In the matter of the Resource Management Act 1991

And

In the matter of resource consent applications by Rangitata Diversion Race Management Limited

TABLED AT HEARING
Application: RDRMC
Joint hearing
e: 3 May 2018

Legal submissions on behalf of Central South Island Fish and Game Council

3 May 2018

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Introduction

1 These submissions are made on behalf of Central South Island Fish and Game Council (**CSIFG**). CSIFG is the statutory body responsible for managing, maintaining and enhancing the sports fishery resource, and representing the interests and aspirations of anglers in statutory planning processes.

2 The Rangitata River is recognised as through the Water Conservation Order (**WCO**) as having a number of nationally outstanding characteristics. Below the Klondyke flow recorder, Schedule 2 of the WCO recognises the following outstanding characteristics or features:

(a) Salmon fishing;

(b) Salmon passage;

(c) Water based recreation (Klondyke to SH 72 bridge at Arundel only);

(d) Significance for Ngai Tahu;

(e) Aquatic macroinvertebrates;

(f) Scientific – braided river;

(g) Salmon spawning (Ealing Springs Stream and McKinnons Creek only).

(h) Aquatic bird habitat (SH 72 bridge at Arundel to Coast only); and

(i) Spiritual and cultural values (SH 72 bridge at Arundel to Coast only).

3 The Rangitata River is consistently one of the top five rivers fished in New Zealand, attracting approximately 30,000 angler-days of fishing effort. The focus of that effort (and resulting catch) is on salmon angling below Klondyke.[1] That is the stretch of the river that will be affected by the proposed RDRML abstraction.

4 The WCO contains particular restrictions and prohibitions with respect to material alteration of braided river channel characteristics, adverse effects on the passage of salmon, requirements for fish screens, and maintenance of water quality standards. The Regional Council cannot issue a resource consent contrary to those directive provisions[2].

5 In summary CSIFG's position is that the cumulative effects of the proposed additional $10m^3/s$ block take, together with existing abstraction, will breach

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[1] Evidence of Mark Webb, paragraphs 29 - 47

[2] Section 217(2)

several of the prohibitions in the WCO, will not protect the outstanding characteristics of the Rangitata River as required by the WCO, National Policy Statement for Freshwater Management (**NPSFM**) and Canterbury Regional Policy Statement (**RPS**). Nor will it meet the objectives of the Canterbury Land and Water Regional Plan (**CLWRP**).

6 Effects of particular concern to CSIFG are:

(a) Reductions in flow variability;

(b) Adverse effects on bedload transport and channel morphology;

(c) Increased deposition of fine sediment and associated ecological effects;

(d) Adverse effects on salmon passage; and

(e) Deterioration in water quality as a result of discharges from the storage pond.

7 In addition, Mr Webb's evidence is that there will be no benefits in terms of salmon angling.

8 As will be addressed in detail in these submissions, based on the current understanding of these effects, CSIFG considers that the Regional Council is prevented from granting consent through the operation of sections 104(3)(c)(i) and 217 and the terms of the WCO, and on the merits consent should also be declined as being contrary to key directive policies in the NPSFM and RPS in particular. However, if consent is to be granted, at the very least a more comprehensive set of conditions are sought by CSIFG, addressing the below matters:

(a) Fish screen

(i) a requirement that the fish screen be in place by 1 August 2019;

(ii) a requirement that the screen prevent fish from being lost from the river (as required by the WCO);

(iii) adherence to an appropriate design standards, having regard to CLWRP Schedule 2, the NIWA guidelines, and the volume of water to be abstracted;

(iv) greater detail regarding operation and maintenance requirements;

(v) inclusion of a Fish Screen Management Plan which provides for in-situ verification that design standards are being met, and verification

(based on live fish trials) that the screen and bypass are preventing fish from being lost from the river; and

(vi) requirements for investigation and remediation if the screen is not performing as required.

(b) Take of $10m^3/s$ to storage – a requirement that this consent not be exercised until fish screen compliance has been verified.

(c) Non-consumptive take for the bypass – revision to the prescribed abstraction regime to enable testing of diversion of the full $5m^3/s$ whenever consumptive takes are operating, and to enable that to continue if it is demonstrated that it is beneficial to returning fish to the river.

(d) Bedload transport and sediment deposition:

(i) Periodic surveys of channel morphology and bed-material size-grading downstream of the RDDR intake to record the morphological change anticipated with flood harvesting;

(ii) Monitoring fine sediment deposition in low energy environments downstream of the RDR intake;

(iii) Monitoring of the connectivity of the proposed fish bypass channel with the Rangitata main channel at the discharge point (accepted by the Applicant); and

(iv) Adaptive management responses should monitoring demonstrate that this is required.

(e) 'Test' discharges from the storage pond

(i) Duplicate the requirement for monitoring of water quality in the storage pond (from CRC170657); and

(ii) Include a requirement for water quality monitoring in the Rangitata River during discharges; and

(iii) Set out an adaptive management approach in the event that discharges do not meet the WCO clause 11 standards, for example preventing discharges when water quality monitoring within the storage pond breaches specified limits, or increasing the minimum river flow at the time of discharge.

9 CSIFG supports the proposed mechanical rotary fish screen concept. However, CSIFG has learnt from experience with other fish screens, including the Bio-

acoustic Fish Fence (**BAFF**) currently installed on the RDRML intake, that issues regarding screen effectiveness can arise, and comprehensive conditions are required to address these situations. Given its outstanding salmon fishery values, it is particularly important that fish are not lost from the Rangitata River. The Regional Council cannot grant consent for a new take unless that standard is met. Mr Webb explains testing which has been undertaken to estimate current losses of juvenile salmon to the RDR. It is estimated that between 5% and 25% of all juvenile salmon migrating past the RDR intake are currently diverted into the RDR. That equates to an average of 38,300 to 191,600 juvenile salmon being lost each year since 2008, and as many as 376,000 fish in the 2013/14 season.[3] The Rangitata River has been identified for its outstanding salmon passage and salmon fishery values, but the salmon population is declining. Significant losses of fish to the RDR should not continue.

10 These submissions will therefore address:

(a) Legal and planning framework;

(b) Assessment of RDRML's proposal;

(c) Consent conditions sought by CSIFG in the event consent is granted;

(d) Scope for mitigation measures suggested by CSIFG;

(e) Use of water; and

(f) Fish screen.

