

From: achristensen@csifgc.org.nz
To: [Plan Hearings](#)
Cc: [Angela Christensen](#)
Subject: PC7 evidence on behalf of CSIFG
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Attachments: [PC7 LWRP evidence Angela Christensen_FINAL170720.pdf](#)
[PC7 LWRP evidence Mark Webb_Final170720.pdf](#)

Hello

Please find attached two briefs of evidence from Central South Island Fish and Game (Submitter No PC7-351). We wish to speak to our evidence at the hearings and if available, at a location in South Canterbury.

Please let me know if you require anything further.

Kind regards

Angela Christensen | Resource Officer

Central South Island Fish & Game Council

PO Box 150, Temuka, New Zealand

P +64 3 615 8400 | **M** +64 021 843 968 | **E** achristensen@csifgc.org.nz | **W** www.fishandgame.org.nz



BEFORE THE INDEPENDENT COMMISSIONERS

UNDER the Resource Management Act 1991

IN THE MATTER of Plan Change 7 to the Canterbury Land and
Water Regional Plan

**EVIDENCE IN CHIEF OF ANGELA CHRISTENSEN ON BEHALF OF
CENTRAL SOUTH ISLAND FISH AND GAME COUNCIL**

(Submitter number PC7-351)

17 July 2020

1 My name is Angela Fay Christensen.

QUALIFICATIONS AND EXPERIENCE

2 I am employed as a Resource Officer by Central South Island Fish and Game Council (“**Fish and Game**”). I have been employed by Fish and Game for over 5 ½ years.

3 As a Resource Officer I am required to provide direction and professional advice to the Chief Executive and the Council on the impacts to sports fish and game bird habitat resulting from water resources and land use proposals and related local, regional, and national planning provisions.

4 I hold a Bachelor of Environmental Studies from Massey University and a Master of Sustainable Communities with Distinction from Northern Arizona University.

5 I am familiar with the Canterbury Land and Water Regional Plan (“**LWRP**”) and have been involved with the processes and hearings as they relate to the sub-regional plans on behalf of Fish and Game.

6 In preparing my statement I have reviewed Plan Change 7 to the Canterbury Land and Water Regional Plan (“**Plan Change 7**”) and various supporting technical reports provided by the Canterbury Regional Council (“**ECan**”).

7 I have reviewed the Section 32 Report and the Section 42A Officers’ Report from ECan.

8 I am giving this statement in support and expansion of submissions made by Fish and Game.

SCOPE OF EVIDENCE

9 My evidence covers:

- a. The planning framework for Plan Change 7 and relevant policy instruments including the Resource Management Act 1991, the National Policy Statement for Freshwater Management 2017, the Canterbury Water Management Strategy 2009, and the Canterbury Regional Policy Statement 2013.
- b. Fish and Game’s submission.

EXECUTIVE SUMMARY

- 10 The Orari-Temuka-Opihi-Pareora ('**OTOP**') Zone contains a number of waterbodies with locally important fishery and game bird values. The habitat in the OTOPI Zone varies and includes spring-fed, lake-fed, and hill-fed systems. Each system presents management challenges and requires a robust rule framework to address water quality and water quantity issues to meet the aspirations of the community and the requirements set down by higher order instruments.
- 11 There are a number of important provisions specific to both the OTOPI Zone and also to the region-wide omnibus section in which Fish and Game has an interest.
- 12 The Opuha Dam, operated by Opuha Water Limited, stores and provides water for irrigation, stock and drinking water. The dam, if managed appropriately, can release flows to retain connectivity throughout the river in the driest of years, which helps to ensure instream aquatic species are not stranded and perish as was commonly the situation prior to the dam's construction.
- 13 The rivers downstream of the dam, the Opuha and the Opihi, have varying water quality. The Opuha River produces high periphyton biomass and thick mats of didymo, compromising macroinvertebrate community health. The Opihi River is susceptible to periphyton blooms and has frequent benthic cyanobacteria alerts.¹ The dam also has the ability to release flushing flows at particular times to help flush didymo, periphyton and cyanobacteria from the river. Higher releases of water can also assist in keeping the mouth open at critical times for the migration of aquatic diadromous species.
- 14 A number of waterways in the OTOPI Zone are designated as Schedule 17 Salmon Spawning Sites. Fish and Game supports improvements in water quality that reflect life-supporting capacity and ecosystem health.
- 15 Fish passage is critically important for diadromous species in order for them to complete their lifecycles. Salmon live a majority of their life at sea; however, they are born in

¹ Shirley Hayward, et al, "Orari, Temuka, Opihi and Pareora Zone: state and trends in water quality and aquatic ecology", Environment Canterbury, Report No R19/70, May 2019.

freshwater and die in freshwater. Access to their natal spawning grounds is necessary for the survival of the species.

- 16 The protection of spawning grounds from adverse effects such as sediment deposition and contaminants is important for instream health and life-supporting capacity. Fish and Game supports provisions proposed in the Plan that aim to address water quality issues and require reductions in nitrogen and the exclusion of stock.
- 17 Fish and Game supports additional provisions related to the protection of waipuna (springs). These are of cultural importance and are extremely sensitive to surrounding land use.
- 18 Fish and Game supports improvements in environmental flow regimes to increase surface flows and phase out over-allocation to provide for improved instream health and enhanced recreational opportunities and amenity.

PLANNING FRAMEWORK AND POLICY INSTRUMENTS

- 19 The purpose of Plan Change 7 is to aid ECan in fulfilling its obligations to meet the purpose and principles of the Resource Management Act 1991 (“**RMA**”), in accordance with the council’s functions under section 30 RMA. Part 2 RMA focuses on sustainable management, which, according to Part 2, means managing the use, development, and protection of natural and physical resources while safeguarding the life-supporting capacity of air, water, soil, and ecosystems, as well as avoiding, remedying, or mitigating any adverse effects of activities on the environment, amongst other things.
- 20 Achieving the purpose of the RMA requires the Regional Council to give particular regard to the intrinsic values of ecosystems, the maintenance and enhancement of the quality of the environment, the protection of the habitat of trout and salmon, and the effects of climate change amongst other matters when managing the use, development, and protection of natural and physical resources.
- 21 Section 30 RMA identifies the following functions related to land use and freshwater that every regional council must fulfil for the purpose of giving effect to the RMA in its region:

- a. the establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of natural and physical resources of the region; and
- b. the preparation of objectives and policies in relation to any actual or potential effects of the use, development, or protection of land which are of regional significance; and
- c. the control of the use of land for the purpose of:
 - i. soil conservation
 - ii. the maintenance and enhancement of the quality of water in waterbodies and coastal water
 - iii. the maintenance of the quantity of water in waterbodies and coastal water
 - iv. the maintenance and enhancement of ecosystems in waterbodies and coastal water...
- d. the control of the taking, use, damming, and diversion of water, and the control of the quantity, level, and flow of water in any water body; and
- e. the control of discharges of contaminants into or onto land, air, or water and discharges of water into water.

22 The National Policy Statement for Freshwater Management 2014 (amended 2017) (“NPSFM”) provides direction to regional councils on managing the activities that affect the health of freshwater. Regional councils are required to implement the NPSFM through their policies and plans.² This includes requiring the regional council to:

- a. consider and recognise Te Mana o te Wai and the connection between water and the broader environment;³ and
- b. establish freshwater objectives and set freshwater quality limits and environmental flows and/or levels for all freshwater management units having regard to:
 - i. the reasonably foreseeable impacts of climate change
 - ii. the connection between water bodies

² Resource Management Act 1991, s45A(2), and National Policy Statement for Freshwater Management 2014 (amended 2017).

