements of downstream abstractors.
- [572] It is our view is that the operator of Waitaki Dam should be able to store inflows over and above that required to meet the demands of downstream abstractors. For that reason, we do not recommend amending Rule 7 as requested by Fish and Game.
- [573] Meridian (3477) and Ngāi Tahu (3445) sought to amend Rule 7 to read:

In addition to the minimum flows and flushing flows of the environmental flow regime for the Lower Waitaki River, the consent-holder for the Waitaki Dam shall provide flows in the Lower Waitaki River sufficient to meet the actual requirements of activities identified in Policy 46(ii) (at their points of taking) which would not be met by a flow of 150m³/s measured at the Kurow recorder, up to a maximum of the flows in Table 6, except that when the mean of the calculated natural inflows above the Waitaki Dam for the average of the proceeding [sic] 7 day period is less than 190m³/s, the maximum flow required to be provided shall be a flow equivalent to the difference between the calculated natural inflows for the average of the proceeding [sic] 7 day period, and 150m³/s. No flows shall be required to be provided during any period when the calculated natural inflows for the average of the proceeding [sic] 7 day period equals, or is less than, 150m³/s. ~~mean of the calculated natural inflows above the Waitaki Dam for the average of the preceding seven day period is less than 182m³/s.~~

- [574] The amendment provides a graduated reduction in water passing the Waitaki Dam compared to Plan Change 3 as notified, which proposes a complete cessation of flow when inflows drop below 182 m³/s. At a calculated natural inflow of 170 m³/s for example, PC3 would deliver no flows

over the Dam whereas the alternative suggested by submitters would deliver 20 m³/s. We have accepted the intent of this change as providing a better match of inflow and outflow but have redrafted the rule to improve its clarity. That redrafting has been accepted by the parties in their responses to Minute 8.

- [575] Irrigation NZ (3312) requests the word “additional” be inserted at the beginning of the amended clause of Rule 7:

except that no additional flows shall be required....

- [576] This intent has been included in the redrafting of Rule 7.

- [577] Forest & Bird (3534) has requested that the definition of ‘calculated natural inflows’ include loss of runoff from the rest of the catchment, although it is not clear how the notified definition is inadequate. We consider the calculation can include this, if the hydrological advice supports it. No further amendment to the change recommended below is necessary.

- [578] Fish & Game (3345) has requested the definition of ‘calculated natural inflows’ be amended to reference natural inflows above the Waitaki Dam, and be expanded to include flows from all catchments above the Dam. We consider a generic definition of Calculated Natural Inflows is adequate, which would logically include all inflows above any site in question.

- [579] The s42A Report recommended the revised definition proposed by Fish and Game; however we agree that this calculation should include all natural sources of water above the location in question. This is a technical matter where calculation methods may improve over time, therefore the calculation is best left to a hydrological expert. This was accepted in caucusing between Meridian and the Council.²⁶⁵ We make this recommendation as we consider it to be the most effective and efficient way to calculate the natural inflow above the Waitaki Dam. As we have said this is a technical matter, the calculation methods may improve over the time and the suggested wording reflects this. We recommend the following definition (showing changes to the s42A Report version):

~~Calculated Natural Inflows above the Waitaki Dam~~

~~The combined natural catchment inflows into Lakes Tekapo, Pūkaki and Ōhau and from the Ahuriri catchment and all other contributing catchments that would have occurred if the Waitaki Power Scheme had not been installed above the Waitaki Dam~~ derived from available information using a method that is certified as appropriate by a qualified and experienced hydrologist and approved by the Chief Executive of the Canterbury Regional Council.

Theme 5 – basis for flow compliance

- [580] Under the current Allocation Plan, compliance with the environmental flow regime in the Lower Waitaki River is based on 1-hour rolling average flows calculated from measurements at the Kurow

²⁶⁵ Joint statement in relation to natural inflows, 29 June 2015

flow recorder downstream of Waitaki Dam. This is proposed in Plan Change 3 (as notified) to be changed to a 24-hour average in line xvii(d) of Rule 2, Table 3B;

- d. All flows in the Lower Waitaki River determined for the purpose of this item xvii are to be based on measurements at the Kurow recorder¹⁸ and are based on an average over a 24 hour period.

¹⁸ Water level recording site number 71104

[581] The Section 35 Effectiveness and Efficiency review identified that a 1 hour rolling average was neither a workable nor a practical requirement for many consent holders as they do not take water steadily throughout the day.

[582] This attracted four submissions (Fish & Game, 3336; HDI; 3238; Irricon, 3254; Meridian, 3474) all seeking to retain it as notified. The s42A Report interprets an average over a 24 hour period as applying from midnight to midnight.²⁶⁶ We agree with this interpretation and recommend, pursuant to Clause 16 of Schedule 1 to the RMA, that this be made clear in Table 3B, line xvii(d) by adding the words 'from midnight to midnight'.

[583] Mr Page²⁶⁷ stated:

I do not anticipate that Meridian's operational practice will result in a daily pattern of flows in the lower Waitaki River that are materially different to those at present. As such, I expect the ecological consequences to be those currently observed in the Lower River and as predicted by Dr James for the various flow regimes being considered. I do acknowledge that the SPECTRA derived weekly flows presented by Mr Henderson will be a 'smoother' flow pattern of flows than the daily flows.

...I do accept that at the time of Environment Canterbury's implementation of the 24-hour average approach through Meridian's consent some limitation of the acceptable range of daily flows, or consideration of ramping rates, during periods of lower flows should be able to be considered as part of any potential mitigation measures.

[584] Dr Ryder²⁶⁸ in his assessment of the proposed 24 hour average Rule referred to in the evidence of Jowett to the lower Waitaki consent hearings, where he explains that applying the 24 hour mean flow under a maximum abstraction of 70 m³/s, the flow downstream of Bells Pond could be below 100 m³/s for about half a day. Jowett did not evaluate a minimum flow of 100 m³/s, but Dr Ryder²⁶⁹ postulated that in such circumstances with more frequent occurrence of shortfall events the ecological effects were likely to be greater. But he considered they are likely to be of short duration, and with appropriate changes to generation and irrigation demand, such shortfalls of flow could be avoided. We have discussed this earlier in Theme 1.

[585] Dr Ryder considered the consequences of adopting the proposed 24 hour average rather than the

²⁶⁶ Section 42A report, para [15.1]

²⁶⁷ Supplementary evidence, J Page, Meridian, paras [7] and [8]

²⁶⁸ Section 32 report, Appendix 4, Dr Ryder, Ecological Considerations, pg 61

²⁶⁹ Section 32 report, Appendix 4, Dr Ryder, Ecological Considerations, pg 62

current 1-hour average to calculate the minimum flow would be unlikely to have a more than minor adverse effect on the River's ecology. He said edge-dwelling, relatively immobile species such as benthic macroinvertebrates would be most noticeably affected, but such events would be infrequent and those communities would recover quickly from flow changes.

- [586] We do not propose to recommend limitations in the Plan Change on flow variability caused by hydro-electric operations as this would be beyond scope. However, as discussed under minimum flows in Theme 1, we do consider flow variability at low flows to be a potential exacerbator of effects on water quality and ecology, and a matter which should be considered when the Meridian consent is changed²⁷⁰ to accommodate 24-hour averaging.

Finding

- [587] We have given careful consideration to this matter. There are no submissions that opposed the change to a 24-hour averaging. We are also mindful that the Council officers in their s42A reports supported the change and for the reasons they have given, we recommend it, subject to the minor amendment we have inserted for the purposes of clarity.

Theme 6 – annual allocation to activities

- [588] Table 5 of Rule 6 sets an annual allocation by volume for each of the activity classes above Black Point and below Black Point. Each allocation is expressed in millions of cubic metres and includes the main stream and tributaries in the allocation.²⁷¹
- [589] At the hearing there was some discussion and confusion about the relationship between Table 5 of Rule 6 and Table 3 of Rule 2 of the Allocation Plan.
- [590] Table 3 of Rule 2 of the Allocation Plan provides an instantaneous allocation which sets the allocation limit to address the effects of abstraction on the River. “*Allocation limits*” is defined in the Allocation Plan as “*the limits on the cumulative rate of taking and diverting of water that are established by this Plan and are specified in Rule 2 of this Plan*”.
- [591] The definition of “*Allocation limits*” in the Allocation Plan reflects the definition of “Over-allocation” in the NPSFM, which is the situation where a resource:
- (a) has been allocated to users beyond a limit; or
 - (b) is being used to a point where a fresh water objective is no longer being met.
- [592] The instantaneous allocation limit, which is set in Rule 2, is set to ensure that the fresh water objectives as set out in Objective 1 are being met. The purpose of the allocation limit as set out in

²⁷⁰ Evidence of J Page for Meridian

²⁷¹ Officers’ reply, July 2015, Part 1 at [66]

Rule 2, Table 3 is to address environmental effects.²⁷² The allocation limit establishes how much water may be taken from the River, and for the Lower Waitaki that figure is 90m³/s in total. There is no over-allocation of water taken in the Lower Waitaki, as currently the total take is:²⁷³

Pre-2006 consents	52.76m ³ /s
Mahinga kai	10m ³ /s
Wainono augmentation	1m ³ /s
Post-2006 consents	22.42m ³ /s
Total:	86.18m³/s

[593] Table 5 of Rule 6 sets out the annual allocation to activities to ensure that an allocation is made to all the activities that the Allocation Plan anticipates would occur in the catchment. The purpose of the annual allocation in Table 5 is to allocate water between activities and to encourage efficient use of water.²⁷⁴

[594] The two forms of allocation are not mathematically related. Table 5 allocates an annual allocation to each of the activities listed, however for hydro electricity generation it refers to “*all other flows except the flows that must remain in the Rivers, pursuant to the Environmental Flow Regime*”. Thus:

- (a) each of the activities listed, with the exception of hydro-generation activities, have a fixed annual allocation; and
- (b) water must remain in the River as set out in the Environmental Flow Regime; and
- (c) all other flows are allocated to hydro-electricity generation.