Legal and planning framework

Water Conservation Order

11 WCOs are provided for iconic freshwater bodies of New Zealand in order to protect those wild, scenic and nationally outstanding water bodies. A WCO is New Zealand's highest level of recognition that can be afforded to a body of freshwater,[4] as the measure of "outstanding" is assessed on a rigorous national comparative basis. The purposes of a WCO, defined in section 199, are to first "recognise" and then to "sustain" through "preservation" or "protection", natural state of water bodies and outstanding characteristics. So a WCO's purpose is twofold, to first confer status, and then to protect the values that give rise to that status.

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[3] Evidence of Mark Webb, paragraphs 84 – 89.

[44] Rangitata South Irrigation Limited v New Zealand and Central South Island Fish and Game Council C109/2004 at [17]

12 The Rangitata WCO recognises that the river is an outstanding water body with respect to identified values, features and characteristics.

13 The WCO provides for the protection of those outstanding characteristics (below Klondyke) by imposing directive prohibitions and restrictions, that:

(a) Prevent the material alteration of the channel cross-section, or meandering pattern, or braided river channel characteristics (clause 9(1));

(b) Prevent any activity that will adversely affect the passage of salmon (clause 10(1));

(c) Require that resource consents provide for a fish exclusion or a fish bypass system to prevent fish from being lost from the specified waters (clause 10(2); and

(d) Prevent any discharge which, after allowing for reasonable mixing of the discharge with the receiving waters, will not achieve one of the listed water quality parameters with respect to temperature, pH, biological growths, suitability of aquatic organisms for human consumption; suitability of water for contact recreation; and dissolved oxygen levels (clause 11).

14 It has been suggested by the Applicant that clause 13(a) (iii) of the WCO provides an exemption to compliance with the clause 11 requirements for water quality following discharges, where "the discharge is associated with necessary construction and maintenance work relating to works and structures not otherwise prohibited by the Order", and that this exemption would apply to discharges required for periodic testing of the storage pond outlet gate. However the application of clause 13(a) is not relevant to that discharge in my submission as clause 13 (b) provides that the exemption only applies where "the exercise of any such resource consent would not compromise the preservation and protection of the outstanding characteristics and features identified for the waters".

15 Sections 104(3)(c)(i) and 217 RMA require that, where a water conservation order is operative, the relevant consent authority shall not grant a water permit or discharge permit if the grant of that permit would be contrary to any restriction or prohibition or any other provision of the order. The provisions of the WCO are not matters of discretion. They are akin to a prohibited activity rule. The Regional Council cannot grant consent where this would be contrary to one of the provisions above – there is no discretion in this regard.

16 At the policy level, Ms Marr concludes that :

> ...the primary policy directive for the Rangitata River is to protect the outstanding characteristics, features and values identified in the WCO. Where specific directions are given in the WCO these must be followed. Where no

> specific directions are given, management of the resource should result in the identified outstanding values being protected.

17 Specific direction in the WCO includes an allocation regime for abstraction of flows up to $110m^3/s$. There is no prescribed allocation regime for flows above $110m^3/s$, and therefore the proposed abstraction is not contrary to the restrictions in relation to abstraction of those flows. That is not the same as being in accordance with a considered and settled flow and allocation regime. The proposal must still be assessed against the strict prohibitions in the WCO, and the general directive protections for outstanding water bodies.

18 Ms Hamm has referred you to the Environment Court decision which declined to recommend an allocation regime for flows over $110m^3/s$. However the earlier recommendation of the Special Tribunal did recommend a limit on abstraction above $110m^3/s$, of $20m^3/s$ in two steps. The Special Tribunal's recommendation records their findings in relation to the importance of these flows to maintaining the outstanding characteristics. Relevant extracts from the decision are attached in Appendix 1. The issue of whether abstraction above $110m^3/s$ should be restricted in the WCO was ultimately not tested in the Environment Court therefore little can be drawn from that fact. The Environment Court later recorded[5]:

> No party argued for retention of caps (ii) and (iii), and in our opinion there should be no prohibition on takes at Klondyke flows above $110m^3/s$. Restrictions on takes when the river is flowing above that rate are an issue that should be left for a regional water plan, or for individual water permit conditions.

19 Notwithstanding that the high flow allocation limit was not pursued by any party, the Special Tribunal's findings are informative as to the importance of flows above $110m^3/s$ for the identified outstanding values. In addition to the $33m^3/s$ allocated below $110m^3/s$, a total of $22.6m^3/s$ have already been allocated from flows above $110m^3/s$. The evidence of Mr Keene identifies the significant effect that those abstractions are having on the flow regime including flushing flows,[6] and Dr Meredith concludes that "the very high current and proposed rate of abstraction leads to a high degree of hydrological alteration"[7]. The current application seeks a further $10m^3/s$, to increase the total high flow allocation to $32.6m^3/s$. That is a sizeable abstraction to add to an already highly modified flow regime. In the absence of a regional plan for high flow allocations from the Rangitata River,

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[5] *Rangitata South Irrigation Ltd and Ors v New Zealand and Central South Island Fish and Game Council*, C109/2004, at page 86

[6] Evidence of Alasdair Keene, Table 2, page 6

[7] Canterbury Regional Council s42A, Dr Adrian Meredith, page 3

resource consent applications are the process for determining at what point further abstraction will have a detrimental effect on protection of the outstanding values recognised by the WCO. CSIFG's position is that that point has been reached.

Other protections of outstanding water bodies

20 The National Policy Statement for Freshwater Management 2014 (**NPSFM**) directs that the significant values of outstanding freshwater bodies are to be protected.[8] Consistent with that direction, the Canterbury Regional Policy Statement (**RPS**) contains a directive Policy 7.3.3 to:

> *...identify and protect* areas of significant indigenous vegetation, and significant habitats, sites of significant cultural value, wetlands, lakes and lagoons/hapua, and other *outstanding water bodies*:...