³ National Policy Statement for Freshwater Management 2014 (amended 2017), Policy AA1.

- iii. the connections between freshwater bodies and coastal water;⁴ and
- c. establish methods to avoid over-allocation;⁵ and
- d. specify targets and implement methods where freshwater objectives are not being met to assist the improvement of water quality to meet those targets within a defined timeframe;⁶ and
- e. ensure that no decision will likely result in future over-allocation;⁷ and
- f. set a defined timeframe and methods in regional plans by which over-allocation must be phased out.⁸

23 The Canterbury Water Management Strategy 2009 (“CWMS”) sets out a number of fundamental principles that underpin the strategy and guide the planning of natural water and designates the environment, customary uses, community supplies and stock water as first order priorities. Second order priorities include irrigation, renewable electricity generation, recreation, tourism, and amenity.⁹

24 The CWMS recognises water as a public resource that must be managed in accordance with sustainability principles.¹⁰

25 A set of targets and goals are contained within the CWMS to help establish clear direction in order to reach the desired outcome as follows:

To enable present and future generations to gain the greatest social, economic, recreational and cultural benefits from our water resources within an environmentally sustainable framework.¹¹

26 The targets include, but are not limited to, ecosystem health, water use efficiency, and recreational and amenity opportunities. While the targets are not bound by legislation, the CWMS provides a framework to help achieve the purpose of the RMA, which I have set out in detail above.

⁴ *ibid*, Policies A1 and B1.

⁵ *ibid*, Policy A1.

⁶ *ibid*, Policy A2.

⁷ *ibid*, Policy B5.

⁸ *ibid*, Policy B6.

⁹ Canterbury Water Management Strategy, 2010 Primary Principle 2 “Regional Approach”, p68.

¹⁰ *ibid*, Primary Principle 1 “Sustainable Management”, p68.

¹¹ Canterbury Water Management Strategy, 2009, p21.

27 Plan Change 7 is required to give effect to the Canterbury Regional Policy Statement 2013 (“CRPS”) per section 67 RMA. Policies and methods are set out within the RPS to guide how the objectives will be met. There are a number of objectives and policies that address freshwater management in the region.

28 Objective 7.2.1 Sustainable management of freshwater:

The region’s fresh water resources are sustainably managed to enable people and communities to provide for their economic and social well-being through abstracting and/or using water for irrigation, hydro-electricity generation and other economic activities, and for recreational and amenity values, and any economic and social activities associated with those values providing:

- a. the life-supporting capacity, ecosystem processes, and indigenous species and their associated freshwater ecosystems and mauri of fresh water is safe-guarded; and
- b. the natural character values of wetlands, lakes and rivers and their margins are preserved and these areas are protected from inappropriate subdivision, use and development and where appropriate restored or enhanced; and
- c. any actual or reasonably foreseeable requirements for community stockwater supplies and customary uses, are provided for.¹²

29 Objective 7.2.2 Parallel processes for managing freshwater:

Abstraction of water and the development of water infrastructure in the region occurs in parallel with:

- a. improvements in the efficiency with which water is allocated for abstraction, the way it is abstracted and conveyed, and its application or use; and
- b. the maintenance of water quality where it is of a high standard and the improvement of water quality in catchments where it is degraded; and

¹² Canterbury Regional Policy Statement, 2013.

- c. the restoration or enhancement of degraded freshwater bodies and their surroundings.¹³

30 Objective 7.2.3 Protection of intrinsic value of waterbodies and their riparian zones:

The overall quality of freshwater in the region is maintained or improved, and the life supporting capacity, ecosystem processes and indigenous species and their associated freshwater ecosystems are safeguarded.¹⁴

- 31 The policy instruments discussed above drive the management framework for safeguarding life-supporting capacity and ecosystem processes. The overarching theme of each of these higher-order documents prioritises the importance of a healthy environment, which is accomplished by ensuring that appropriate provisions for land use and water use are in place and implemented.

FISH AND GAME SUBMISSIONS

- 32 Fish and Game lodged a submission on the notified version of Plan Change 7, which sets out specific relief sought, and a further submission in response to submissions made by other parties.

Submissions

- 33 In the following paragraphs I will expand on Fish and Game’s submission and explain the reasoning behind it.
- 34 The Central South Island Fish and Game Region (“**CSIFG Region**”) covers from the south bank of the Rakaia River in the north to Shag Point in the south and encompasses the entirety of the Mackenzie Basin.
- 35 The Fish and Game submission relates to both region-wide provisions and those provisions specific to activities within the boundaries of the CSIFG Region. It is important to recognise the diverse environmental, social and cultural values throughout Canterbury and implement a planning framework that will acknowledge, provide for, and protect those values.

¹³ *ibid.*

¹⁴ *ibid.*

Managed Aquifer Recharge (MAR)

- 36 Policy 4.99 - This policy sets direction for the role of managed aquifer recharge (“**MAR**”) where MAR is defined in Plan Change 7 as

an activity that is for the express purpose of improving the quality and/or quantity of water in a receiving groundwater aquifer or a hydraulically connected surface water body.¹⁵

In the notified version of Plan Change 7, Policy 4.99 promotes the use of MAR for a number of scenarios, including providing for MAR if adverse effects will be minimised for any take from a surface water catchment where the environmental flow and water allocation limits are exceeded.¹⁶

- 37 Fish and Game’s submission argues that allowing for MAR if adverse effects are *minimised* for any take from a surface water catchment where the environmental flow and water allocation limits are not met or exceeded does not give effect to the NPSFM nor the provisions of the CRPS related to the management of water quantity.¹⁷

- 38 NPSFM Objective B2 states

To avoid any further over-allocation of fresh water and phase out existing over-allocation.

- 39 NPSFM Policy B5 directs

By every regional council 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.

- 40 CRPS Policy 7.3.4 directs the management of water quantity. Specifically, the policy states:

¹⁵ PC7, Section 2.9 Definitions, Translations and Abbreviations.

¹⁶ PC7, Proposed Policy 4.99 clause (b).

¹⁷ PC7-351.94.

In relation to the management of water quantity:

- a. to manage the abstraction of surface water and ground water by establishing environmental flow regimes and water allocation regimes which:
 - i. 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 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;
- b. Where the quantum of water allocated for abstraction from a water body is at or exceeds the maximum amount provided for in an environmental flow and water allocation regime:
 - i. avoid any additional allocation of water for abstraction or any other action which would result in further over-allocation; and ...

41 Allowing for additional water to be taken and used for MAR where a waterbody is over-allocated would not safeguard life-supporting capacity and ecosystem health that is protected by environmental flow regimes and allocation limits put in place through planning processes. Flow regimes and allocation limits are set through comprehensive processes informed by science and planning. Overriding these processes by allowing for the take of more water undermines these processes and does not give effect to the objectives and policies of higher order documents.

42 The s42A analysis agrees that “the taking of additional water from over-allocated surface water catchments is contrary to the NPSFM, which requires any further over-allocation to be avoided, and existing over-allocation to be phased out.”¹⁸ Fish and Game agrees with this analysis and supports the amendment proposed in the s42A Appendix E Officer Recommendations in Response to Submissions (“**Appendix E**”) in relation to Policy 4.99(b), subject to Policy 4.100(b), which is referred to in Policy 4.99(b), satisfactorily addressing the requirement to phase-out overallocation. This is discussed further below.