[595] As there is no certainty as to the volumes of all other flows, it is not possible to link together the figures in the Instantaneous Allocation Limit and the allocation by volume.

[596] As was said in the Officers’ Reply:²⁷⁵

While the annual allocation is expressed as a fixed amount for all activities, except for hydro-electricity generation, Table 5 does not in sum equate to any particular flow.

[597] For these reasons, while it is possible to link Tables 3 and 5 for individual abstractions, it is not possible to sum the individual allocations to reach the total volume expressed in Table 5.

[598] The 150 Mm³ for “*agricultural and horticultural activities*” in the reach between the Dam and Black

²⁷² See Responses to questions of hearing commissioners on expert evidence and Council reports at [27]

²⁷³ See Table 1 of Joint Statement of Hydrology Witnesses, June 2015

²⁷⁴ See Responses to questions of Hearing Commissioner on expert evidence and Council reports at [28]

²⁷⁵ July 2015, Part 1 at [67-68]

Point was set by the Waitaki Catchment Water Allocation Board to reflect an annual volume of the quantity of water that could be taken for agricultural and horticultural activities under Rule 2 of the Allocation Plan. The Efficiency and Effectiveness Review (December 2012) identified that this annual allocation was based on incomplete information provided to the Board.²⁷⁶

- [599] In response, the Council reviewed the annual allocation on all the consents that had been granted, and summed those values to reach a realistic overall annual allocation which provides “*a sufficient approximation of the likely requirements, including future demands*” amounting to 200 Mm³.²⁷⁷
- [600] Ngāi Tahu (3437) and Meridian (3470) requested that the annual allocation to “*Any other activities*” in Table 5 be increased to provide sufficient annual allocation for the reserved water. The s42A Report favoured including numerical limits to line vi to implement this submission and we agree.
- [601] There was evidence presented by Ngāi Tahu and Meridian proposing a new column be added to clearly state the annual allocation for mahinga kai purposes and augmentation of the Wainono Lagoon. The annual allocation of 315 Mm³ is equivalent to 10 m³/s being taken continuously for 365 days per year. We recognise that when cessation flows are taken into account, this will be a higher allocation than needed. However, we recommend this change for consistency with the rest of Table 5. A change to the limit of 144 under “*Any other activities*” to “*112 plus an allocation of 32 reserved for the augmentation of Wainono Lagoon*” simply separates the 1 m³/s augmentation for Wainono Lagoon (32 Mm³) from the remainder, but does not change the total limit. We accept the appropriateness of these proposed changes.
- [602] Ms A MacTavish suggested at the hearing there could be a separate allocation for future stated uses. The Council’s analysis shows there remain 318 m³/s of water for allocation for future uses. Water will also become available as post-plan consents are replaced and greater efficiency gains are made.

Finding

- [603] According to the reasons set out above, the reasons set out in the Council Officers’ reports and s32AA analysis, we find that Table 5 should be amended as follows:
- (a) An increase to the limit for “*agricultural and horticultural activities*” to 200 Mm³;
 - (b) A new column setting a limit of 315Mm³ for mahinga kai purposes; and
 - (c) An increase to the limit of “*any other activities*” to “*112Mm³ plus an allocation of 32 Mm³ reserved for the augmentation of Wainono Lagoon*”.

²⁷⁶ Memorandum in Reply to Minute 8, 28 August 2015 at [2]

²⁷⁷ The values summed to reach the figure of 200Mm³ is set out in Table 1 of [2] of the memorandum

Theme 7 – removal of diversions from the counting of instantaneous allocation limits and annual allocation volumes

- [604] Plan Change 3 (as notified) seeks to clarify the type of consents that are counted in the instantaneous allocation limits (prescribed in m³/s) and the allocation to activities (prescribed in million m³). The current wording of the Allocation Plan is unclear as to whether the diversion and the consumptive take volumes should be counted (a potential double count); although diversion volume only should be counted (being the larger of two numbers); or the consumptive take volume counted.²⁷⁸
- [605] PC3 (as notified) seeks to clarify that only consumptive takes should be counted. Insofar as flows that are diverted above Black Point are returned to the River above Black Point, this is consistent with the approach that the Allocation Plan takes in Table 3, line xvii, clause c, that states:
- c. An allocation limit of 90m³/s not counting any flows abstracted from the Lower Waitaki River above Black Point that are returned to the Lower Waitaki River above Black Point.
- [606] PC3 (as notified) amends:
- (a) Rule 2(1)(b) by deleting the words “*or diverted*”;
 - (b) Rule 6(1) by clarifying that only takes are to be added to other takes to determine the annual allocation; and
 - (c) the definition of Allocation limit to delete the words “*or diverted*”.
- [607] Together these amendments ensure that where applications have a component of diversion, it is the consumptive take volume that is counted as part of the instantaneous allocation and the annual allocation, on the basis that diversions that return water to the Lower Waitaki River are non-consumptive. Applications for the diversion of water will still be processed as diversions.
- [608] The effect of amending Rules 2(1)(b) and 6(1) and the definition as proposed means consents to divert water will continue to be processed as consents to divert water, but will not be counted in the allocation limit. They are considered, at least, to be discretionary activities and this provides for all adverse effects to be considered. In the event that an application to divert water would be proposed that removed the water from the River for some considerable distance, the effects of that proposal, both on the river and on other users, would be matters for consideration.
- [609] We also note that applications to divert water would be given cessation flows set out in Table 3A.
- [610] In the Council’s Memorandum in Reply dated 28 August 2015, in response to our Minute 8, it was confirmed that current consents to divert water would be renewable as consents to divert. Such a

²⁷⁸ See Memorandum dated 28 August 2015 in response to questions from the Panel at 14

consent would:

- (a) have cessation flows set out in Table 3A;
- (b) not be combined with the amount of water authorised to be taken by other resource consents;
- (c) comply with a flow sharing regime; and
- (d) provide the flushing flows where applicable.

Finding

- [611] For the reasons set out above we are satisfied that the amendments proposed are the most appropriate way to achieve the objectives of the Allocation Plan.

Theme 8 – effective and efficient use of water

- [612] Plan Change 3 (as notified) proposes to amend the provisions relating to the efficient use of water by amending Policy 15, replacing Policy 16 and introducing Schedule 1 (Reasonable Use Test for Irrigation) and deleting Policy 17 (and Tables WQN26 and WQN27).
- [613] The proposed change to Policy 15 (as notified) is to include consideration of ‘seasonal duration’ of water demand when evaluating water permit applications, while Policy 16 is proposed to be replaced with the following to bring it into line with assessments of reasonable use for irrigation consents across the rest of the Canterbury region:

Policy 16

By requiring resource consent applications to:

- (a) Consider whether the amount of water to be taken and used is reasonable for the proposed use. In assessing reasonable use for irrigation purposes, the application must meet a reasonable use test, in accordance with Schedule 1, in relation to the instantaneous rate of abstraction and the annual volume of the proposal to take, use, dam or divert water, that addresses the rate, volume and seasonal duration for which the water may be taken, used, dammed, or diverted;
- (b) Maximise the efficiency of systems used for the conveyance or application of water, taking into account practicable options to implement any change to existing systems, and the benefits and costs of achieving a higher level of efficiency.

- [614] Schedule 1 in the notified version of Plan Change 3 describes three methods for determining seasonal irrigation demand and is consistent with both the Canterbury Natural Resources Regional Plan and the Canterbury Land and Water Regional Plan. Policy 17, as was pointed out in the s42A Report²⁷⁹ was recommended to be deleted. That policy required consent applications for town and community water supplies, and stock drinking water supplies, to meet a reasonable use test.
- [615] Ngāi Tahu (3427) and LWRMS (3211) have requested that Policy 17 be retained, and that Tables WQN26 and WQN27 be inserted into a new schedule to the Allocation Plan. Policy 17 provides

²⁷⁹ At para [13.2]

guidance for a reasonable use test for activities other than irrigation, and this reinforces the need for all activities to be efficient in their use of water. Policy 17 would assist consent applicants and Council in evaluating reasonable use for town and community supplies or stock drinking water supply systems²⁸⁰ where consent is required. Pursuant to the s42A Reply Report, we recommend it be retained but cross-refer to a new schedule (Schedule 1 – Reasonable Use Test for Uses other than Irrigation) rather than the old NRRP tables.

- [616] LWRMS (3210) requested that the definition of ‘efficiency’ be broadened, but they do not provide the specific relief sought. Fish & Game (3325) and Forest & Bird (3429, 3530) requested that Policy 16 be amended to read as follows:

maximise the efficiency of water conveyance systems to ensure that an overall 80% efficiency (conveyance plus application) is achieved as a minimum. In the event that the existing scheme efficiency (conveyance plus application) is less than 80% then any replacement of that consent will be limited in volume and rate to that required to service the same contract irrigation areas at 80% efficiency.