21 The issue of prescriptive policy was considered in relation to the NZCPS in *King Salmon*[9], where the Supreme Court stated:

> ...particular policies leave those who must give effect to them greater or lesser flexibility or scope for choice. Given that environmental protection is an element of the concept of sustainable management, we consider that the Minister was fully entitled to require in the NZCPS that particular parts of the coastal environment be protected from the adverse effects of development. That is what she did in policies 13(1)(a) and 15(a), in relation to coastal areas with features designated as "outstanding".

22 While the requirement in a resource consent application context is to "have regard to" the provisions of the NPSFM and RPS rather than "give effect to" it as considered by the Supreme Court above, the wording of the objectives does not promote flexibility as to the treatment of outstanding waterbodies, but instead provides a consistent directive requirement through national and higher order regional planning documents to protect the outstanding values of the Rangitata River.

23 In *R J Davidson*[10], the prescriptive policies of the NZCPS contributed to the Environment Court's decision that consent should be declined. The Court stated:

> [260] We accept that in this proceeding we are not obliged to give effect to the NZCPS, merely to "have regard to" it, and even that regard is "subject to Part 2" of

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[8] NPSFM Objectives A2(a) and B4

[9] *Environmental Defence Society Inc v The New Zealand King Salmon Company Ltd,* [2014] NZSC 38, at [52]

[10] *R J Davidson Family Trust v Marlborough District Council,* [2016] NZEnvC 81 at [297]

> the RMA. However, logically the *King Salmon* approach should apply when applying for resource consent under a district plan: absent invalidity, incomplete coverage or uncertainty of meaning in that plan or in any later statutory documents which have not been given effect to, there should be usually no need to look at most of Part 2 of the RMA. We note that the majority of the Supreme Court in *King Salmon* was clearly of the view that its reasoning would apply to applications for resource consents. (footnotes omitted)

24 In summary, the Court held that weight should be given to directive policies without recourse to an overall broad judgement under Part 2, unless there is illegality, uncertainty or incompleteness in those provisions (noting that assessing those matters may in itself require recourse to Part 2), in which case reference should be had to higher order documents, or ultimately Part 2, to address that deficiency.[11]

25 The Canterbury Land and Water Regional Plan (**CLWRP**), however, does not identify or define outstanding water bodies, or afford them specific protection. Given the direction in the NPSFM and the RPS to do so, the CLWRP is therefore incomplete with respect to protection of outstanding waterbodies. In these circumstances, decision makers are required to refer back to the higher order planning documents for direction[12].

26 The Rangitata River is clearly identified as a nationally outstanding waterbody through the WCO, including in relation to its outstanding salmon fishing, salmon passage, water based recreation, significance for Ngai Tahu, aquatic macroinvertebrates, aquatic bird habitat, and scientific values as a braided river.

27 The identification of those values are also relevant to your assessment under Part 2, including in relation to whether, with respect to the identified outstanding values, the proposal recognises and provides for the following matters of national importance:

(a) the preservation of the natural character of rivers and their margins, and the protection of them from inappropriate subdivision, use, and development (s6(a)); and

(b) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga (s6(e)); and;

28 The identification of those outstanding values is also relevant to the particular regard to be had to:

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[11] *R J Davidson Family Trust*, at [262]

[12] *R J Davidson*, Infinity

(a) kaitiakitanga (s7(a));

(b) the ethic of stewardship (s7(aa));

(c) the efficient use and development of natural and physical resources (s7(b));

(d) the maintenance and enhancement of amenity values (s7(c));

(e) intrinsic values of ecosystems (s7(d));

(f) maintenance and enhancement of the quality of the environment (s7(f));

(g) any finite characteristics of natural and physical resources (s7(g));

(h) the protection of the habitat of trout and salmon (s7(h)); and

(i) the effects of climate change (s7(i)).

29 In summary, it is my submission that, applying *R J Davidson* and given the identification of the Rangitata River as an outstanding waterbody and the deficiency in the CLWRP in respect of outstanding waterbodies, weight should be given to the directive policies of the NPSFM and RPS, which require that the significant values of outstanding waterbodies be protected. In considering appropriate protection, further guidance can be found in the relevant provisions of Part 2.

NPSFM and regional planning documents

30 In addition to the direction with respect to protection of the significant values of outstanding waterbodies, addressed above, Ms Marr identifies relevant objectives of the RPS in relation to:

(a) Natural character:

(i) Natural character is to be preserved where natural character values are high, and maintained where natural character values are modified but highly valued;[13]

(b) The setting of abstraction limits:

(i) To protect the flows, freshes and flow variability required to safeguard the life-supporting capacity, mauri, ecosystem processes and indigenous species including their associated ecosystems and

[13] Policy 7.3.1

protect the natural character values of fresh water bodies in the catchment, including any flows required to transport sediment, to open the river mouth, or to flush coastal lagoons;[14]

(ii) To support any flow requirements needed to maintain water quality in the catchment;[15]

(c) And in relation to setting water quality standards:

(i) Maintain life supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, and natural character of the water body.[16]

31 With respect to the natural character of rivers, the Environment Court in *Director-General of Conservation (Nelson-Marlborough Conservancy) v Marlborough District Council*[17] found that biophysical assessment of the natural elements, natural patterns and natural processes is critical in assessing components of natural character, but the word character also requires that any assessment must also recognise and consider what is perceived.[18] In that case, which concerned applications to take water from the Wairau River, the Court found the water and the flow regime to be the most important aspects of the natural character.[19]

32 The NPSFM directs that water quantity and quality be managed within limits, and that over-allocation is avoided.[20] Over-allocation occurs when limits are exceeded or where freshwater objectives are not being met.[21]

33 In considering relevant limits and freshwater objectives for the purpose of the NPSFM, Ms Marr identifies[22] that the directives in the WCO effectively form limits, requiring that:

(a) In relation to water quantity, any allocation of water above 110m^3/s:

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[14] Policy 7.3.4(c)

[15] Policy 7.3.4(f)

[16] Policy 7.3.6(1)(a)

[17] [2010] NZEnvC 403

[18] At [593]

[19] At [607]

[20] Objective B2, Policies B5 and A3(a)

[21] NPSFM definition of 'over-allocation'

[22] Evidence of Helen Marr, paragraphs 63 and 79

(i) Provides for the protection of the identified outstanding values and characteristics;

(ii) Does not affect the passage of salmon; and

(iii) Does not materially alter the channel form of the river; and

(b) In relation to water quality, that discharges comply with water quality standards in relation to temperature, pH, undesirable plant growth, suitability for contact recreation, and dissolved oxygen.