¹⁸ S42A Report para 7.29, p143.

- 43 Policy 4.100- This policy also contemplates how MAR can be used if the catchment that the abstraction of surface water will occur from already exceeds the environmental flow and/or allocation limits set out in sections 6 to 15 of the LWRP. It is important that the policy is clear around how resource consent applications will be considered in circumstances where the catchment is over-allocated to ensure that MAR is managed appropriately and to recognise the importance of protecting environmental flow and water allocation limits to safeguard life-supporting capacity and ecosystem health.
- 44 Fish and Game believes that the same sentiment applied to Policy 4.99, to avoid adverse effects arising from a take in a catchment where environmental flows and allocation limits are exceeded, should be echoed in Policy 4.100 when considering resource consent applications. Applications to take water that would result in further exceedance of the environmental flow and/or water allocation limit should be refused to give effect to the NPSFM and to support instream health and ecosystems.
- 45 Policy 4.100 (a) proposes that further over-allocation would be considered if proposals demonstrated the environmental benefits of MAR to the receiving waterbody outweigh any adverse effects. This is not only contrary to the NPSFM and the CRPS and their requirements to avoid further over-allocation but would also require the decision maker to prioritise the benefits to one waterbody over the detriment of another and casts aside the science and planning expertise that informed the environmental flow and allocation limits necessary to protect instream health.
- 46 Appendix E recommends that clause (a) of the policy is amended to
- ~~restrict any further over-allocation of surface water to proposals which demonstrate the environmental benefits of the managed aquifer recharge to the receiving waterbody outweigh any adverse effects~~ refuse any application to take water that would result in further exceedance of the environmental flow and/or water allocation limit; and
- 47 Fish and Game agrees with the recommendation set out in Appendix E as it gives effect to the NPSFM and its requirement to avoid any further over-allocation.
- 48 Clause (b) of Policy 4.100 allows for a portion of already consented water for irrigation to be used for MAR so long as there is no net increase in the total rate of take or volume

of water. As the policy is specific to how resource consent applications specific to taking and using surface water for MAR in over-allocated catchments will be considered, it is necessary to recognise that the catchment is over-allocated and to set out a pathway that addresses how over-allocation will be reduced.

- 49 NPSFM Objective B2 requires the phasing out of existing over-allocation. This is an important matter when determining whether to permit what is in effect ‘unused’ irrigation water or water consented for some other use to be utilised for MAR where the waterbody is over-allocated. Fish and Game submits that a portion of the water transferred must be reduced to a rate less than that previously consented in order to give effect to the NPSFM requirements to phase out over-allocation. This would allow for water to be used for MAR with an aim to improve water quality and/or quantity in areas where it is degraded and it would also give effect to the requirement to phase out over-allocation. Without a reduction in water allocation, over-allocation will not be phased out.
- 50 The s42A Report refers to the direction given by Policy 4.50 that requires a replacement of an existing resource consent to reduce to no more than 90% of the previously consented rate of take and annual or seasonal volume in catchments where the environmental flow and water allocation limits for surface water or stream depleting groundwater is over-allocated.
- 51 Fish and Game has considered the reasoning given in the s42A Report in relation to the submission point and agrees that existing Policy 4.50 gives direction to reduce over-allocation but believes that corresponding Rule 5.191 should explicitly cross reference this policy. Fish and Game believes that including reference to Policy 4.50 as a matter of discretion is an important component of the MAR consenting process in terms of how over-allocation is handled and recognises that while MAR can be beneficial in achieving freshwater outcomes, it still must give effect to the requirements of phasing out or avoiding over-allocation as directed by the NPSFM. This is discussed further below.
- 52 Rule 5.191- Fish and Game’s submission on Rule 5.191 indicates that MAR is supported if the outcomes for waterbodies from which water will be taken are met, both in terms of quality and quantity. The rule sets out how the take and use of surface water for the purpose of MAR is considered.

53 Within the Central South Island Fish and Game Region, MAR primarily takes place in the Hinds/Hekeao Plains area. In the Lower Hinds/Hekeao Plains Area, ‘surface water and groundwater is considered to be highly or over-allocated.’¹⁹ In terms of water quality, the s32 Report for Plan Change 2 to the LWRP states

Within the Hinds Plains waterways nitrate-N concentrations are elevated and increasing in the groundwater and the spring-fed waterways. The maximum concentrations of nitrate-N in groundwater exceeds the drinking-water standard and the average concentration exceeds half the standard. The Hinds Plains waterways have some of the highest nitrate-N concentrations for surface water in New Zealand.²⁰

54 It is important to have clear rules around how resource consent applications related to the take and use of surface water for MAR will be considered. In relation to over-allocated waterbodies, it seems reasonable to provide a consenting pathway for lawfully established takes issued for a particular use, such as irrigation, to instead take and use a portion of the already allocated water for MAR so long as there is no increase in the rate of take or annual volume and there is a mechanism to reduce over-allocation in order to give effect to the NPSFM and its direction to avoid over-allocation and phase out existing over-allocation.

55 Phasing out existing over-allocation must be addressed and this line of reasoning formed part of Fish and Game’s submission.²¹ Fish and Game accepts the recommendation of the s42A Report to add an additional matter of discretion to the rule that would direct decision makers to consider the reduction in the rate of take and volume of water limits to reduce over-allocation when a consent application seeks to use a portion of water for MAR in over-allocated waterbodies. However, in addition to this, Fish and Game considers that Policy 4.50 should be explicitly referenced in the matter of discretion so that the reduction in water as directed by that policy can be linked specifically through the rule when replacement consents are being considered for MAR activities in over-allocated catchments.

¹⁹ Section 32 Evaluation Report, Proposed Variation 2 to the Proposed Canterbury Land and Water Regional Plan, September 2014, section 3.5.4.

²⁰ *ibid*, Section 3.5.3.

²¹ PC7-351.95.

56 Fish and Game has reviewed the Officer's response in relation to this matter and accepts the proposed amendment included in the paper as follows

Matter of Discretion (16)- Where the proposed take is the replacement of a lawfully established take and is from an over-allocated surface water catchment, the reduction in the rate of take and volume limits to enable reduction of the over-allocation and the consistency of the proposal with Policy 4.50.²²

57 Rules 5.192 and 5.193- Fish and Game's submission points in relation to Rules 5.192 and 5.193 relates to the requirement to avoid over-allocation. As notified, the policies discussed above, namely 4.99 and 4.100, coupled with rules 5.192 and 5.193 would provide a consenting pathway (non-complying) for additional water for MAR to be taken in over-allocated waterbodies if an assessment indicated that the environmental benefits arising from MAR water outweigh the adverse effects of taking water from an over-allocated waterbody. Environmental flow regimes and allocation limits are set to protect instream health and life-supporting capacity. Overriding these regimes by continuing to allow for over-allocation and prioritising the benefits of one waterbody over another is not sustainable management, would not give effect to policies 4.99 and 4.100 to avoid over-allocation as recommended in Appendix E, and does not give effect to the higher-order planning documents.