- [617] WIC and Hunter Downs Development Company Ltd opposed this amendment. Policy 16 refers to the notified Schedule 1 (now Schedule 2), which provides for the same reasonable use test for irrigation to that in the partially operative Land and Water Regional Plan, and as such applies across the Canterbury region. It requires an efficiency of 80 percent. Future applications to take water for irrigation, including renewals, will have to apply the *Reasonable Use Test* methodologies. This will ensure that a high level of technical efficiency is promoted. Applications will be discretionary (per Rule 15) so Council has the power to decline them if they do not satisfy Allocation Plan provisions. We consider the above amendments sought by these submitters are unnecessary.

- [618] In the Allocation Plan Table 3 (flow regimes) and Table 5 (annual allocations) specify limits for allocations. The question of the role of Table 5 in achieving efficiency was discussed at the hearing, with a view expressed by the LWRMS that Table 5 does drive efficiency. Mr Regnault, in the s42 Reply, considers that Table 5 is not intended to drive efficiency because its rule (Rule 6) does not link with policies relating to efficiency in the Allocation Plan. Further, the explanation to the efficiency policies states that there are no rules specifically associated with these policies. That appears the case, however from a logical point of view, we consider that setting differing allocation limits must have a differential effect on competition for water, and this must affect efficiency whether stated in the Allocation Plan or not. The policies are used as part of any consideration of an application for consent so do have relevance and would have an effect on efficiency.

- [619] Logically, it could be expected that as allocation of water through consents approaches the annual maximums expressed in the table, and water becomes scarce, transfers of consent (where allowed)

²⁸⁰ Evidence of Lynda Murchison at para [8.5]

would occur and efficiency gains would result. However, the matter is somewhat academic. We do agree that efficiency is a requirement of the Allocation Plan, and efficiency is a matter to be considered in consent processes.

Finding

- [620] We consider the inclusion of proposed Schedules 1 and 2 on assessing reasonable use when granting consents is an appropriate encouragement for efficiency.
- [621] We agree, for the reasons set out in the s42A Report, that Policy 17 be retained in its amended form.

Theme 9 – replacement of existing water permits for existing hydro-electricity generation

- [622] Under the Allocation Plan the activity status for new resource consents to replace existing consents for the same activity for hydro-electricity purposes is discretionary (Rule 15). Plan Change 3 (as notified) introduced a new activity status of restricted discretionary for replacement consents by proposing a new Rule 15A.
- [623] To comply with Rule 15A the replacement application would have to comply with environmental flow and level regimes (Rule 2), minimum lake levels (Rule 3), annual allocation to activities (Rule 6) and the flow provisions into the Waitaki River (Rule 7). Applications that would not comply with Rules 2, 6 and 7 would remain non-complying (Rule 16). Applications that would not comply with Rule 3 would remain prohibited (Rule 12).
- [624] That proposed change to restricted discretionary status attracted many submissions:
- Ngāi Tahu (3450) and Fish and Game (3344) supported the restricted discretionary status;
 - Mackenzie District Council (3230) supported it but requested that it be deferred in its effect until the Allocation Plan is reviewed;
 - several submitters sought rejection of the proposal and wanted discretionary status retained (LWRMS, 926 and others); and
 - Genesis (3228) and Meridian (3480) sought controlled activity status, and Genesis (3229) requested an additional clause for Policy 28 which would provide policy support for a controlled activity status for Rule 15A.
- [625] During the course of the hearing we heard submissions and evidence from a number of parties on this contested issue, including whether the appropriate status should be controlled rather than restricted discretionary. The Council advised us that a decision was pending in the High Court, on appeals arising from decisions on submissions to the proposed Land and Water Regional Plan, with respect to whether controlled activity status for such replacement consents is lawful.

[626] Accordingly, we issued a Minute²⁸¹ to the effect that we would not determine this issue until the decision of the High Court was issued. The High Court issued its decision in ***Rangitata Diversion Race Management Limited & Ors v Canterbury Regional Council***²⁸² on 9 September 2015. That decision affirmed that controlled activity status is lawful in respect of the taking and use of water for hydro-electricity generation and regionally significant infrastructure.

[627] Following the High Court decision in ***Rangitata*** we issued a further Minute²⁸³ putting in place a timetable for parties interested in this issue to make further submissions in writing. We received submissions from the following parties:

- Meridian Energy Limited;
- Genesis Energy Limited;
- the Waitaki Irrigators Collective Limited;
- Te Rūnanga o Arowhenua Trust, Te Rūnanga o Waihao Inc, Te Rūnanga o Moeraki and Te Rūnanga o Ngāi Tahu (Ngā Rūnanga);
- Mackenzie District Council;
- LWRMS; and
- Alison McTavish.

[628] Those submissions addressed:

- (a) the merits or otherwise of either a controlled activity status or a discretionary activity status; and
- (b) the wording of the proposed rule(s).

[629] We were presented with two different versions of the proposed controlled activity rule(s). One by Meridian and the other by the Council. On reading both versions, it appeared to us that there was room for the parties to reach agreement on the wording. We accordingly issued a further Minute²⁸⁴ requesting those parties supporting a controlled activity status to meet in an endeavour to agree on an appropriate wording. We also raised some concern about the wording with respect to some other matters, namely:

- (a) the scope of the activities which controlled activity status would apply to;
- (b) wording reflecting s124 of the Resource Management Act 1991;
- (c) greater specificity in the matters of control (including reference to “*any mitigation measures to address adverse effects*” and “*Ngāi Tahu cultural values*”);
- (d) how efficiency gains in the use of water are to be evaluated; and

²⁸¹ Minute 4, dated 30 June 2015

²⁸² [2015]NZHC 2174

²⁸³ Minute 9, dated 21 September 2015

²⁸⁴ Minute 10, dated 22 October 2015

- (e) how localised flow management effects are to be evaluated if the rule excludes the flow and levels regime.

[630] The parties who participated in the discussion regarding Rule 15A reached agreement as to the wording²⁸⁵. We set this out below:

Any activity that ~~complies with Rules 2, 3, 6 and 7 and is the subject of an existing consent to take, dam, divert or use water for hydro-electricity generation~~ is part of the Waitaki Power Scheme, for which a consent is held and is the subject of an application for a new consent for the same activity and is:

- the use of water for the generation of electricity; or
- the taking, damming or diverting of water for storage; or
- the taking or diverting of water into canals; or
- the taking, damming or diverting of water to protect the structural integrity of dams, power houses, canals and appurtenant structures;

is a controlled ~~restricted discretionary~~ activity provided the activity complies with Rules 2, 3, 6 and 7.

The matters of control are ~~exercise of discretion is~~ restricted to the following matters:

- a. In respect of flows into the Pūkaki River, the Lower Ōhau River or the Tekapo River (above the confluence with the Forks Stream), adverse effects, including effects on Ngāi Tahu culture, traditions, customary uses and relationships with land and water, unless the environmental flow and level regimes for these rivers have been reviewed after the public notification date of this rule and the outcome of the review has ~~been made~~ become operative in accordance with clause 20 of Schedule 1 to the ~~relevant provisions of the~~ Resource Management Act 1991;
- b. Any mitigation measures to address adverse effects (including effects on Ngāi Tahu culture, traditions, customary uses and relationships with land and water), except for changes or alterations to environmental flow and level regimes, minimum lake levels, annual allocation to activities, or the provisions of flows into the lower Waitaki River, set by this Plan;
- c. Collection, recording, monitoring and provision of information concerning the exercise of consent; and
- d. Lapse period, duration of consent and review requirements.

Any application made under Rule 15A will be publicly notified

[631] As we have said, the wording of the above draft Rule 15A is the one that has been agreed upon by all of the parties who participated in the discussions relating to the wording including the Council. We are accepting it as the Council's latest preferred version of the wording. It is therefore necessary for us to consider whether Rule 15A as set out above should be preferred over the restricted discretionary Rule 15A as notified, or whether the current discretionary activity rule (Rule 15) should continue to apply.

[632] There was considerable debate at the hearing as to the most appropriate activity status for the replacement of existing hydro-electricity consents. There was also considerable debate raised in

²⁸⁵ Joint Memorandum of Council in response to Minute 10, 12 November 2015, Attachment B

the submissions filed following the issue of Minute 9. We briefly set out the arguments advanced by the parties.

Parties opposed to controlled activity status

[633] A number of parties supported the restricted discretionary status but opposed controlled activity status. A number of parties opposed any change from the current discretionary activity status. We summarise the arguments of those who lodged submissions.

Ngā Rūnanga/Ngāi Tahu

[634] Ngāi Tahu supported the restricted discretionary status but opposed a controlled activity status for new consents to replace expiring consents for the same activity that are part of the Waitaki power scheme. The reasons for opposing a controlled activity status included:²⁸⁶

- (a) it is not appropriate to make all activities associated with hydro-electricity generation a controlled activity, without first assessing whether the activity status is appropriate in each situation;
- (b) there are activities and areas where a controlled activity status has not been assessed from a cultural perspective, and therefore it would not be appropriate to give those activities a controlled activity status through PC3;
- (c) the assessment of activity status would be more appropriately carried out during the review of the Waitaki Catchment Allocation Regional Plan; and
- (d) although the consent authority could maintain control over the matters listed in Rule 15A, there would not be the ability to impose conditions on the consent (if those conditions prevented the consent from being exercised).