34 Ms Marr also considers the freshwater objectives established by the CLWRP, which in summary require[23]:

(a) For water quantity:

(i) Safeguarding the life supporting capacity of ecosystems and ecosystem processes;

(ii) Ensuring sufficient flow for habitat for fish and birds; and

(iii) Maintaining a health state of the river, including hydrological and geomorphic processes such as flushing and transporting sediment and bed material, and maintaining flow variability; and

(b) For water quality:

(i) Safeguarding the life supporting capacity of ecosystems and ecosystem processes;

(ii) Meeting the numeric water quality freshwater objectives in Table 1 of the CLWRP; and

(iii) Meeting the numeric standards for discharges in Schedule 5.

35 Those limits and freshwater objectives form the basis against which the proposal is to be assessed, including with respect to the NPSFM directive to avoid over-allocation, alongside the section 217 prohibition of granting consent in breach of the WCO's restrictions.

Cumulative effects

36 It is agreed that the definition of "effect" is extremely wide, and that this includes cumulative effects.[24]

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[23] Evidence of Helen Marr, paragraph 67

37 Without repeating case law that has already been cited, I refer you to the recent Environment Court decision of *Infinity Investment Group Holdings Ltd v Canterbury Regional Council*[25]. In that decision the Court used the terminology of 'accumulative effects', "to distinguish the accumulative effects of multiple stressors from the cumulative effects in the strict sense explained in *Dye v Auckland Regional Council*[26][27].

38 *Infinity* concerned an application for further abstraction of water from the Hakataramea River. With respect to consideration of the effects of the proposal and accumulative effects, the Court concluded[28]:

> We accept that the adverse effects of Infinity's proposal would only be minor, but it is those effects together with existing effects and future accumulating effects which we should consider under section 104(1)(a) RMA.

39 Key findings in that decision included[29]:

> (a) the application to take water from the Hakataramea would, if granted, have considerable potential benefits for the applicant;
>
> (b) the application is within the EFR and annual volume limits of the Allocation Plan;
>
> (c) Infinity's proposed take of 68L/s is not only a discretionary activity, but also within the A-Band allocation from the main stem of the river as contemplated by rule 2 and Table 3Bxix, and therefore, at first sight, implements the policies and achieves the objectives of the Allocation Plan except for Policies 1A and 1B;
>
> (d) the water quality and the state of the aquatic ecosystem are continuing to deteriorate (without any effects from the Infinity proposal);
>
> (e) however, the Hakataramea River is already qualitatively over-allocated as evidenced by the current adverse effects on water quality and aquatic ecology;
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> (f) the proposal, if granted would in a small way add to this deterioration with the result being that important policies in the NPS-FM 2014, the CRPS and CLWRP

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[24] Legal submissions on behalf of RDRML, paragraph 105

[25] [2017] NZEnvC 36

[26] [2001] NZRMA 513 (CA) at [37].

[27] *Infinity*, at [108]

[28] At [314]

[29] At [323]

> would not be achieved. In particular, we have found that it is neither feasible nor dependable that adverse effects would be avoided. In fact on the evidence they are likely to occur.

40 Notwithstanding that the Infinity application was consistent with the Allocation Plan and that the effects of the proposal would be minor, the cumulative effect of that activity together with other stressors on the environment (including other consented activities), meant that the proposal would not achieve the relevant freshwater objectives, and the application was declined.

41 That decision is directly applicable to consideration of the RDRML proposal. Even if you find that the effects of the proposal, assessed in isolation, are minor, if the cumulative effects of the proposal together with other stressors on the environment means that the proposal will not achieve protection of the outstanding values of the river (in accordance with the WCO, NPSFM and RPS), or will result in over-allocation (and therefore not achieve policies of the NPSFM, RPS and CLWRP), consent should be declined.

Precautionary approach and adaptive management

42 RPS Policy 7.3.12 requires that the precautionary approach be followed where the effects of an activity are unknown or uncertain.[30]

43 In my submission, based on the evidence of Dr Hicks and Dr Meredith, this proposal reaches a sufficient level of scientific uncertainty and puts at risk significant values, and therefore requires the application of precaution in respect of cumulative effects on bedload transport and channel morphology, sediment deposition, water quality effects arising from discharges from the storage pond, and consequential ecological effects. In adopting a precautionary approach, sufficient flow and flow variability should be retained to support movement of bedload and sediment through the river system, and discharges at lower flows should be avoided.

44 The concept of adaptive management has emerged as a precautionary measure for managing uncertainty. The Court in *Clifford Bay Marine Farms Ltd v Marlborough District Council*[31] made the following comments about what consent conditions must achieve in order to apply adaptive management:

> [118] The applicant has proposed conditions of consent which involve staged development and

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[30] See *Sea-Tow Limited v Auckland Regional Council,* (unreported, A066/2006, Environment Court, 30 May 2006, Judge Sheppard) for a summary of relevant statements of the principle

[31] *Clifford Bay Marine Farms Ltd v Marlborough District Council,* (unreported, C131/2003, Environment Court, 22 September 2003, Judge Jackson)

> monitoring. To this extent they have acknowledged at least the possibility that effects may follow which require avoidance, remedying or mitigation. The case must therefore turn on whether the conditions proposed, in particular the monitoring regime and adaptive management strategy can first detect and secondly, remedy any effects that might arise before they become irreversible. (emphasis added).

45 If consent is granted, Dr Hicks' recommendations for monitoring are[32]:

(a) Periodic surveys of channel morphology and bed-material size-grading downstream of the RDDR intake to record the morphological change anticipated with flood harvesting;

(b) Monitoring fine sediment deposition in low energy environments downstream of the RDR intake;

(c) The connectivity of the proposed fish bypass channel with the Rangitata main channel at the discharge point.

46 I understand that recommendations (b) and (c) have been accepted by the Applicant, and that Dr Hicks and Dr Ryder have had some discussions about appropriate wording of a condition in relation to fine sediment monitoring. In terms of appropriate adaptive management responses, Dr Hicks provides examples, for (a) to (c) respectively, of reducing the frequency of flood harvesting, altering the timing of sand trap flushing, and use of earthmoving machinery to improve connection of the bypass to the main channel of the river.[33] Some additional work is required to formulate conditions to detail the monitoring required, or to provide for the development of an appropriate management plan for that monitoring, and I understand Dr Hicks and Dr Ryder have had some discussions on this matter.