58 The amendments to the rules as proposed in Appendix E better recognise and give effect to the requirements of the NPSFM,²³ the CRPS,²⁴ and the LWRP²⁵ to avoid over-allocation. The amendments classify non-compliance with condition 2 of Rule 5.191 as a prohibited activity. Condition 2 of Rule 5.191 as set out in the s42A Report is as follows

Unless the proposed take is the replacement of a lawfully established take with no increase in the total rate or volume of water taken for managed aquifer recharge affected by the provisions of section 124—124C of the RMA, the take, in addition to all existing consented takes, does not result in any exceedance of any environmental flow or allocation limit or rate of take or seasonal or annual

²² Andrea Richardson et al, "Responses to Questions of Hearing Commissioners on Council s42A Report dated 28 May 2020, and additional questions dated 16 June 2020", p31.

²³ NPSFM, Policy B5.

²⁴ Canterbury Regional Policy Statement, Policy 7.3.4.

²⁵ Canterbury Land and Water Regional Plan, Policy 4.7.

volume limits set in Sections 6 to 15 of this Plan for that surface water body;
and

Habitat of indigenous freshwater species

- 59 Fish and Game provided a relatively detailed submission in regard to Policy 4.102 as it relates to the passage of indigenous fish. Fish and Game supports fish passage for both indigenous fish and sports fish where appropriate. Fish passage is important for migration so that species can access a range of habitats necessary to support different life stages including spawning and rearing, feeding, and finding refuge. This is true for both indigenous and sports fish species.
- 60 Sports fish have been acclimatised in New Zealand for over 150 years with the first brown trout ova successfully imported in 1867. Since that time, fishing has become a valued pastime passed down through generations. Angling offers an outdoor experience for both locals and international visitors and it is these recreational pursuits into special places that inspires people to get outdoors and experience nature; these recreational opportunities help shape the very notion of what it means to be a New Zealander.
- 61 The draft policy in Plan Change 7 directs that the passage of any invasive, nuisance, or pest fish species is avoided while enabling the safe passage of indigenous fish.

Proposed Policy 4.102- Structures enable the safe passage of indigenous fish, while avoiding as far as practicable, the passage of any invasive, pest or nuisance fish species by:

- a. the appropriate design, construction, installation and maintenance of new in-stream structures; and
 - b. the modification, reconstruction or removal of existing in-stream structures.
- 62 Firstly, it is important to understand the meaning of the terms used within the policy so that it can be correctly interpreted and implemented. The main body of the policy provides direction to enable the safe passage of 'indigenous fish' while avoiding the passage of other fish of which I will come to shortly. The policy itself sits under the

section heading ‘Habitat of Indigenous Freshwater Species’. ‘Indigenous Freshwater Species Habitat’ is defined in Plan Change 7 as

means an area identified as ‘Indigenous Freshwater Species Habitat’ on the Planning Maps, and which provides habitat for at least one of the freshwater species listed below:

1. Giant kōkopu/Taiwharu (*Galaxias argenteus*)
2. Lowland longjaw galaxias (Waitaki) (*Galaxias cobitinis*)
3. Canterbury mudfish/Kōwaro (*Neochanna burrowsius*)
4. Bignose galaxias (*Galaxias macronasus*)
5. Upland longjaw galaxias (*Galaxias prognathus*)
6. Upland longjaw galaxias (Waitaki) (*Galaxias prognathus*)
7. Shortjaw kōkopu (*Galaxias postvectis*)
8. Northern flathead galaxias (Species N (undescribed))
9. Lamprey/Kanakana (*Geotria australis*)
10. Freshwater crayfish/Kekewai (*Paranephrops zealandicus*)
11. Freshwater mussel/Kākahi (*Echyridellamenziesi*)²⁶

63 However, the policy itself does not include the term ‘Habitat of Indigenous Freshwater Species’ and could therefore apply to any waterway in the Canterbury Region that contains any indigenous fish.

64 The s42A Report recommends that ‘Habitat of Indigenous Freshwater Species’ be amended to ‘Critical Habitat of Threatened Indigenous Freshwater Species’. The accompanying definition is also recommended to be amended to

~~means an area identified as ‘Indigenous Freshwater Species Habitat’ on the Planning Maps, and~~

means the area of the bed and the riparian margin of a surface water body that is:

- a. within ten metres of any surface water, as measured at any time, located within the upstream and downstream extents of a line on the Planning

²⁶ PC7, Section 2.9 Definitions, Translations and Abbreviations.

Maps identified as ‘Critical Habitat of Threatened Indigenous Freshwater Species’; and

- b. within an area identified as ‘critical Habitat of Threatened Indigenous Freshwater Species’ on the Planning Maps

which provides habitat for at least one of the freshwater species listed below...

- 65 Fish and Game considers that fish passage is important for indigenous fish and sports fish where appropriate. Policy 4.102 does not provide for this. The ability for any new instream structure and any modification or reconstruction of existing instream structures to prohibit the passage of sports fish does not consider other legislation such as the Conservation Act 1987, the Freshwater Fisheries Act 1983, or Part 2 of the RMA that directs safeguarding the life-supporting capacity of water and ecosystems and particular regard be given to the protection of the habitat of trout and salmon.
- 66 Given the number of nationally, regionally, and locally significant sports fisheries within the region, this policy could have detrimental impacts to the sports fish resource managed by Fish and Game. This would be evident where fish passage design prohibits fish from reaching their spawning waters or where it would interfere with their migration or lifecycles. A broad-brush approach such as this that does not consider the values of the catchment and has not been informed by any evaluation to consider the impacts that it would have on matters related to angling including the social, recreational, environmental and economic impacts is not supported by Fish and Game.
- 67 The main body of the policy then goes on and refers to avoiding passage of three descriptive terms of fish species namely ‘invasive’, ‘pest’, and ‘nuisance’.
- 68 The Freshwater Fisheries Regulations 1983 designates the following species of fish as sports fish:
- a. Brown trout (*Salmo trutta*):
 - b. Rainbow trout (*Oncorhynchus mykiss*, formerly known as *Salmo gairdneri*):
 - c. American brook trout or char (*Salvelinus fontinalis*):
 - d. Lake trout or char (*Salvelinus namaycush*):
 - e. Atlantic salmon (*Salmo salar*):

- f. Quinnat or chinook salmon (*Oncorhynchus tshawytscha*):
- g. Sockeye salmon (*Oncorhynchus nerka*):
- h. Perch (*Perca fluviatilis*):
- i. Tench (*Tinca tinca*):
- j. Rudd (*Scardinius erythrophthalmus*) found or taken in the area of jurisdiction of the Fish and Game Council for Auckland—

and includes any hybrid and the young, fry, ova, and spawn, and any part of any such fish; but does not include salmon preserved in cans and imported into New Zealand.

- 69 Perch (h) and tench (i) are coarse fish but are managed by Fish and Game as sports fish. Coarse fish are freshwater fish other than trout or salmon. They are called coarse fish because of their larger, coarser scales.
- 70 The Freshwater Fisheries Regulations defines noxious fish as follows:
- a. Walking catfish (*Clarias batrachus*)
 - b. Live European carp, live Japanese koi (*Cyprinus carpio*)
 - c. Pike (*Esox lucius*)
 - d. Piranha (*Pygocentrus* spp., *Rooseveltiella* spp., *Serrasalmus* spp.)
 - e. Rudd other than within the Auckland/Waikato Fish and Game Region (*Scardinius erythrophthalmus*)
 - f. Tilapia (*Tilapia* spp., *Sarotherodon* spp.)
- 71 Proposed Policy 4.102 does not include the term ‘noxious fish’.
- 72 In the Canterbury Region, the Canterbury Regional Pest Management Plan 2018-2038 (“**CRPMP**”) identifies koi carp as the only ‘pest fish’ in the region. The CRPMP also includes a category ‘Organisms of Interest’ (“**OoI**”) that is provided for under S70(2(d)) of the Biosecurity Act 1993 where any other organisms can be listed that are intended to be controlled but not accorded pest status. The Brown Bull Headed Catfish is the only freshwater fish species listed in the OoI.
- 73 There is no legislation that designates fish species as ‘invasive’ or ‘nuisance’ nor is there a definition within Plan Change 7 or the LWRP that defines what these species may be.