LWRMS

[635] LWRMS rejected the proposed restricted discretionary status as originally proposed by the Council, in Plan Change 3 as notified, and sought that discretionary activity status be retained. Counsel, in his opening submissions, did not address the issue. He did file written submissions in response to Minute 9 opposing the controlled activity status. Counsel's concern was four-fold.

[636] First, he was concerned that the proposed rule would not be confined to replacement of existing consents, but would apply to new consents for new infrastructure. This was a matter that also concerned us. However, the rule as redrafted, and as set out above, sufficiently addresses this issue and limits its scope to "*new consents for the same activity*".

[637] Secondly, counsel was also concerned that the ability to impose conditions would be constrained

²⁸⁶ Memorandum 9 October 2015 at [2.3] and [2.4]

by the well-accepted rule that any condition must not prevent the consent from being exercised.

[638] Thirdly, counsel submitted that a controlled activity status would deny tangata whenua their right to play a meaningful role in determining future management of the River.

[639] Fourthly, counsel submitted that the imposition of a controlled activity regime must be done pursuant to a future publicly notified plan change.²⁸⁷

Mackenzie District Council

[640] Counsel for the Mackenzie District Council lodged submissions in response to Minute 9. It was the Council's preference for the restricted discretionary activity status to be retained, but that it should be deferred and addressed as part of an overall review of the Allocation Plan.

[641] Counsel argued that, as there was no opportunity for an application for a controlled activity to be refused, that would mean that it would have a lower effectiveness in terms of implementing Policy 28 of the Allocation Plan.

[642] He also emphasised that, with a controlled activity status, the Council's power in relation to the imposition of conditions is restricted to matters over which control is reserved; and is subject to the principle that a condition cannot negate the consent.

Alison McTavish

[643] Alison McTavish lodged a submission opposing controlled activity status. She submitted that the process of applying for consent replacement reminds all parties of how the "government's machinery" should work, and that the use of public resources is a privilege open to public participation. For the system to work the consent authority needs to have the authority to grant or reject the applications for consent.

Parties in favour of controlled activity status

Canterbury Regional Council

[644] The Council originally proposed a restricted discretionary activity for replacement of hydro-electricity consents. This was contrary to the Zone Committee's recommendation for controlled activity status on the basis that it was unable to do so, because of a decision on the proposed Land and Water Regional Plan, now overturned by the High Court.²⁸⁸ Consequently the merits of controlled activity status as an alternative to the proposed rule were not evaluated.

²⁸⁷ Submissions, 9 October 2015 at [33]-[34]

²⁸⁸ Section 32 Report at [12]

[645] The s32 assessment²⁸⁹ evaluated the proposed restricted discretionary status and concluded that:

- (a) the use of the status reflects the Canterbury Land and Water Plan and its increasing use in other plans;
- (b) the status is consistent with the decision of the Waitaki Board to provide for the replacement of existing consents (Policy 28);
- (c) since the Allocation Plan was made operative the NPSRG 2011 has been released and the RPS 2013 has been made operative. Both of these documents refer to the need to recognise and provide for the continuation of existing hydro-electricity generation; and
- (d) the status implements Objectives 1 and 2 of the Allocation Plan.

[646] Following the decision of the High Court in *Rangitata*, the Council officers further addressed the merits of controlled activity status.²⁹⁰ In the evaluation of activity status in the Council's response to questions dated 27 May, the Council officers concluded that a controlled activity status is more efficient than a restricted discretionary status.

[647] However, it was considered that a restricted discretionary status was more effective for the three named rivers (Pūkaki, Lower Ōhau and Tekapo). This was based on the fact that the Allocation Plan had not established an environmental flow and level regime for these waterways and the uncertainty as to the extent to which a condition limiting flows could be imposed without frustrating the consent.

[648] Subsequent to that evaluation further information addressed the degree of uncertainty about the possibility of conditions imposed on a consent in respect of flows frustrating the grant of that consent.

[649] That further information, provided by Meridian, using a recognised analytical method, was with regard to the natural outflows from Lakes Pūkaki and Tekapo. The flow calculations provided are set out as Appendix A to the joint memorandum (m³/s).²⁹¹

	Lake Pūkaki Natural Outflow [68775]	Lake Tekapo Natural Outflow [68795]
Mean Annual 7-day low flow	37	32
5-year 7-day low flow	28	26
Mean Flow	128.91	81.68
Mean Annual Flow	523.584	238.15

²⁸⁹ At 12-14

²⁹⁰ See response to questions of the hearing commissioners on expert evidence and council reports, 27 May 2015 at 12-15; Officers reply to Minute 9, October 2015; and Memorandum: Plan Change 3 – Minute 10, 12 November 2015.

²⁹¹ Dated 12 November 2015

- [650] In relation to the above flows, we note that the Allocation Plan at Rule 2, Table 3 (now Rule 2, Table 3B in Appendix B) provides environmental flow and level regimes for water bodies in the Waitaki Catchment. The Table sets out the basis for calculating that flow for all rivers, with the exception of the three named rivers. Line xxii provides for a minimum flow of the 5-year 7-day low flow, with a flow sharing threshold at the mean flow (Rule 2, Table 3, line xxii). The three named rivers are not covered by Table 3, line xxii.
- [651] Tekapo, Pūkaki and Lower Ōhau Rivers are not recognised as having “*high natural character with a high level of protection*” in Policy 2.²⁹²
- [652] The Council officers were satisfied that based on the estimate of flows, a condition of consent requiring flows to be passed through the dams using numbers of the magnitude shown in the upgraded data in the order of the 5-year 7-day low flows as set out Table 3, line xxii, would not frustrate the grant of a future consent.
- [653] The Council officers concluded that the matters of control are sufficiently wide enough to impose conditions with respect to the full range of adverse effects in the unnamed rivers where the minimum flow regime has not yet been implemented.
- [654] In summary, the Council officers concluded²⁹³ that a controlled activity status is more efficient than a restricted discretionary status and is at least as effective as a restricted discretionary status in achieving the objectives of the Allocation Plan. Overall, they considered, a controlled activity status to be more appropriate than a discretionary or restricted discretionary status. This was discussed in detail in a section 32AA evaluation.²⁹⁴

Meridian, Genesis and Waitaki Irrigators Collective Limited

- [655] The above three parties, led by Meridian, all strongly supported the controlled activity status. Counsel for Meridian emphasised the provisions of the NPSREG²⁹⁵ that include the requirement of decision-makers to recognise and provide for the national significance of renewable electricity generation activities,²⁹⁶ and the requirement to have particular regard to a range of matters including:²⁹⁷
- (a) maintenance of generation output of existing generation activities and continued availability of the renewable energy resource;

²⁹² See Policy 2 and contrast Policies 38 and 39 with Policies 29-34

²⁹³ Memorandum, Plan Change 3 – Minute 10 at 12

²⁹⁴ Memorandum: Plan Change 3 – Minute 10 at [23]-[27]

²⁹⁵ Submissions in reply at [30]

²⁹⁶ Policy A

²⁹⁷ Policy D

- (b) the cumulative effect of minor reductions in generation outputs; and
- (c) meeting or exceeding the Government's renewable energy target.

[656] Counsel also referred to the importance of the Waitaki Power Scheme from a national perspective and the need to provide certainty for replacement consents to enable it to maintain generation output.²⁹⁸ He referred us to the expert evidence of Mrs Sarah Dawson²⁹⁹ who assessed the relevant provisions of the relevant statutory instruments and carried out an evaluation under s32 of the RMA.

Evaluation

[657] The Waitaki River contains the Waitaki Power Scheme. The significance of the Scheme and its operation is discussed in the evidence of Mr Waipara. The Scheme is New Zealand's largest integrated source of electricity. The majority of the Country's limited hydro storage is located in Lakes Pūkaki and Tekapo. The HDCC link has its South Island terminal at Benmore. The Scheme provides vital services to maintain the national grid. Its national significance is hard to overstate, and its contribution is not substitutable.

[658] The significance of the Scheme places the Waitaki River in a unique position within the Canterbury region and possibly within wider New Zealand. It is against this background that we must assess the merits of the appropriate activity status for any application for new consents for the same activity upon the expiry of existing consents. The significance of the Scheme needs to be assessed within the framework of the relevant statutory instruments which require us to have regard to hydro-electricity generation but at the same time to ensure the strong directions relating to the environmental protection of the River and its margins are maintained.

Frustration of consent

[659] We agree with the Council officers' conclusion that the imposition of a minimum flow for the three named rivers by a condition of a future consent would not frustrate or negate that consent. Any environmental flow regime would likely be in the vicinity of the default minimum flow as set out in Rule 2. This provides for a minimum of the 5-year, 7-day low flow, with a flow sharing threshold at the mean low flow. We are satisfied from the data supplied that any minimum flow would not be of such a proportion that it would frustrate or negate the consent.

Scope

[660] Counsel for the LWRMS maintained that the imposition of a controlled activity regime must be done pursuant to a future publicly notified plan change.