47 If the hearing panel considers consent can be granted, CSIFG seek at the very least that the recommendations of Dr Hicks are used as a basis from which to form an appropriate adaptive management approach to addressing residual uncertainties regarding the effect of the proposal which cannot be otherwise addressed by conditions to avoid or mitigate effects, and that a detailed suite of conditions implementing that adaptive management response be imposed.

48 With respect to discharges from the storage pond, conditions are sought to require:

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[32] Evidence of Dr Murray Hicks, paragraph 68

[33] Evidence of Dr Murray Hicks, paragraph 69

(a) Monitoring of water quality within the storage pond (currently addressed in CRC170657); and

(b) Monitoring of receiving water quality in the Rangitata River during discharges; and

(c) An adaptive management response in the event that discharges do not meet the WCO clause 11 standards.

Assessment of RDRML's proposal

49 In the case of RDRML's proposal, cumulative effects include:

(a) Hydrology – the evidence of Mr Keane and Mr Veendrick identifies modifications to the flow regime in comparison to both the existing and natural states, including in particular, changes to the $FRE_{1.5}$, FRE_2, and FRE_3 statistics, the increased time the river will be held at flows of $77m^3/s$, and increased accrual periods. Mr Veendrick identifies that the greatest effect is between the natural and existing flow regime, however the proposed additional take has a measurable additional effect on the reduction of flow variability.

(b) Bedload transport and channel morphology – Dr Hicks states that existing water extractions from the river during freshes and floods result in a significant reducing in the river's gravel transport capacity, resulting in a gradual reduction in the average size of the riverbed surface material and lower relative relief of channels and braids. He concludes that the additional take will contribute to the current morphological change.[34]

(c) Sediment deposition – Dr Hicks identifies that the proposed $10m^3/s$ take will reduce the sediment carrying capacity of the river, and that this will likely result in increased rates of fine sediment settling in dead zones along the Rangitata between the RDR intake and the sea. He also identifies that taking an extra $10m^3/s$ during or immediately after a sand trap flushing event would increase the risk of sand deposition on the riverbed near the sediment discharge point.[35] Dr Meredith describes the adverse effects that this deposited sediment may have on the ecology of the river.[36]

(d) Salmon passage – Mr Webb describes the role of small variations in flow as cues for upstream movement of migrating salmon, as observed by

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[34] Evidence of Dr Murray Hicks, paragraph 63

[35] Evidence of Dr Murray Hicks, at paragraph 10 - 11

[36] Canterbury Regional Council s42A report, Adrian Meredith, page 5

expert anglers. The proposal will further remove some of those migratory cues and will accordingly have adverse effects on the passage of the outstanding salmon fishery.[37]

(e) Water quality – Dr Meredith addresses the potential for water quality deterioration in the reservoir, arising from potential stratification and algal blooms. He also addressed potential accumulation of nutrients and considers that it is not inconceivable that the bed of the reservoir will exhibit a degree of organic and nutrient rich bed materials that may generate anoxic layers.[38]

(f) Climate change – the evidence of Mr Veendrick identifies that climate change is projected to result in an increase in annual mean flow, but a reduction of flows by 1-2 m^3/s in December and January. Those months are critical for salmon migration to spawning grounds, and for salmon angling. While not an effect of the RDRML applications, climate change will be an additional stressor on the instream environment in those months.

50 In addition to the effects above, Mr Webb identifies that the additional abstraction will not have any benefit for salmon angling, because although there will be additional days where flows are in the preferred range for angling, those flows will be sourced from natural flows over $132m^3/s$, so will be too dirty for angling.[39]

51 Putting these effects in context of the section 217 prohibition against granting consents contrary to the terms of the WCO:

(a) The proposal is in breach of clause 9 (1), as, together with existing abstraction, it will cause material alteration to the braided river channel characteristics (clause 9(1));

(b) The proposal is in breach of clause 10 (1) as is likely to adversely effect the passage of salmon by removing additional migratory cues;

(c) Depending on the rigour and detail of the consent conditions for the fish screen to ensure fish are not harmed or lost, the proposal could be in breach of the clause 10 (2) requirement that resource consents provide for a fish exclusion or a fish bypass system to prevent fish from being lost from the specified waters; and

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[37] Evidence of Mark Webb, paragraph 72

[38] Canterbury Regional Council s42A report, Adrian Meredith, pages 17 - 19

[39] Evidence of Mark Webb, paragraph 66

(d) The proposal for the 'test' emergency discharges contains no provision to ensure that such discharges will be prevented, if after allowing for reasonable mixing of the discharge with the receiving waters, the discharge will not achieve one of the listed water quality parameters with respect to temperature, pH, biological growths, suitability of aquatic organisms for human consumption; suitability of water for contact recreation, and dissolved oxygen levels (clause 11). In the absence of measuring, monitoring and an adaptive management regime it is not possible to be confident that the planned testing discharges will not breach clause 11.

52 Ms Marr concludes that the adverse effects of the $10m^3/s$ take and the potential effects of the test discharges from the storage pond are more than minor.[40] She also finds that the $10m^3/s$ take is contrary to the policies of the CLWRP, inconsistent with the WCO and should not be granted in accordance with s217. The $10m^3/s$ take will not protect the outstanding salmon angling and salmon passage values of the Rangitata River. Test discharges may also be inconsistent with the WCO, unless water quality standards consistent with clause 11 are imposed, together with an adaptive management regime.[41]

Mitigation measures

53 Despite not supporting the proposed application, CSIFG has suggested a package of mitigation measures that are considered essential, should the commissioners be minded to grant consent. In summary these include:

(a) Fish screen

(i) a requirement that the fish screen be in place by 1 August 2019;

(ii) a requirement that the screen prevent fish from being lost from the river (as required by the WCO);

(iii) adherence to an appropriate design standards, having regard to CLWRP Schedule 2, the NIWA guidelines, and the volume of water to be abstracted;

(iv) greater detail regarding operation and maintenance requirements;

(v) inclusion of a Fish Screen Management Plan which provides for in-situ verification that design standards are being met, and verification

[40] Evidence of Helen Marr, paragraph 108

[41] Evidence of Helen Marr, paragraph 111

(based on live fish trials) that the screen and bypass are preventing fish from being lost from the river; and

(vi) requirements for investigation and remediation if the screen is not performing as required.