Without further defining these terms, it is unclear what species are considered ‘invasive’ or ‘nuisance’ or what direction the policy gives to decision makers to establish this.

- 74 Whilst the policy is unclear on what fish species are considered to be ‘invasive’ or ‘nuisance’, it seems appropriate that koi carp should be considered as a ‘pest fish’ per the CRPMP.
- 75 It is interesting to note that the technical report that informs this policy includes a table that consistently refers to priority actions as ‘retention of fish passage barriers that prevent salmonid or other predatory fish invasion’ and to ‘remove predatory fish’.²⁷ The priority action recommended in the technical report as the ‘retention of fish passage barriers that prevent salmonid or other predatory fish invasion’ is carried out in clause (b) of the proposed policy as it is specific to structures already in place through the use of the word ‘retention’.
- 76 Applying this policy to new in-stream structures as directed by clause (a) is not specifically referred to in the technical report that we are aware of nor is Fish and Game aware of any assessment undertaken to help understand the impacts of such a policy to the sports fishery, which is highly valued by both national and international anglers.
- 77 The Officer’s response to the Commissioners’ question suggests the intent of Policy 4.102 does not align with Clause (a) of the policy. Clause (a) is specific to the design, construction, installation and maintenance of *new* [emphasis added] instream structures. The Officer’s response states

The intent of Policy 4.102 is to provide protection of indigenous species habitat located upstream of small, permanent, in-stream structures (such as culverts) which *currently* [emphasis added] prevent the passage of introduced fish species.²⁸

New conditions and a series of amendments to provisions is recommended by the Officer in her response including an amended Policy 4.102, a new condition for both rules 5.137 and 5.140A, and an amendment to both rules 5.140(3) and 5.151(3).

²⁷ Duncan Gray and Richard Allibone, “Prioritisation of native aquatic species habitat for protection under the LWRP Omnibus plan change”, Appendix 1, 21 May 2019.

²⁸ Andrea Richardson, “Response to Hearing Panel Question on policy 4.102”.

- 78 The purpose of the RMA is to promote the sustainable management of natural and physical resources while sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations, and safeguarding the life-supporting capacity of air, water, soil, and ecosystems, and avoiding, remedying, or mitigating any adverse effects of activities on the environment.²⁹
- 79 Section 30 of the RMA describes the functions of regional councils to give effect to the purpose and principles of the RMA. One particular area of responsibility allotted to the Regional Council is to control effects related to the use of beds of lakes and rivers, which includes the construction or removal of structures in waterways. No person may undertake an activity, including damaging, destroying, disturbing or removing habitats of animals in, on or under the bed of a lake or river in a manner that contravenes a national environmental standard or a regional rule unless the activity is expressly allowed by a resource consent.³⁰ The consent authority, when considering a resource consent application must, subject to Part 2, have regard to any actual and potential effects on the environment of allowing the activity.³¹
- 80 There is also legislation in place that contains directives for fish passage and fish interaction. The Conservation Act 1987 designates the management of sports fish to the twelve Fish and Game Councils who are responsible for managing the sports fish resource within their regional boundaries in the recreational interests of anglers.³² The Department of Conservation (DOC) has the function ‘to preserve so far as is practicable all indigenous freshwater fisheries, and protect recreational freshwater fisheries and freshwater fish habitats.’³³ It is these organisations that are responsible for the management of freshwater fish species and species interactions under the Conservation Act 1987.
- 81 Section 17L of the Conservation Act 1987 requires each Fish and Game Council to prepare a sports fish and game management plan to establish objectives for the management of sports fish and game. The preparation of each sports fish and game management plan requires each Fish and Game Council to:

²⁹ Part 2, Resource Management Act 1991.

³⁰ Resource Management Act 1991, s13.

³¹ Resource Management Act 1991, s104.

³² Conservation Act 1987, s26Q.

³³ Conservation Act 1987, s6(ab).

- a. have regard to the sustainability of sports fish and game in the area to which the plan relates; and
- b. have regard to the impact that the management proposed in the draft is likely to have on other natural resources and other users of the habitat concerned; and
- c. include such provisions as may be necessary to maximise recreational opportunities for hunters and anglers.³⁴

82 Per s17L, the Central South Island Sports Fish and Game Management Plan 2012-2022 contains policies that direct how Fish and Game recognise and protect indigenous species.

- a. Policy 4.2- CSI Fish and Game will consult with the Department of Conservation and other agencies to identify those water bodies that remain sports fish free and are inhabited solely by indigenous fish species. CSI Fish and Game will not liberate sports fish stocks into such water bodies.
- b. Policy 4.3- CSI Fish and Game will, in conjunction with Department of Conservation, investigate all reports of, and as required, pursue prosecution of any person or persons responsible for the illegal transfer and release of sports fish species. Furthermore, CSI Fish and Game will actively assist the Department in those cases involving illegal release of any other freshwater sports fish species.
- c. Policy 4.9- CSI Fish and Game will in relation to coarse fish:
 - i. oppose the introduction of any new coarse fish species,
 - ii. encourage removal of newly established coarse fish species from waterways...

83 Each plan is approved by the Minister.³⁵

84 Section 48A of the Conservation Act is another mechanism in place to address freshwater fish species management. It states

- a. Without limiting section 48, the Governor-General may from time to time, by Order in Council, on the recommendation of the Minister, make regulations for all or any of the following purposes:

³⁴ Conservation Act 1987, s17L(4).

³⁵ Conservation Act 1987, s17L(2).

- i. requiring and authorising the provision of devices and facilities to permit or control the passage of freshwater fish or sports fish through or around any dam or other structure impeding the natural movement of fish upstream or downstream: ...

85 Part 6 'Fish Passage' of the Freshwater Fisheries Regulations 1983 directs that the passage of fish under this legislation is the responsibility of the Director-General. The scope of Part 6 applies to every dam or diversion structure in any natural river, stream, or water.

'Dam' is defined as:

any structure designed to confine, direct, or control water, whether permanent or temporary; and includes weirs.

'Diversion structure' is defined as:

any structure designed to divert or abstract natural water from its natural channel or bed whether permanent or temporary.

86 The Director-General may require that a dam or diversion structure proposed to be built include a fish facility, except if the dam or diversion structure is subject to a water right issued before 1 January 1984 under the Water and Soil Conservation Act 1967.³⁶

'Fish facility' is defined as:

any structure or device, including any fish pass or fish screen inserted in or by any water course or lake, to stop, permit, or control the passage of fish through, around, or past any dam or other structure impeding the natural movement of fish upstream or downstream.

87 Section 42 is specific to the construction of culverts and fords in any natural river, stream, or water. Clause (1) states that no person shall construct any culvert or ford in any of the above environments in such a way that the passage of fish would be impeded, without the written approval of the Director-General.