²⁹⁸ Submissions 30 September 2015 at [10]

²⁹⁹ Evidence of S Dawson [79]-[105]

- [661] We are satisfied that we have scope to impose a controlled activity regime if we consider it to be appropriate. PC3, as notified, signalled a change to the planning framework in respect of consent applications for the replacement of hydro-electricity generating activities. Proposed Rule 15A as notified sought that such consent applications be assessed as restricted discretionary activities. The availability of controlled activity status was also considered in the s32 report, which was made available at the time of notification of PC3. Any persons, subject to the trade competition provisions in the Act, were entitled to lodge a submission on proposed Rule 15A.
- [662] Meridian Energy Limited and Genesis Energy Limited each lodged a submission seeking that Rule 15A be amended to provide for controlled activity status for the replacement of existing hydro generation consents. Persons were also given the opportunity to lodge further submissions in respect of Meridian and Genesis's submissions.
- [663] We are satisfied that the bi-partite tests as set out in ***Motor Machinists Ltd*** have been satisfied. First, the submission of Meridian and Genesis was clearly "on" the plan change, as it addressed a change to the pre-existing status quo advanced by Plan Change 3, namely the activity status of hydro-electricity generation. Secondly, there is no risk that persons directly or potentially directly affected by the additional changes, proposed in the submissions by Meridian or Genesis, have been denied an effective opportunity to be heard or to respond to the additional changes proposed as part of the plan change process.
- [664] PC3, including proposed Rule 15A, has been subject to the public hearing process set out in Schedule 1 of the RMA, which allows for public participation. There is scope in submissions for us to recommend a controlled activity status in respect of Rule 15A.

Wording of proposed Rule 15A

- [665] We address the proposed wording of the draft rule as set out in the Joint Memorandum dated 12 November, and set out above in this recommendation. The revised wording provides greater clarity about the activities that are regulated. They are confined to applications for "new consents for the same activity", thus addressing concerns about scope. It incorporates generation and the assets that are fundamental to generation. It is more certain than the phrase "*hydro electricity generation*". It clearly does not include consents involving new infrastructure.
- [666] The revised draft wording uses appropriate and constrained wording to reflect s124(1)(b) of the Act and provides clarity about the activities that are to be captured by the rule.
- [667] The first matter of control addresses the three named rivers and ensures that there is sufficient control to be able to impose an appropriate environmental flow regime and to address adverse effects.

[668] The second matter of control relates to those rivers where the Allocation Plan has set an environmental flow and level regime. It is sufficiently wide ranging to ensure that mitigation measures necessary to address adverse effects may be considered in a consent process, other than those effects that the Allocation Plan has already addressed through the setting of the environmental flow and level regime.

[669] The phrase regarding Ngāi Tahu culture, traditions and customary uses and relationships with land and water, while wide ranging, will ensure that those values are identified.

Assessment against statutory instruments

[670] We are satisfied from the Council officers' reports and the evidence of Mrs Dawson that controlled activity status would be consistent with:

- (a) Policy 28 of the Allocation Plan;
- (b) the objectives of the Allocation plan, particularly Objective 1 and Objective 2;
- (c) the provisions of s6 of the RMA, which requires us to have particular regard to the benefits to be derived from the use and development of renewable energy;
- (d) the strong provisions of the NPSREG requiring us to recognise and provide for national significance of renewable electricity generation; and
- (e) the provisions of the RPS that require us to recognise and provide for the continuation of hydro-electricity generation.

Section 32 and s32AA evaluations

[671] We have been assisted by the evaluation the Council officers made under s32 and s32AA. We found the evaluations by the Council officers to be objective and thorough and we adopt them. While the Council officers reconsidered their position, they did so in a principled manner in response to the High Court decision and new information presented during the hearing process.

Finding

[672] The recommended amendments to Rule 15A since notification are:

- Replacement of the restricted discretionary activity status with controlled activity status for all rivers.
- Drafting that is more explicit about the purpose of the rule and the activities that are addressed.

[673] Given the extensive evaluation that has occurred in respect of activity status, and the breadth of matters of control in the draft rule, we consider there is sufficient information available for a recommendation supporting controlled activity status. We consider it is the most appropriate for

the replacement of consents for specified activities associated with the Waitaki Power Scheme.

Theme 10 – temporary lowering of Lake Pūkaki water level

[674] Plan Change 3 (as notified) proposes to allow the lowering of Lake Pūkaki in situations where there is a security of supply alert, although consent for a discretionary activity will be required. The Allocation Plan currently offers no opportunity to apply for consent because lowering the lake below 518.0m a.m.s.l. is a prohibited activity under Rule 12. It is proposed to add a new clause to Table 4 in Rule 3, namely line ii(c):

(c) A minimum lake level of 515 metres a.m.s.l for any period when the electricity security of supply situation is expressed as a security of supply “alert” in the weekly security of supply report issues under the current Security of Supply Forecasting and Information Policy (as approved or varied under Part 7 of the Electricity Industry Participation Code 2010 made under section 36 of the Electricity Industry Act 2010; or subsequent equivalent regulatory arrangement).

[675] Submissions were made by Meridian (3475) and Fish & Game (3338) supporting the amendment. The Electricity Authority (2549) seeks two amendments to clarify what is intended. Amending ‘issues’ to ‘issued’ corrects an error. The second requested amendment is to clarify that it is the Security of Supply Forecasting and Information Policy that is current at the time a future application is made. We consider the wording of PC3 is clear and so that change would be unnecessary.

[676] LWRMS requests that Meridian be allowed to lower the level of Lake Pūkaki to provide water downstream of the Waitaki Dam in low flow periods.³⁰⁰ Meridian opposes on this point,³⁰¹ noting that at low lake levels, stored water is of high value for security of electricity supply. We do not think there would be any legal impediment to using the Lake in such a multiple use manner, but consider the LWRMS request to be out of scope in this plan change.

[677] Plan Change 1 approved a change to Table 4 line ii which now allows the level of Lake Pūkaki to be drawn down to 513 metres during an ‘electricity supply emergency’ subject to obtaining a discretionary or non-complying consent to do so (Rules 17 and 18). We were provided with the assessment of environmental effects that had been carried out prior to the approval of that plan change.³⁰² Based on the likely frequency and duration of lake level lowering, the effects of the current proposed lowering to 515m would be less as a smaller lake lowering is provided for, but it would occur more often than lowering to 513m.

[678] This plan change is seeking an intermediate level of lowering during a security of supply ‘alert’ which we understand would be rare. Mr Waipara³⁰³ cited the winter of 2008 as the most recent

³⁰⁰ LWRMS submission at para [4.32]

³⁰¹ Meridian further submission at 28

³⁰² Assessment of the impacts of lowering Lake Pūkaki below its consented level. Aquatic Environmental Sciences, March 2010 (Dr M James)

³⁰³ Supplementary evidence of G Waipara for Meridian

example. We sought advice on the extent to which Meridian's operating regime might affect the frequency and duration of lake level lowering. Mr Waipara³⁰⁴ stated that it is Meridian's commercial interests to avoid electricity shortages, but acknowledged that the generation behaviour of all generators does, of course, influence the lake level outcomes.

[679] We also sought advice on whether the subclauses applying to Table 4 line ii(b) should also apply to this now proposed clause (c). The Council advised³⁰⁵ that this is unnecessary because those matters could be imposed as conditions on consent if considered necessary, whereas clause (b) has been made a permitted activity pursuant to an amendment to Rule 17 resulting from Plan Change 1.

[680] The Ryder report³⁰⁶ and Ms Pfluger's evidence conclude that additional adverse effects on geomorphological features of the Lower Waitaki River are unlikely and the existing natural character will largely be maintained. The natural character of Lake Pūkaki may be affected by the lower lake levels during electricity security of supply alert situations, but we agree this matter can be addressed when consent is sought for the further lake level lowering.

[681] In response to our questions, Dr Sanders (who carried out his PhD research on this matter) commented on potential ecological consequences of this change.³⁰⁷ He concluded that drawing the lake level below 518m would expose poor quality habitat (sand, silt, no vegetation, some incising channels) and make no difference to the higher quality littoral habitat most used by birds. The potential regularity and specific environmental effects of such lake lowering are matters which can be dealt with in the consent process.

Finding

[682] We recommend the proposed change to Table 4, subject to the inclusion of the amendment sought by The Electricity Authority to replace 'issues' with 'issued'.

Theme 11 – complementary changes to the new flow regime

[683] PC3 (as notified) also proposes a number of complementary amendments including:

Deletion of Rule 25

[684] The deletion of Rule 25, which makes provision for the review of existing consents. Rule 25 provided time periods beyond which existing consents could be brought into line with the Environmental Flow Regime as set out in Rule 2 of the Allocation Plan.

³⁰⁴ Supplementary evidence of G Waipara for Meridian

³⁰⁵ Council response to questions on s42A report, 11 August 2015

³⁰⁶ Section 32 report, Appendix 4, Dr Ryder

³⁰⁷ Response to questions, 5 June 2015, Q10

[685] Rule 25 addressed the section 68(7) review process for existing consents that do not comply with the Allocation Plan's minimum flow regime. The proposed Plan Change as notified sought deletion of Rule 25, as the process was considered to be overcome by the proposed plan changes. In Minute 10, we queried whether or not there could be any consequential effects on the administration of the Allocation Plan. The Council officers reviewed the matter and advised in their response to Minute 10³⁰⁸ that deleting the rule had unintended consequences, in that reviews relating to consents to bring them into line with Rule 2 of the Plan could make them subject to notification, because s130(5)³⁰⁹ would not apply.

[686] The proposed deletion of Rule 25 would be unfortunate and would give rise to consequences not intended across the entire Waitaki catchment. Accordingly we consider that it would be inappropriate to delete the rule, as by doing so we may affect parts of the catchment that are not subject to this Plan Change.