(b) Take of 10m3/s to storage – a requirement that this consent not be exercised until fish screen compliance has been verified.

(c) Non-consumptive take for the bypass – revision to the prescribed abstraction regime to enable testing of diversion of the full 5m3/s whenever consumptive takes are operating, and to enable that to continue if it is demonstrated that it is beneficial to returning fish to the river.

(d) Bedload transport and sediment deposition

(i) Periodic surveys of channel morphology and bed-material size-grading downstream of the RDDR intake to record the morphological change anticipated with flood harvesting;

(ii) Monitoring fine sediment deposition in low energy environments downstream of the RDR intake;

(iii) Monitoring of the connectivity of the proposed fish bypass channel with the Rangitata main channel at the discharge point (accepted by the Applicant); and

(iv) Adaptive management responses should monitoring demonstrate that this is required.

(e) 'Test' discharges from the storage pond

(i) Duplicate the requirement for monitoring of water quality in the storage pond (from CRC170657); and

(ii) Include a requirement for water quality monitoring in the Rangitata River during discharges; and

(iii) Set out an adaptive management approach in the event that discharges do not meet the WCO clause 11 standards, for example preventing discharges when water quality monitoring within the storage pond breaches specified limits, or increasing the minimum river flow at the time of discharge.

54 The supplementary evidence of Mr Greaves is that the following are beyond scope:

(a) Alternative abstraction regimes which extend abstraction above 142.6 m^3/s; and

(b) An increase in the minimum flow for discharges from the sand trap, from 140m^3/s to 150m^3/s.

55 Mr Greaves is also of the view that an abstraction regime which required RDRML to leave water in the river would not secure that water against future applications for use by third parties.

56 RDRML have set the scope of the applications, including those additional applications made on 16 November 2017. Issues of alternative flow regimes and the increased effects of the sand trap discharge had been raised with RDRML prior to the second suite of consents being sought. CSIFG, through the technical advice and evidence it has engaged, has sought to provide solutions or explore alternatives to mitigate adverse effects of the proposal, having regard to RDRML's aspirations for resource use.

57 With respect to the alternative abstraction regimes, I agree that a regime which extends abstraction above 142.6m^3/s is beyond scope of the current application because it would reduce availability of water at those higher flows to the next potential applicant who sought to take water from the Rangitata River. The alternative abstraction regimes presented by CSIFG were selected and modelled because, in CSIFG's view, they are most likely to mitigate the effects of concern to CSIFG if any further abstraction from the river is approved.

58 It is CSIFG's position that the proposed abstraction will result in unacceptable cumulative effects, and that if any further abstraction is to be approved, potential effects must be avoided or mitigated. If the hearing panel agrees, then given issues of scope, the available options are: to decline consent; to impose one of the CSIFG alternative regimes with no abstraction beyond 142.6m^3/s; or impose some other alternative regime which would satisfactorily avoid or mitigate effects.

59 All alternative abstraction regimes will reduce the water available to RDRML, so the reduction in instream effects that these regimes would provide will need to be considered alongside the reduced benefits of that water being available to RDRML, where there is certainty that those benefits will arise from the grant of consent (I return to this point later). However in my submission, weighing of the competing demands for water should occur within the policy framework discussed above, including the direction to protect the outstanding characteristics and features recognised by the WCO.

60 Consent conditions which require water to be left in stream in certain circumstances are not novel. For example, consents granted to Hurunui Water Project[42] require that water not be taken at specified times, including where periphyton trigger levels are exceeded, and to retain a specified number of flushing flow events and recreation flow days. That is different from a situation where water within an allocated band is not able to be taken by existing consent holders because that water was not applied for (for example, winter water where existing consents only provide for abstraction during the irrigation season). While future applicants could apply to take water which cannot be taken by existing consent holders, where consent conditions have been imposed to retain that water instream to address adverse effects of existing abstraction, it is difficult to imagine that consideration of the subsequent application would find that re-allocation of that water for out of stream uses was appropriate.

61 With respect to the increase in the minimum flow for discharge from the sand trap, in the absence of an application by RDRML to amend the existing sand trap consent, I agree that it is beyond scope to amend the minimum flow condition in that consent. However, the concern raised by CSIFG (and others) and addressed in the evidence of Dr Hicks, is that the additional abstraction of flow at the time the sand trap discharge occurs will increase the effects of that discharge. If consent to take an additional $10m^3/s$ is granted, this issue could be addressed by a condition on that consent which prevented the take from occurring if the discharge from the sand trap was occurring at flows less than $150m^3/s$. This would have the effect of continuing to authorise the sand trap discharge at $140m^3/s$ if only the existing take was occurring, but requiring a minimum flow of $150m^3/s$ for the sand trap discharge if RDRML also wished to take the additional $10m^3/s$.

Use of water

62 RDRML has sought consent to take an additional $10m^3/s$ and to store water. Consent has been sought to enable use of that water consistent with existing consents, which would enable further irrigation within the existing scheme areas and improvements in reliability. Other potential uses of the water have been indicated, including supply of significant volumes of water to the Orari Temuka Opihi Pareora area, or other uses such as Targeted Stream Augmentation or Managed Aquifer Recharge. However, applications for those uses have not been made and given Mr Veendrick's supplementary evidence, it appears that there is insufficient water to meet all of those uses. Accordingly, there is uncertainty about what the additional water abstracted will actually be used for.

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[42] See CRC120687

63 The general principle is that all resource consents required for a proposal should be identified from the outset and applications made and considered together[43]. While a staged approach may be taken to consenting of large projects, in applications relating to water it is typical for the first stage of consenting to address both the take and ultimate use of the water. That is because this approach allows for an integrated assessment of effects and for an assessment of whether the amount of water sought is appropriate for the intended use.