88 It is not clear how the proposed policy under the RMA would interact with the Conservation Act 1987 and the Freshwater Fisheries Regulations 1983, both of which

³⁶ Freshwater Fisheries Regulations 1983, s43(1).

contain policies on fish passage and the management of the fisheries. Given that s30 (1(ga)) requires councils to maintain indigenous biological diversity; the proposed policy could provide better certainty and direction if it built on the mechanisms already in place between Fish and Game and the DOC to manage fisheries and could contemplate environments where sports fish are not present or are minimal and do not contribute meaningfully to the sports fishery.

- 89 Fish and Game and the DOC have liaised on the proposed policy and have, as the statutory managers of freshwater fish species, agreed on the following approach and policy, which we support to replace proposed Policy 4.102:

Structures enable the safe passage of indigenous fish, while avoiding as far as practicable, where that would not enable the passage of any invasive, pest or nuisance fish species into locations where their passage is currently restricted and where their presence could adversely affect existing populations of indigenous fish species, by:

- a. the appropriate design, placement, construction, installation and maintenance of new in-stream structures; and*
- b. the modification, ~~reconstruction~~ or removal of existing in-stream structures.*

- 90 The above proposed policy put forward by Fish and Game and DOC recognises the importance of structures providing fish passage but contains specific caveats where fish passage for all species would not be appropriate (i.e. where passage is currently restricted and where their presence could have adverse effects on existing populations of indigenous fish species). The policy gives clear direction to RMA decision makers on how to consider fish passage for structures, is easily tested in terms of fish presence and utilisation of the New Zealand Freshwater Fish Database ('NZFFD'), and maintains the intent of the policy as referred to by the Reporting Officer in paragraph 77.

- 91 In achieving the purpose of the RMA particular regard must be given to the protection of the habitat of trout and salmon under s7(h). The habitat of trout and salmon must be accessible by them to complete their lifecycles. Salmon in particular return to their natal stream to spawn and access to their natal stream is necessary to safeguard the life-

supporting capacity of the species. This is true for both landlocked sockeye salmon and sea-run chinook salmon.

92 The NPSFM contains objectives and policies that are relevant to achieving the purpose of the RMA. It focuses on life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water. Life-supporting capacity is not limited to indigenous species but the ability of a particular waterway to provide life-supporting capacity. Without the ability for fish such as salmon to move through a waterway for various life stages, life-supporting capacity cannot be achieved.

93 In the section ‘National significance of fresh water and Te Mana o te Wai’, it recognises Te Mana o te Wai as an integral part of freshwater management. It states

The health and well-being of our freshwater bodies is vital for the health and well-being of our land, our resources (including fisheries, flora and fauna) and our communities.

94 The National Objectives Framework (“**NOF**”) embedded in the NPSFM contains the following Objective CA1

To provide an approach to establish freshwater objectives for national values, and any other values, that:

- a. is nationally consistent; and
- b. recognises regional and local circumstances.

95 ‘Compulsory National Values’ include ‘Ecosystem health’ and ‘Human health for recreation’. ‘Ecosystem health’ is defined as

the freshwater management unit supports a healthy ecosystem appropriate to that freshwater body type (river, lake, wetland, or aquifer).

It goes on and states

Matters to take into account for a healthy freshwater ecosystem include the management of adverse effects on flora and fauna of contaminants, changes in freshwater chemistry, excessive nutrients, algal blooms, high sediment levels, high temperatures, low oxygen, invasive species, and changes in flow regime.

Other matters to take into account include the essential habitat needs of flora and fauna and the connections between water bodies.

- 96 'Other National Values' includes 'Fishing' (amongst others) and states
- a. The freshwater management unit supports fisheries of species allowed to be caught and eaten.
 - b. For freshwater management units valued for fishing, the numbers of fish would be sufficient and suitable for human consumption. In some areas, fish abundance and diversity would provide a range in species and size of fish, and algal growth, water clarity and safety would be satisfactory for fishers. Attributes will need to be specific to fish species such as salmon, trout, eels, lamprey, or whitebait.
- 97 The specific recognition of 'fishing' as a national value is consistent with s7(h) of the RMA and specifically recognises that salmon and trout are highly valued introduced species. Freshwater sports fisheries are of high socio-cultural and socio-economic importance both domestically and internationally.
- 98 Trout and salmon are amongst the most studied fish species in the world. Salmonid habitat requirements such as water quality, quantity and physical habitats (including fish passage requirements, particularly for salmon given their diadromous life cycle) are well established and documented in literature. Comparatively, the habitat requirements of many freshwater indigenous fish species are less well-known. Given the sensitivity of salmonids to habitat degradation, provision of salmonid habitat requirements provides protection for the health of most other species in aquatic ecosystems, and for life supporting capacity in general. There is a good correlation between the habitat requirements of salmonids and suitability for other species and purposes.
- 99 The NOF recognises regional and local circumstances, similar to the NPSFM and its direction related to freshwater management units. In this same regard, Fish and Game considers that a catchment-level approach is appropriate and necessary when species management is undertaken. This allows for a robust assessment of the impacts of prohibiting or allowing fish passage for a variety of species managed by statutory agencies. The technical reports that inform the proposed policy did not evaluate the impacts to the sports fish population, sports fish spawning, or angling opportunities, all

of which are provided for under the Conservation Act 1987. Fish and Game considers that a more targeted approach is appropriate and emphasises the roles of existing legislation that is carried out by the two statutory agencies involved in the management of freshwater species, DOC and Fish and Game.

100 National Water Conservation Orders (WCOs) are established under Part 9 of the RMA. The purpose of a WCO is two-fold. First, it identifies characteristics that are outstanding on a national comparative basis, and second it sets out prohibitions and restrictions to protect those outstanding characteristics.

101 The Rangitata River is protected by the National Water Conservation Order Rangitata River 2006 (“**Rangitata WCO**”) for its outstanding characteristics and features and includes but is not limited to:

- a. habitat for terrestrial and aquatic organisms;
- b. fishery values;
- c. scientific and ecological values; and
- d. recreational, historical, spiritual or cultural characteristics.

102 Clause 10 of the Rangitata WCO states

- a. No resource consent may be granted or rule included in a regional plan relating to the waters identified in Schedule 2, authorising an activity that will adversely affect the passage of salmon, where Schedule 2 identifies salmon passage or salmon spawning as an outstanding characteristic or contributing to an outstanding characteristic.
- b. 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.

103 The tributaries of the upper Rangitata River included in Schedule 2 where salmon passage or salmon spawning is identified includes the:

Unnamed tributaries of the Rangitata River and other water bodies adjacent to the Rangitata River joining the Rangitata River at or about J36:390316 and known as Brabazon Fan; J36:348379 and known as Black Mountain Stream;

J36:414330 and known as Deep Creek (Mt Potts); J36:460242 and known as Deep Stream (Mesopotamia).³⁷