[687] For this reason we agree and recommend Rule 25 remain as part of the Plan;

Provisions relating to transfer of pre-plan consents

[688] The plan change, as notified, proposed the addition of a clause to Rule 8 which would effectively constrain transfer of water permits for existing consents to ensure that water could not be made available to activities that establish subsequent to the Allocation Plan being made operative. The minimum flow requirements for pre-plan consents address the investment in infrastructure prior to the Allocation Plan being made operative. This proposed change would ensure that such water would not be available in the same band for activities that establish subsequent to the Allocation Plan becoming operative.

[689] We are satisfied for the above reasons that it is appropriate that this change be accepted.

Definitions

[690] The plan change, as notified, proposed:

- (a) inserting in section 10 a definition locating "*Black Point*". Black Point is a place that several of the rules the Allocation Plan refer to. The efficiency and effectiveness review concluded that it would assist implementation of the Allocation Plan for there to be a clear definition or location provided.

[691] No submissions were received on this amendment. We are satisfied, for the reasons set out in the Efficiency and Effectiveness Review that it is appropriate to introduce a definition of "*Black Point*"

³⁰⁸ Memorandum from Mr Regnault, dated 12 November 2015

³⁰⁹ Section 130(5) provides that if a regional plan will affect the exercise of existing resource consents under section 68(7), a consent authority is not required to comply with sections 95 to 95G (the notification provisions).

to section 10:

- (b) inserting a new definition for ‘cessation flows’ as an alternative to the ‘minimum flows’. This definition arose out of caucusing and was a consequential amendment to clarify the meaning of ‘cessation flows’ as used in Table 3A, to avoid confusion with ‘minimum flow.’

[692] We are satisfied that it is appropriate for this change to be accepted in the interests of clarity and recommend accordingly.

- (c) the deletion of the definition of “*Canterbury UO51/15*” as the definition is redundant.

[693] There was no submission to the contrary so we support its deletion.

A number of consequential amendments:

- (a) adding the words “*seasonal duration*” to Policy 15;
- (b) adding the words “*and Policy 47*” to the Explanation to Policy 28;
- (c) adding the words ‘*refer to Schedule 3*’ to footnote 15 to Policy 46.

[694] There were no submissions received on these changes and for consistency we approve them as consequential amendments.

Materials Incorporated by Reference

[695] The proposed plan change proposes the following amendments to Waitaki Catchment Water Allocation Plan Material incorporated by Reference:

- (a) Deletion of Table WQN26: Daily stockwater requirements; and
- (b) Deletion of Table WQN27: Example of application of provisions for stockwater

[696] The deletion, proposed in Plan Change 3 (as notified), has been amended by the Officer in his Reply, and it is now proposed to be incorporated in a new Schedule 1 (Reasonable Use Test for uses other than irrigation) to the Plan Change.

[697] As the tables apply over the whole of the Waitaki catchment area, we think it inappropriate to delete the tables and propose instead a note to be added under the new Schedule 1 which reads “*Note - Schedule 1 includes material from Table WQN26 and Table WQN27 of the NRRP*”.

Section 5 – Overall evaluation

- [698] The main purpose of the Council proposing this plan change was to give reliability to existing consent holders, largely represented during this hearing by WIC. This reliability would be provided by the amendments to Rule 2 (the minimum flow) and Rule 7, Table 6 (flow releases from Waitaki Dam). Complementary to these changes the plan change proposed a number of amendments that would affect the operation of the Waitaki Power Scheme. It was made clear to us that the consent holders, the abstractors and the hydro-electricity generator would volunteer changes to their respective consents to implement the plan change. In turn, that would provide longer term certainty for the abstractors and the hydro-electric operations.
- [699] It is this agreement to implement the proposed plan change by these principal consent holders (Meridian and members of WIC) that forms the basis for the attainment of the outcomes sought. A failure to carry this intent out, by not reviewing the consents, would effectively nullify the plan change.
- [700] Having received undertakings from the principal consent holders it is our expectation that the necessary reviews of the relevant consent conditions will be implemented with immediate effect. This could be achieved by proceedings under either s127 or s128 of the RMA. While, some discussion took place at the hearing as to the appropriate pathway, the parties did not reach a final agreement on the most appropriate mechanism.
- [701] However, we note that a review enabled by s68(7) is subject to s130(5) of the RMA which would enable the review of conditions of consents to occur without notification, pursuant to Rule 25 of the Allocation Plan.
- [702] The undertakings that were given by the principal consent holders are attached as Appendix 2A and 2B. Their relevance only became pertinent in the event that the proposed plan change provisions meet the relevant directions of the statutory documents. For the reasons set out in our recommendation we have found that the provisions pass the threshold of satisfying the statutory tests, including Part 2, the objectives and policies of the Allocation Plan and the effects on the environment, a matter we discuss in detail in the body of this recommendation report.
- [703] We have, for convenience and ease of analysis, grouped the proposed plan change provisions into themes. However, we recognise the need to look at the plan change as a complete package. A package that has been developed by a process initiated by the South Coastal Canterbury Zone Water Management Committee as part of the strategic framework set up under CWMS.
- [704] The plan change provisions have been grouped into themes to reflect the areas of concern raised by the stakeholders. In summary the scope of the plan change addresses:

- (a) the minimum flow and supply of water for security of supply for existing consents;
- (b) the allocation of water for enhancement of mahinga kai and augmentation for the Wainono Lagoon;
- (c) the inclusion of tributaries in the minimum flow table;
- (d) exemptions to the minimum flow during low flow periods;
- (e) the basis for flow compliance;
- (f) the annual allocation by volume of water to all activities;
- (g) the exclusion of diversions from the counting of instantaneous allocation limits and annual allocation volumes;
- (h) the efficiency of the use of water;
- (i) the activity status for the replacement of existing hydro-electricity generation consents;
- (j) the temporary lowering of the Lake Pūkaki water level during electricity shortages; and
- (k) a number of complementary changes to the proposed new flow regime.

[705] As the proposed changes are to the policies and rules, our starting point has been the objectives of the Allocation Plan, which are not proposed to be amended. This is because a Regional Plan must state (inter alia);³¹⁰

- (a) the policies to implement the objectives; and
- (b) the rules to implement the policies.

[706] Thus, the policies must be consistent with the objectives and the rules must be consistent with the policies.

[707] In making rules we are to have regard to the actual and potential effects on the environment.³¹¹

[708] The objectives of the Allocation Plan, particularly Objective 1 (which Objective 2 must be consistent with), give strong directions requiring us to recognise, provide for and safeguard the environment associated with the River and its margins. It is for this reason that we have assessed the proposed changes against the existing consented environment in some considerable detail.

[709] The change to the minimum flow regime was the most contentious of the issues before us because of the potential environmental effects on the River and its associated values. We have considered the following flow regime scenarios:

³¹⁰ Section 67(1) of the RMA

³¹¹ Section 68(7) of the RMA

- (a) the existing allocation regime;
- (b) the Allocation Plan regime;
- (c) the alternative regime from LWRMS;
- (d) PC3 as drafted and notified by the CRC;
- (e) the alternative regime proposed by Meridian and Ngāi Tahu;
- (f) the alternative regime proposed by Fish and Game;
- (g) the alternative regime known as the “Caucus Option”, and
- (h) the effects of the chosen option if the mahinga kai allocation is or is not taken or diverted.

[710] When considering each of the scenarios we have paid particular attention to the River and its associated values, including on:

- (a) mana whenua cultural values;
- (b) the River’s hydrology;
- (c) the ecology and water quality of the River;
- (d) economic considerations;
- (e) natural character and landscape of the river environs; and
- (f) the recreation activities that take place on the River.

[711] We have assessed the potential effects of each scenario against the baseline, or reference point, of the existing environment which reflects the existing allocation regime.

[712] We have found that the provisions, as set out in Appendix B, will provide for the environmental objectives while at the same time providing for the matters set out in the remaining objectives.

[713] We have undertaken our analysis on the basis that the objectives of the Allocation Plan have adequately subsumed the principles set out in the RMA and the relevant statutory instruments extant at the time the Allocation Plan was made operative, a matter that was not in dispute.

[714] Since the Allocation Plan was made operative, a number of higher order statutory instruments have been made operative. They include:

- (a) the New Zealand Coastal Policy Statement 2010;
- (b) the National Policy Statement for Renewable Electricity Generation 2011;
- (c) the Canterbury Regional Policy Statement 2013; and
- (d) the National Policy Statement for Freshwater Management 2014.