64 In *P & E Limited v Canterbury Regional Council*[44] the Environment Court considered an application for consent to take water which was not accompanied by required applications for land use. The Environment Court stated that the issues were what consents were required for the proposal, what potential effects could be considered in respect of the application, and whether the potential effects of irrigation should be taken into account with the water take application. The Court stated[45] that:

> ...section 7(b) clearly requires a consent authority to have regard to an end use of the water. In effect, the consent authority needs to compare the value of the proposed use of the water with its value for its current use (being the next best use in the absence of another, better, use).

65 Ms Marr summarises the RPS and CLWRP provisions which direct the efficient allocation and efficient use of water. These include requirements that the water taken is reasonable and no more than necessary for the intended use[46], and that a maximum annual volume for water used for irrigation is defined using a reasonable use test[47].

66 Further, CLWRP Policy 4.53 particularly applies to changes from a 'run of river' scheme to 'take to storage'. It requires that consents be subject to a range of conditions to mitigate adverse effects, including the imposition of reasonable use determined in accordance with Schedule 10, and seasonal or annual allocation limits.

67 The policy framework is directive as to the achievement of efficiency. As discussed above, weight should be given to that directive policy framework when determining the application. As identified by Ms Marr,[48] assessment of the

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[43] *Affco NZ Ltd v Far North DC* [1994] NZRMA 224

[44] [2015] NZEnvC 106

[45] At [57]

[46] RPS Policy 7.3.8(3) and CLWRP Policy 4.65

[47] CLWRP Policy 4.66 and Schedule 10

[48] Evidence of Helen Marr, paragraph 104

efficiency of the proposed use of water is not possible where it is not clear what use the water will be put to, and accordingly the proposal is not consistent with policies of the RPS and CLWRP relating to efficiency. It is not appropriate to leave consideration of this issue to a later date, after water is allocated, particularly where long lapse dates are proposed.

68 In addition, there is potential for the benefits associated with all proposed uses to be taken into account, when it is not possible to realise all of those benefits. In my submission you can have no certainty of, and should therefore disregard, potential benefits of the use of water where there is no certainty that the use will be authorised or that water will be applied to that use.

Fish screen

69 The relevant requirements for fish screens on the Rangitata River are set out in the WCO and Schedule 2 of the LWRP. The NIWA guidelines are generally consistent with Schedule 2 of the LWRP and provide strong technical guidance on the appropriate design, construction and operation of fish screens.

70 Clause 10(2) of the WCO requires:

> No resource consent in relation to an intake site may be granted, or rule included in a regional plan, for the waters specified in Schedule 2 authorising an activity unless that resource consent provides for fish exclusion or a fish bypass system to prevent fish from being lost from the specified waters.

71 Ms Hamm submitted that the directive words in clause 10(2) are that a resource consent provide for fish exclusion or a fish bypass system, and that the *objective* of the fish bypass system is to prevent fish from being lost from the river.

72 In my submission, this creates a degree of artificiality in the interpretation of clause 10(2). "To prevent fish from being lost from the specified waters" is more akin to a performance standard, than an objective. In setting conditions of consent, you should be satisfied that the fish exclusion or fish bypass system will prevent fish from being lost from the specified waters.

73 The 'objective' approach suggests that attempting to prevent loss is sufficient, and that actual prevention is not required. That completely undermines the purpose of the clause, to protect the outstanding salmon fishery.

74 This concern is highlighted by the wording of the current condition requiring fish screening in CRC011327, which requires RDRML to take such measures as are appropriate to ensure that, so far as is reasonably practicable, juvenile salmon are excluded from the body of the diversion race and are returned to the river. The drafting of that condition has resulted in a situation where the current consent

has been graded as compliant, notwithstanding that it has been clear since 2008 that the BAFF was not effectively preventing fish from entering the diversion race. The consent has been deemed compliant on the basis that RDRML were taking "appropriate measures" by pursuing a replacement screen. That compliant grade has led to miscommunication between CSIFG, the Regional Council, and RDRML about the expected timeframes for an effective screen to be operational. CSIFG strongly disagrees that the existing consent condition is compliant with clause 10(2). Given the outstanding value of the salmon fishery and the fact that the fishery (like many others) is in decline, it is unacceptable that current losses continue.

75 CSIFG is supportive of the proposed mechanical rotary screen concept. However, experience with other screens, including the BAFF, has highlighted the need to ensure that a screen performs as intended and in accordance with WCO clause 10(2), and to have in place clear mechanisms for resolving any underperformance.

76 As identified by RDRML, the Joint Witness Statement with respect to the fish screen[49] records that:

> Adrian Meredith, Greg Ryder, Marty Bonnett and Paul Morgan agreed that, if the proposed rotary fish screen and associated bypass was adopted and included the design criteria noted above, **and met** the NIWA fish screening guidelines (Jamieson et al. 2007) then fish screening efficiency performance numbers would not be required for alternative fish screen designs. (emphasis added)

77 CSIFG is not pursuing efficiency standards, provided that condition 6 is consistent with clause 10(2) of the WCO and requires that "the consent holder construct a fish screen and bypass that shall be installed, operated and maintained to ensure that fish are prevented from being lost from the Rangitata River". That is different from the wording proposed by the Regional Council and RDRML, which requires a screen "to ensure that fish are prevented from entering any of the irrigation infrastructure downstream of the screen". The wording proposed by CSIFG requires the same level of efficacy with respect to fish not passing through the screen, but extends this to the successful passing of fish across the screen and through the bypass without harm. The wording proposed by CSIFG is consistent with the requirements of clause 10(2) of the WCO.

78 Critical to the reliance on CLWRP Schedule 2 or the NIWA fish screen guidelines' design criteria are the requirements:

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[49] Joint Witness Statement on Aquatic Ecology and Water Quality dated 19 March 2018

(a) That the design standards in the conditions appropriately apply those criteria, having regard to the rationale behind the criteria and the volume of the proposed abstraction; and

(b) That the proposed screen actually meets those criteria.

CSIFG propose amendments to the conditions to ensure those requirements are met.

79 The NIWA guidelines are clear that the approach velocity of 0.12m/s is a maximum. Mr Bonnett is able to further explain the reason why an average approach velocity is not appropriate, and how this maximum approach velocity could be achieved. CSIFG seeks that the design criteria for approach velocity be maximum of 0.12m/s.