- 104 Approximately 93% of all known salmon spawning in the Rangitata River occurs in two stream systems namely Deep Creek and Deep Stream. Deep Creek and Deep Stream are both identified as ‘Habitat of Indigenous Freshwater Species’ in the Plan Change 7 Planning Maps. Fish and Game considers that the proposed policy would not give effect to the Rangitata WCO and the protection of its outstanding characteristics and values (Map Appendix 1).
- 105 Similar to the Rangitata WCO, the National Water Conservation (Ahuriri River) Order 1990 (“**Ahuriri WCO**”) protects the outstanding wildlife habitat, outstanding fisheries, and outstanding angling features of the Ahuriri River. A number of spawning tributaries included in the Ahuriri WCO³⁸ are included in the ‘Habitat of Indigenous Freshwater Species’ map.
- 106 The s42A Report identifies a number of higher order planning documents that direct the management of aspects of indigenous biodiversity.³⁹ Section 5(2(b)) of the RMA states that sustainable management of a resource must be done in a way that also safeguards the life-supporting capacity of air, water, soil, and ecosystems. This is not specific to indigenous species and relates to the ability of these habitats and ecosystems to provide the necessary components for species to survive and thrive. Section 6(c) directs that sustainable management shall recognise and provide for the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna. Section 7(d) is also mentioned in the s42A Report and requires particular regard to intrinsic values of ecosystems. In addition to s7(d) but not mentioned in the s42A Report is s7(h), which requires particular regard to the protection of the habitat of trout and salmon.
- 107 The LWRP includes rules 5.137 and 5.138 that permit the installation of bridges and culverts and the installation of defences against water if certain conditions are met. Rules 5.140 and 5.151 relate to temporary structures and Rule 5.140A relates to the installation of monitoring equipment. If the conditions within the permitted activity rules cannot be

³⁷ National Water Conservation Order Rangitata River 2006, Schedule 2.

³⁸ National Water Conservation (Ahuriri River) Order 1990, Clause 2.

³⁹ S42A Report, PC7, paras 5.128-5.131.

met, then rules 5.141A or 5.152A (depending on the activity) designate the activity as discretionary.

- 108 Under the permitted activity rules mentioned above, works cannot take place in a Salmon Spawning Site listed in Schedule 17. If they do, then a resource consent must be applied for. Considering the direction of Policy 4.102 to ‘enable the safe passage of indigenous fish while avoiding as far as practicable the passage of any invasive, pest, or nuisance fish,’(and assuming that the three descriptive terms are referring to sports fish species as alluded to in the accompanying technical report) the waterways identified in the map layer as ‘Habitat of Indigenous Freshwater Species’ that overlap with Schedule 17 Salmon Spawning Sites requires the RMA decision maker, who is not a statutory manager of freshwater species, to prioritise one particular species over another. It is unclear how the rules that recognise the importance of Schedule 17 Salmon Spawning Sites will be considered in light of the proposed policy. Salmon must be able to access these sites to complete their lifecycle. If fish passage is not provided for, these sites will disappear.
- 109 Fish and Game acknowledges the importance of waterbodies that are habitats for threatened indigenous freshwater species. Fish and Game supports the exclusion of sports fish in areas where the benefits to threatened indigenous fish are great and the adverse impacts on sports fish populations are minimal in comparison. This requires a catchment specific approach and detailed knowledge of the fishery values present (both indigenous and sports fish).
- 110 Fish passage is important for all fish species (except for those categorised as ‘pests’ in legislation or plans) in order for them to migrate and to complete their life cycles.
- 111 The uncertainty of the proposed policy wording does not give Fish and Game confidence to carry out its responsibilities and functions under the Conservation Act. It is unclear to Fish and Game how the policy would be administered and how decisions will be made that could have adverse effects on sports fish populations that Fish and Game are tasked with managing.

Structures and Gravel from Lake and Riverbeds

- 112 Rules 5.140 and 5.151 give direction pertaining to the installation of temporary structures. Rule 5.140 is related to the installation, alteration, extension, or removal of temporary structures and diversions associated with undertaking activities in rules 5.135 to 5.139, military training activities or artificial watercourses while Rule 5.151 is related to the placement, use, maintenance and removal of any temporary structures and diversions associated with undertaking activities as provided for in rules 5.147 and 5.150 or in relation to artificial watercourses.
- 113 Clause 5(b) of rules 5.140 and 5.151 relates to the installation of a temporary culvert and is specific to the depth that the base of the culvert is embedded proportionate to the culvert height and the amount of water that the culvert is to be covered.
- 114 Fish and Game's interest in the rules largely relates to fish passage. The New Zealand Fish Passage Guidelines states

River crossings are one of the most frequently encountered low-head instream structures in New Zealand. Inappropriate design of river crossings can significantly impede fish movements. This primarily occurs when structures constrict waterways and fail to maintain continuity of natural stream habitats.⁴⁰

- 115 Appendix G of the Guidelines sets out the 'Minimum design standards for fish passage at instream structures.'
- a. Minimum design standards for fish passage will achieve:
 - i. Efficient and safe passage of all aquatic organisms and life stages with minimal delay, except where specific provisions are required to limit the movement of undesirable exotic species.
 - ii. A structure that will provide no greater impediment to fish movements than adjacent stream reaches.
 - b. Culverts installed in freshwater bodies will meet the following minimum design standards for fish passage:
 - i. Open bottom culverts will be used or the culvert invert will be embedded by 25-50% of culvert height.

⁴⁰ New Zealand Fish Passage Guidelines, 2018, p35.

- ii. Minimum water depth in the culvert at the low fish passage design flow will be the lesser of
 - (a) 150mm for native fish passage, or 250mm where adult salmonid passage is also required, or
 - (b) mean cross-sectional depth in adjacent stream reaches.

116 The Guidelines state that minimum water depths in the culverts should be determined at the low fish passage design flow (Q1). “The fish passage low flow (Q1) is the lowest flow at which fish passage must be provided. As a rule of thumb, Q1 can be set at the 95% exceedance flow (i.e. the flow that is equalled or exceeded 95% of the time), which approximates to the mean annual low flow in many rivers in New Zealand.”

117 The Guidelines go on to recognise that in some streams, the minimum water depth will naturally be less than these suggested minimum at Q1, and that under those circumstances it is appropriate to use the natural stream environment as the benchmark for defining water depth criteria for the culvert.⁴¹

118 As a permitted activity, culvert installation should be based on the minimum, necessary requirements to enable fish passage. Therefore, the depth that the culvert is buried *and* the depth of water through the culvert are both necessary for fish passage. It should not be one *or* the other.

119 The s42A Report agrees that the minimum design requirements for culvert installation and flow are both key requirements for fish passage and recommends that ‘or’ is amended to ‘and’.⁴² However, Fish and Game notes that this recommendation was not carried through to the tracked changes version of Plan Change 7 in Appendix E.

Plantation Forestry

120 Rule 5.189 sets out conditions under a permitted activity threshold for a plantation forestry activity. The activity includes:

- a. the excavation, deposition or disturbance of land, including land in the bed of a lake or river, or in a wetland; or

⁴¹ *ibid.*

⁴² S42A Report, para 5.188.

- b. the planting, replanting or clearance of vegetation, including in, on, or under the bed of a lake or river, or in a wetland; or
- c. the taking or diverting of water; or
- d. the discharge of contaminants into water or onto or into land in circumstances where it may enter water⁴³.

121 Fish and Game’s submission seeks that Schedule 17 Salmon Spawning Sites are added to the conditions to protect waterways from adverse effects arising from sediment deposition.⁴⁴ Forestry activities as defined in the rule and set out above can dislodge sediment into waterways, covering substrate and filling in interstitial spaces. Clean cobbles and gravels, free of silt and sediment are required for salmon to spawn. While salmon spawn over the winter months, sediment entering waterways at any time of the year will deteriorate instream health and have adverse effects on habitat.