- [715] Of particular relevance to this Plan Change are the NPSFM and the NPSREG. In the context of water quantity, the NPSFM requires that the water is not over allocated to the extent that other objectives are not met. Life supporting capacity of water, ecosystem processes and indigenous species must be “*safeguarded*”³¹² and outstanding water bodies must be “*protected*”.³¹³
- [716] We are satisfied, for the reasons set out in the body of this report, that the Lower Waitaki Catchment is not over-allocated, and that the proposed regime as set out in Appendix **B** safeguards the attributes set out in Objectives B1 and B4 respectively.
- [717] The proposed provisions relating to electricity generation recognise the importance of electricity generation in the Waitaki Catchment and reflect the strong directions contained in the NPSREG.
- [718] We have accordingly addressed the relevant provisions of these later instruments even though the evidence and submissions indicated that the objectives of the Allocation Plan appropriately reflected the relevant provisions.
- [719] In evaluating the provisions as set out in Appendix B we have:
- (a) examined whether they give effect to the single purpose of the Act;³¹⁴
 - (b) examined whether they are the most appropriate way to achieve the objectives of the Plan;³¹⁵
 - (c) examined whether they give effect to the relevant National Policy Statements;³¹⁶
 - (d) with respect to rules, examined whether they achieved the objectives and policies of the Allocation Plan and have had regard to the effects of the activities on the environment;³¹⁷
 - (e) assessed their efficiency and effectiveness of implementing them with reference to the Council officers’ reports and evaluations, the evidence adduced and the submissions and representations made;³¹⁸ and
 - (f) examined and assessed the efficiency and effectiveness of other reasonably practicable options.
- [720] We have been greatly assisted by the Council officers’ detailed reports. They assisted us to make the necessary evaluations, and we have adopted those reports and evaluations on certain matters as set out in the body of this report.
- [721] We are satisfied that the provisions set out in Appendix **B** comply with the relevant statutory

³¹² Objective B1

³¹³ Objective B4

³¹⁴ Section 5 and Part 2 of the RMA

³¹⁵ Section 32(1)(b)(1) of the RMA

³¹⁶ Section 63(3) of the RMA

³¹⁷ Section 68 of the RMA

³¹⁸ Section 32(a) of the RMA

directions. Overall we consider that Plan Change 3, as we recommend it, has a number of benefits, including:

- (a) it provides for security of supply for existing consent-holders and accordingly recognises the invested infrastructure for those activities;
- (b) it strengthens the efficiency and effectiveness of takes by introducing a reasonable use test for irrigation that is consistent with the rest of the Canterbury region;
- (c) water is reserved for enhancement of mahinga kai;
- (d) the water needed for augmentation of the Wainono Lagoon is reserved;
- (e) the importance of hydro-electricity generation activities in the catchment is acknowledged by streamlining the consent process, providing certainty for applications for replacement consents, and providing operational flexibility;
- (f) the over-allocation of the annual allocation by volume for agricultural and horticultural activities is addressed;
- (g) it clarifies implementation of the allocation by making it clear that non-consumptive diverts are not to be counted as part of the allocation limits;
- (h) it provides a definition for Black Point that will aid in the implementation of Table 5; and
- (i) it has a high degree of support among stakeholders and responds to a solution that was collaboratively developed in a manner consistent with the Canterbury Water Management Strategy.

Section 6 – Conclusion and Recommendation

[722] We have considered and deliberated on proposed Plan Change 3; the submissions lodged on it; the further submissions lodged on it; the reports of the Council officers; and the evidence and submissions made and given at our public hearings or lodged with the hearing manager.

[723] We have considered, to the degree directed by statute, the matters set out in:

- (a) the Resource Management Act;
- (b) the relevant National Policy Statements; and
- (c) the relevant statutory instruments.

[724] We have had particular regard to the Vision and Principles of the Canterbury Water Management Strategy set out in Part 1 of Schedule 1 of the Environment Canterbury (Temporary Commissioner and Water Management) Act 2010.

[725] Our reasons for our recommendations are set out in the main body of this Recommendation Report.

[726] We accordingly recommend the provisions of Plan Change 3 as set out in Appendix B to this Report.

DATED 3 June 2016



Gordon Whiting, Hearing Commissioner (Chairman)



Andrew Fenemor, Hearing Commissioner



Edward Ellison, Hearing Commissioner

Appendices

Appendix A – Schedule of Recommended Decisions

Appendix A to this recommendation is separately bound.

Appendix B – Proposed Plan Change 3 – Inclusive of Recommended Amendments

Appendix B to this recommendation is separately bound.

Appendix 1 – Reference Material

Appended to this document.

Appendix 2A – Meridian Undertaking

Appended to this document.

Appendix 2B – WIC Undertaking

Appended to this document.

Appendix 1

Reference Material

1. Waitaki Catchment Water Allocation Regional Plan (2006).
2. Waitaki Catchment Water Allocation Regional Plan Material Incorporated by Reference (2005).
3. Waitaki Catchment Water Allocation Regional Plan Annex 1 Decision and Principal Reasons for adopting the plan provisions (2005).
4. Progress towards achieving objectives of the Waitaki Catchment Water Allocation Regional Plan (December 2012), Environment Canterbury.
5. Plan Change 1 to the Waitaki Catchment Water Allocation Regional Plan (2012).
6. Plan Change 2 to the Waitaki Catchment Water Allocation Regional Plan (2013).
7. Vision and Principles of Canterbury Water Management Strategy – Strategic Framework (November 2009), extract from Schedule 1 to Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2010.
8. Lower Waitaki South Coastal Canterbury Zone Implementation Programme (February 2012), Environment Canterbury.
9. Addendum to the Lower Waitaki Implementation Programme (August 2012), Environment Canterbury.
10. Waitaki Catchment Water Allocation Regional Plan Proposed Plan Change 3 and Section 32 Assessment (19 June 2014), Environment Canterbury. Report Number R14/50
11. Waitaki Catchment Water Allocation Plan – proposed plan change PC3 Ecological Considerations (February 2014), Ryder Consulting Ltd.
12. Lower Waitaki River Riparian Wetlands (February 2014). Memorandum by G. Ryder, Ryder Consulting Ltd.
13. Lower Waitaki Plan Change Economic Impact of Changes to Flow (May 2014), Harris Consulting.
14. Land and Water Regional Plan Report and Recommendations of the Hearing Commissioners (December 2013), adopted by Council as its Decision Report No. R14/3.
15. Project Aqua Assessment of Effects on the Environment (May 2003), Meridian Energy Ltd.
16. Angler usage of lake and river fisheries managed by Fish & Game New Zealand: results from the 2007/08 National Angling Survey (2009), NIWA.
17. Nature, Cultural and Heritage Tourism and Associated Leisure Activities in the Waitaki District (2004), Kearsley & Middleton.
18. Te Rūnanga o Ngāi Tahu - Freshwater Policy (undated).
19. Kai Tahu ki Otago Natural Resource Management Plan (1995), revised in 2005.
20. Te Whakatau Kaupapa - Resource Management Strategy for Canterbury (1992).
21. Iwi Management Plan of Kati Huirapa- Arowhenua – Rakaia to Waitaki (1992).
22. Canterbury Regional Policy Statement 2013.
23. National Policy Statement for Renewable Electricity Generation 2011.
24. National Policy Statement for Freshwater Management 2014.

25. Ahuriri Water Conservation Order 1990.
26. Central South Island Sports Fish and Game Management Plan 2012-2022
27. Plan Change 3 Summary of Decisions Requested Report (29 November 2014), Environment Canterbury.
28. Section 42A Report (April 2015) Report No. R15/47.
29. Memorandum on Modelling Assumptions for Flow Duration Curves (Figure 1 s42A Report). (5 May 2015). Prepared by Jeanine Topélen.
30. Memorandum Surface Water Science Response to matters arising from Proposed Plan Change 3 to the Waitaki Catchment Water Allocation Regional Plan Hearing week 1 (9, 10 and 12 June 2015), prepared by Jeanine Topélen for Environment Canterbury.
31. Plan Change 3 to the Waitaki Catchment Water Allocation Regional Plan. Officer's Reply: Part 1 – Evaluation and Technical Responses (July 2015), prepared by Nick Regnault and Jeanine Topélen.
32. Plan Change 3 to the Waitaki Catchment Water Allocation Regional Plan. Officer's Reply: Part 2 – Legal Submissions (July 2015), prepared by Philip Maw.
33. Waitaki Catchment Water Allocation Regional Plan Proposed Plan Change 3 Section 32AA Evaluation (July 2015), Environment Canterbury.
34. Council Response to Questions of Hearing Commissioners on Expert Evidence & Council Reports set out in Minute dated 27 May 2015.
35. Joint Statement of Hydrology Witnesses (June 2015).
36. Joint Statement in relation to Natural Inflows (29 June 2015).
37. Joint Statement of Witnesses in relation to the flow regimes (3 July 2015).
38. Memorandum in response to questions on s42A Reply Report (11 August 2015), prepared by Nick Regnault and Jeanine Topélen.
39. Response to Further Questions (including Minute 8) (28 August 2015), prepared by Nick Regnault and Jeanine Topélen.
40. Memorandum Plan Change 3 Minute 8 – Correction to Information Previously Supplied (12 November 2015), prepared by Jeanine Topélen.
41. Officer's Reply to Minute 9 –hydro-electricity generation activity status (October 2015). Prepared by Nick Regnault and Philip Maw.
42. Joint memorandum of Counsel in Response to Minute 10 (12 November 2015).
43. Memorandum Plan Change 3 Minute 10 (12 November 2015). Prepared by Nick Regnault.
44. Memorandum of Counsel on behalf of the Canterbury Regional Council (15 April 2016) [Response to Minute 11].
45. Statement of Evidence of Greg Ryder dated 15 April 2016 [Response to Minute 11].
46. Statement of Evidence of Mark Sanders dated 15 April 2016 [Response to Minute 11].
47. Statement of Evidence of Jeanine Topélen dated 15 April 2016[Response to Minute 11].
48. Statement of Evidence of Ned Norton dated 15 April 2016[Response to Minute 11].
49. Statement of Evidence of Nick Regnault dated 15 April 2016[Response to Minute 11].