80 CSIFG also seek additional conditions which require a monitoring programme to:

(a) Verify that the fish screen achieves the Schedule 2 / NIWA guidelines. This is important given the reliance on those guidelines;

(b) Confirm the effectiveness of the bypass in attracting and conveying fish; and

(c) Confirm the effectiveness of the screen in excluding fish.

81 Mr Bonnett recommends that confirmation of effectiveness of the screen involve two separate trials using hatchery fish: firstly a monitoring trial in subsidiary channels of the RDR to ascertain if any juvenile fish have penetrated the screen, and secondly a release of trial fish upstream of the screen, with recapture downstream in the bypass channel as close to the screen as possible. Mr Bonnett has extensive experience in testing of fish screen effectiveness in Canterbury. To avoid issues which have arisen in testing of other screens, he recommends that provision for testing is included in the design and installation of the fish screening facilities.

Conclusion

82 The Rangitata River is recognised as a nationally outstanding waterbody. It is also already subject to significant abstraction. The evidence for CSIFG identifies a range of actual and potential effects arising from the proposal which would be inconsistent with protection of the recognised outstanding values and natural character, and with the policy framework of the NPSFM, RPS and CLWRP.

83 CSIFG seeks that consent for the abstraction of an additional $10m^3/s$ be declined. Unless appropriate conditions can be imposed to ensure that 'test' discharges

from the storage pond comply with WCO clause 11, CSIFG also seeks that the application for those discharges be declined.

84 However, in the event that the hearing panel determines that those consents can be granted, CSIFG seek a number of amendments to conditions, including:

(a) Imposition of an abstraction regime which avoids or mitigates effects on flow variability;

(b) No exercise of the $10m^3/s$ take until the fish screen is verified;

(c) Prevention of discharge from the sand trap when the additional abstraction is occurring, unless flows at Klondyke exceed $150m^3/s$;

(d) Monitoring and adaptive management conditions with respect to morphological change and fine sediment deposition; and

(e) Monitoring and adaptive management conditions with respect to the water quality effects of test discharges from the storage pond.

85 Conditions to reflect (a) above will be dependent on the regime the hearing panel considers appropriate. CSIFG is currently finalising proposed wording of conditions to address (b) and (c). Further work is required to prepare conditions to address (d) and (e), and witnesses for CSIFG and RDRML are currently collaborating on wording for a condition to address monitoring of fine sediment deposition. If consents are to be granted, CSIFG requests that parties are provided an opportunity to engage with RDRML and/or comment on proposed conditions.

86 Replacement of the underperforming BAFF is of critical importance to CSIFG, and it supports the application for the replacement mechanical rotary screen. However, that screen must meet appropriate design criteria, consistent with the NIWA guidelines and having regard to the size of the intake. The existing conditions are insufficient to ensure that the proposed screen meets the requirements of the WCO to prevent the loss of fish from the Rangitata River. CSIFG seeks amendments conditions to:

(a) require that the fish screen be in place by 1 August 2019;

(b) require that the screen prevent fish from being lost from the river (as required by the WCO);

(c) impose appropriate design standards, having regard to CLWRP Schedule 2, the NIWA guidelines, and the volume of water to be abstracted;

(d) include greater detail regarding operation and maintenance requirements;

(e) include of a Fish Screen Management Plan which provides for in-situ verification that design standards are being met, and verification (based on live fish trials) that the screen and bypass are preventing fish from being lost from the river; and

(f) requirements for investigation and remediation if the screen is not performing as required.

87 CSIFG also seeks amendments to conditions for the non-consumptive take to operate the bypass, to reflect the agreement reached at caucusing of the ecological witnesses, that diversion of the full $5m^3/s$ should be trialled and potentially retained, regardless of the volume of the consumptive take. Proposed wording of the fish screen and bypass flow conditions will be provided.

Dated this 3rd day of May 2018

Sarah Eveleigh
Counsel for Central South Island Fish and Game Council

Appendix 1 – Extracts from Special Tribunal Recommendation on the Rangitata WCO in relation to high flows and protection of outstanding characteristics

Salmon Angling – page 117

30. Flow rate and flow variability (freshes), water temperature and clarity are key factors in determining desirable river conditions for angling. Although these are interrelated, management of flow rate alone will not necessarily provide the greatest number of angling days. Higher minimum flows would increase the available days for angling, but increased abstraction that reduced freshes would be detrimental.

31. Capping the maximum allowable abstraction at or about the present levels would ensure that freshes are maintained in the river system.

Habitat for aquatic birds – page 118

39. September to January are the critical months for habitat quality for threatened bird species. Excessive water takes and frequent river works (e.g. maintenance of intakes, weirs, river control) during this period are likely to have adverse effects.

40. Modelling work has suggested that higher minimum flows (35 m3/s) would produce higher densities of invertebrates, and therefore more food, but not all witnesses agreed that the higher minimum is necessary.

41. Maintenance of flood flows is important for maintaining the open gravel habitat.

Scientific and ecological values: Aquatic macroinvertebrates – page 119

46. The macro-invertebrate fauna is adapted to a naturally unstable flow regime and species that are found are those resilient to disturbance. Minor braids and seepages that are less severely disturbed by floods may contain comparatively high densities of invertebrates after floods. Maintenance of the flow regime and other river processes (e.g. sediment transport) that contribute to the braided channel structure will be important in retaining these species at levels of biomass production to provide adequate food for birds and fish.

47. Water temperatures under the current regime are likely to reach the lethal limit for macro-invertebrates from time to time. Further abstractions could exacerbate this.

Rafting and kayaking – page 120

53. The sustained and demanding nature of the rafting and kayaking in the gorge, the range of other quality canoeing water, and the wild and scenic environment are in large part outstanding because of the natural flows, high water quality and the high amenity values. Damming and changes to the natural regime in the gorge and upper river would be detrimental to the outstanding nature of the rafting and kayaking.

Tikanga Māori / Braided river character/ Spiritual and Cultural purposes / Wild, scenic and other natural characteristics / amenity and intrinsic values – page 121

60. The "mountains to the sea" attributes can only be maintained if the flow regime in the mainstem and the tributaries is kept as natural as possible; there are no structures that act as barriers to the flow of water or the passage of mahinga kai and other species. Maintaining an open river mouth and high water quality are also necessary.