Appendix 2A

Meridian Undertaking

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Proposed Plan Change 3 to the Waitaki Catchment
Water Allocation Regional Plan

UNDERTAKING ON BEHALF OF MERIDIAN ENERGY LIMITED

12 August 2015

ANDERSON LLOYD
LAWYERS
DUNEDIN

Solicitor: S W Christensen
(stephen.christensen@andersonlloyd.co.nz)

Level 10, Otago House
Cnr Moray Place & Princes
Street,
Private Bag 1959,
DUNEDIN 9054
DX YX 10107
Tel 03 477 3973
Fax 03 477 3184

Preamble

Environment Canterbury undertook a collaborative plan development process, including via the Lower Waitaki Canterbury Water Management Strategy Zone Committee, in order to develop Plan Change 3. Meridian Energy Limited participated in that process and joined the multi-lateral Zone Committee agreement on a suitable package of provisions to amend the Waitaki Catchment Water Allocation Regional Plan as part of Plan Change 3. This package has both costs and benefits for the operation of the Waitaki Power Scheme. Meridian is committed to the implementation of this collaborative package and accordingly provides the undertaking below.

Meridian Energy Limited notes that from its perspective the collaborative package as publically notified includes flow requirements at the Waitaki Dam (due to Rule 7 and the expectation of the implementation of this rule) that result in electricity generation costs. Subsequent to public notification of Plan Change 3, in order to better provide for mahika kai flow values of Ngāi Tahu, Meridian agreed to be subject to additional minimum flows at the Waitaki Dam, increasing the electricity generation costs. Finally, to support agreement being reached as part of the flow caucusing (3 July 2015), Meridian again agreed to be subject to further increased minimum flows at the Waitaki Dam.

Meridian has consistently sought through its action and evidence to support the achievement of the multilateral collaborative package.

Undertaking

Meridian Energy Limited records and undertakes to allow to the extent necessary the derogation from its existing consent to use water for the purposes of Power Generation at the Waitaki Dam (CRC905361.3) to implement the Meridian agreed provisions relating to:

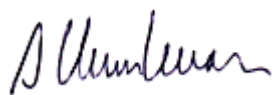
- 1 Required flows into the Lower Waitaki River at the Waitaki Dam;
- 2 24-hour averaging measurement; and
- 3 Calculated natural inflow.

These provisions are as agreed by Meridian in caucusing with Environment Canterbury, Ngāi Tahu and Waitaki Irrigators Collective, and as set out in the attached revised Waitaki Catchment Water Allocation Regional Plan Proposed Plan Change 3 as presented to the Hearing Panel by Environment Canterbury on 11 August 2015 (the '11 August 2015 provisions').

This undertaking is reliant upon:

- 1 The Lower Waitaki River flow and allocation provisions forming part of Plan Change 3 being adopted by Environment Canterbury and made operative as set out in the 11 August 2015 provisions. Meridian will still be bound by this undertaking if there are any minor changes to the wording of the relevant policies and rules which do not alter the intent of the 11 August 2015 provisions, provided they do not alter any of the obligations imposed upon, or flexibilities provided for, the operator of the Waitaki Dam to provide flows into the Lower Waitaki River.
- 2 The proposed changes forming part of Plan Change 3 relating to the ability to apply for resource consent in relation the lowering of the level of Lake Pukaki to 515 metres a.m.s.l as set out in the 11 August 2015 provisions being adopted and made operative.
- 3 Inclusion of a new operative rule (currently proposed Rule 15A) relating to the reconsenting of the existing hydro electricity infrastructure in the catchment. In the event that the High Court¹ determines that controlled activity status is lawful for water permits, then rule 15A making the activity a controlled activity in the form contained in Meridian's submission, or as otherwise agreed by Meridian as a result of any directions from this Hearing Panel. If the High Court determines that controlled activity status for water permits is unlawful then rule 15A making the activity a restricted discretionary activity in the form as publicly notified as part of Plan Change 3 by Environment Canterbury, or as otherwise agreed by Meridian as a result of any directions from this Hearing Panel.

DATED this 12th day of August 2015



S W Christensen
Counsel for Meridian Energy Limited

¹ A decision of the High Court on the lawfulness of controlled activity status for water permits is pending on appeals on the Proposed Canterbury Land and Water Regional Plan by Trustpower Limited (CIV-2014-409-61), Genesis Energy Limited (CIV-2014-409-76) and Rangitata Diversion Race Management Limited (CIV-2014-409-62)

Appendix 2B

WIC Undertaking

BEFORE THE CANTERBURY REGIONAL COUNCIL

UNDER	the Resource Management Act 1991
IN THE MATTER	of the hearing of submissions on proposed Plan Change 3 to the Waitaki Catchment Water Allocation Regional Plan
BY	WAITAKI IRRIGATORS COLLECTIVE LIMITED WAITAKI INDEPENDENT IRRIGATORS INCORPORATED NORTH OTAGO IRRIGATION COMPANY LIMITED Submitters
AND	CANTERBURY REGIONAL COUNCIL Local Authority

**UNDERTAKING ON BEHALF OF WAITAKI IRRIGATORS
COLLECTIVE LIMITED**

13 AUGUST 2015

GALLAWAY COOK ALLAN
LAWYERS
DUNEDIN

Solicitor on record: Bridget Irving
Solicitor to contact: Bridget Irving
P O Box 143, Dunedin 9054
Ph: (03) 477 7312
Fax: (03) 477 5564
Email: bridget.irving@gallawaycookallan.co.nz

MAY IT PLEASE THE COMMISSIONERS:

Further to the discussions had between the Commissioners and Counsel at the reconvened hearing on 11 August 2015 Waitaki Irrigators Collective Limited agreed to provide an undertaking to the Commissioners in respect of the steps that will required to implement PC3 should it become operative.

As outlined by Counsel for Meridian Energy Limited in its undertaking dated 12 August 2015, PC3 is the outcome of a comprehensive process of collaboration between stakeholders in the Waitaki Catchment to develop an allocation regime that best serves the interests of all parties. The process has involved a high degree of good will and a process of giving and taking in order to develop a workable framework. That culminated in the caucusing statement on flow allocation dated 3 July the outcome of which has now been incorporated into PC3.

Waitaki Irrigators Collective Limited (“WIC”) have also considered the changes that have been made to PC3 in response to questions from the Commissioners and the discussions that took place during the reconvened hearing of 11 August 2015.

WIC is a representative company formed by the majority of the irrigators that lake water from Lake Waitaki and the Lower Waitaki River. The shareholders are:

- a. Kurow-Duntroon Irrigation Company Limited;
- b. North Otago Irrigation Company Limited;
- c. Morven, Glenavy, Ikawai Irrigation Company Limited;
- d. Lower Waitaki Irrigation Company Limited;
- e. Maerewhenua District Water Resource Co. Limited; and
- f. Waitaki Independent Irrigators Incorporated.

The giving of this undertaking has been authorised by the companies listed above. Individual authorisation from the members of the Waitaki Independent Irrigators Society has not been obtained. However, WIC is instructed by the Society to manage PC3 matters on its behalf. It is anticipated that WIC will continue to manage matters related to PC3,

including any future consent reviews on behalf of the Society members.

For completeness there some further resource consents to take water from the Lower Waitaki River that are held by individuals and organisations that are not represented by WIC, including Hunter Downs Irrigation Limited.

UNDERTAKING

Waitaki Irrigators Collective Limited gives the undertaking below in relation to any review by Environment Canterbury under section 128(1)(b) of the conditions of the resource consents held by its constituent shareholders for the purpose of implementing the lower Waitaki River flow and allocation regime as agreed by Waitaki Irrigators Collective Limited, Meridian Energy Limited, Environment Canterbury and Ngai Tahu, and as set out in a clarified form in the revised Waitaki Catchment Water Allocation Regional Plan Proposed Plan Change 3 as presented to the Commissioners by Environment Canterbury on 11 August 2015 (“the revised PC3”).

Where Environment Canterbury seek to review consents held by Waitaki Irrigators Collective Limited’s members in accordance with section 128(1)(b) to implement the minimum flow and cessation flows in the revised PC3, Waitaki Irrigators Collective Limited **undertakes** not to raise any legal objection to implementing the minimum flow and cessation flows for the reason that it would derogate from the rights provided for by the existing resource consents. For the avoidance of doubt, this undertaking does not restrict the ability of those consent holders to raise other matters relevant to the consent authority’s consideration under section 131(1)(a) of the Act.

That undertaking is **conditional** upon the revised PC3 recommended by the Commissioners and being adopted and made operative by the Canterbury Regional Council including the following:

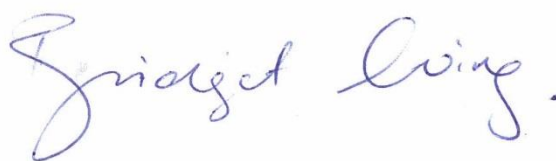
- g. The lower Waitaki River flow and allocation regime as set out in the revised PC3; and
- h. The annual allocation as specified in Table 5(v) - downstream of Waitaki Dam but upstream of Black Point being 200 million m³/ year for agricultural and horticultural activities as specified

in the revised PC3; and

- i. The definition of "Allocation limits" as set out in the revised PC3 and;
- j. Rules 6 and 7 as set out in the revised PC3.

The Waitaki Irrigators Collective Limited is still bound by this undertaking where the Commissioners recommend minor changes to the provisions of the revised PC3 that do not alter the effect of the revised PC3 on the Waitaki Irrigators Collective Limited and the reliability of supply of irrigation water provided by the revised PC3.

These undertakings are **further conditional** upon Meridian Energy Limited consenting to the review (or variation) process of their resource consent CRC905361.3 for the Waitaki Dam for the purpose of implementing the lower Waitaki River flow and allocation regime and consistent with Rule 7 of the revised PC3.



Signed:.....

Date: 13 August 2015