122 The National Environmental Standards for Plantation Forestry (“**NESPF**”) refers to the Fish Spawning Indicator (“**FSI**”), a mapped inventory of where and when fish that are sensitive to disturbance are spawning, as a tool to assess whether the activity can happen as a permitted activity. Section 97 of the NESPF restricts forestry activities during the species’ spawning season per the FSI and if an activity is to occur during this time, a resource consent is required. It is important that sediment does not enter the water when fish are actively spawning; however, it is equally important for their habitat not to become sediment laden, which can happen at any time of the year when forestry activities are undertaken.

123 Spawning sites within the Canterbury Region are included in the FSI but there are a large number of Schedule 17 sites that are not included. The lack of a comprehensive inventory in the FSI does not adequately protect salmon spawning and salmon habitat in Canterbury and it is Fish and Game’s view that Schedule 17 waterways should be included in the permitted activity conditions.

124 There are currently a number of provisions in the LWRP related to activities in Schedule 17 waterways. The purpose of the provisions is to help protect spawning habitat from adverse effects by requiring a resource consent for those activities. Given the activities

⁴³ Appendix E, Part 1 Officer recommendations in response to submissions, updated 29 April 2020.

⁴⁴ PC7-351.98.

permitted under the rule framework, including clause (d) (the discharge of contaminants into water), Fish and Game considers it appropriate to include Schedule 17 Salmon Spawning Sites as a condition.

- 125 Appendix E recommends the following amendment under condition (4) and is supported by Fish and Game

The activity is not undertaken in any ~~Indigenous Freshwater Species Habitat~~ Critical Habitat of Threatened Indigenous Freshwater Species or in a salmon spawning site listed in Schedule 17, and

Nutrient Management and High Nitrogen Concentration Areas

- 126 Provisions are introduced in Plan Change 7 to manage nutrients in High Nitrogen Concentration Areas (“**HNCA**”). HNCAs are areas where nitrate-nitrogen concentrations in groundwater and surface water exceed recommended guidelines in the New Zealand Drinking Water Standards and national bottom lines for ecosystem health in the NPSFM. There are three proposed HNCAs within the Orari, Opihi, and Timaru Freshwater Management Units namely Rangitata Orton, Fairlie Basin and Levels Plain. Within these designated areas, farmers and industry are required to make further nitrogen loss reductions beyond the Baseline GMP Loss Rate over time. These percentage reductions are stipulated in proposed Table 14(zc).
- 127 McKinnons Creek is within the Rangitata Orton HNCA. McKinnons Creek is a spring-fed tributary on the south side of the Rangitata River that flows into the river approximately 2.5 kilometres upstream of the Rangitata River mouth. The creek is designated as a Schedule 17 Salmon Spawning Site.
- 128 Fish and Game holds resource consents that permit the operation of a salmon hatchery at McKinnons Creek to provide catchable stock for anglers. As part of our consent conditions, Fish and Game is required to monitor biannually (May and November) prescribed water quality parameters both upstream and downstream of the hatchery site. Fish and Game holds water quality records dating back to 2007.
- 129 Over all years of monitoring, the lowest total nitrogen level recorded was 3.1 g/m³ in November 2014 and the highest recorded total nitrogen level was 11.2 g/m³ in May 2014.

When comparing this to the NPSFM nitrate attribute table, the levels are representative of attribute states ‘C’ and ‘D’ respectively.

- 130 A Plan Change 7 technical report states, “Nitrate concentrations in McKinnons Creek were very high and did not meet the NPS-FM national bottom line for nitrate toxicity in 2013-14 or overall (five-year current state).”⁴⁵
- 131 To assist with improving water quality within the area, Policy 14.4.18 requires additional reductions of nitrogen losses in the Rangitata Orton HNCA in accordance with Table 14(zc). Policy 14.4.28 assists in nitrogen loss reductions by directing point source discharges of nitrogen from industrial or trade waste disposal activities to also reduce by a minimum of 30%.
- 132 Submissions were made by other parties seeking a relaxation of the nitrogen loss reductions once water quality outcomes are met. Fish and Game agrees with the s42A Report analysis that recommends maintaining the reductions in nitrogen losses once limits are met, as relaxing these reductions may not maintain improved water quality as required by the NPSFM.⁴⁶
- 133 Fish and Game submits that nitrogen loss reductions are warranted and necessary to improve water quality and instream habitat in McKinnons Creek, a designated Schedule 17 Salmon Spawning Site.

Schedule 17 Salmon Spawning Sites

- 134 Prior to Plan Change 7, the LWRP contained 20 waterways designated as Salmon Spawning Sites in Schedule 17 in the Central South Island Fish and Game Region. These waterways include both lowland and high-country spring-fed systems such as the Ohapi Creeks and Deep Creek respectively.
- 135 Fish and Game manages both chinook salmon and sockeye salmon under the Conservation Act. Chinook salmon spend a portion of their life at sea before returning to spawn where they subsequently die. Sockeye salmon are landlocked in New Zealand and

⁴⁵ Shirley Hayward, et al, “Orari, Temuka, Opihi and Pareora Zone: state and trends in water quality and aquatic ecology”.

⁴⁶ S42A Report, para 12.158.

never undertake an ocean migration. Fish and Game undertake annual spawning counts both by foot and air to monitor and track population densities and distribution.

- 136 The waterways included in Plan Change 7 Schedule 17 identify salmon spawning sites where significance was assessed against criteria developed by Unwin.⁴⁷ The proposed waterways for inclusion span a large geographical area and include tributaries to the Ashburton River and a number of waterways in the Upper Waitaki catchment where sockeye salmon inhabit. Thirteen new waterways have been proposed for inclusion in the Central South Island Fish and Game Region with the remaining changes in Schedule 17 being limited to corrections to grid map references and descriptions.
- 137 Sockeye salmon are the only self-sustaining population of sockeye in the Southern Hemisphere. Sockeye salmon are present in lakes Pukaki, Ohau, and Benmore and sporadically in the Waitaki River (due to spills), and lakes Ruataniwha, Aviemore, and Waitaki. Spawning occurs in most tributaries of these lakes and lake edge spawning is believed to be minimal. In 2019, the run of spawning sockeye in the Upper Waitaki catchment was estimated to be 71,260 fish.⁴⁸
- 138 The rules associated with Schedule 17 Salmon Spawning Sites in the LWRP require activities in or near these designated waterways to obtain resource consent. These provisions serve to protect these sensitive sites from the adverse effects arising from works instream or near stream where discharges to water or disturbance to riverbeds is likely and can be detrimental to spawning habitats.

Opihi catchment environmental flow regime and allocation limits

- 139 Fish and Game lodged a detailed submission on a number of provisions specifically related to the Opihi catchment in terms of environmental flow regimes and allocation limits. Senior Field Officer Mark Webb has addressed this in his evidence.

Conclusion

- 140 Fish and Game submits that our requested relief be adopted as it will

⁴⁷ M J Unwin, "Assessment of significant salmon spawning sites in the Canterbury region", Environment Canterbury Report No U06/59, July 2006.

⁴⁸ Jayde Couper, "Update report on sockeye salmon spawning in Waitaki catchment rivers and streams", Central South Island Fish and Game, 2019.

- a. ensure that over-allocation is appropriately considered and addressed; and
- b. help ensure that the life-supporting capacity of freshwater is safeguarded and help achieve the maintenance and enhancement of the quality of freshwater and ecosystems; and
- c. meet ECan's functions under s30 (1(c)) RMA, to control the use of land for the purpose of the maintenance and enhancement of the quality of water and ecosystems and the maintenance of the quantity of water in the region.

Angela Christensen

17 July 2020

Appendix 1

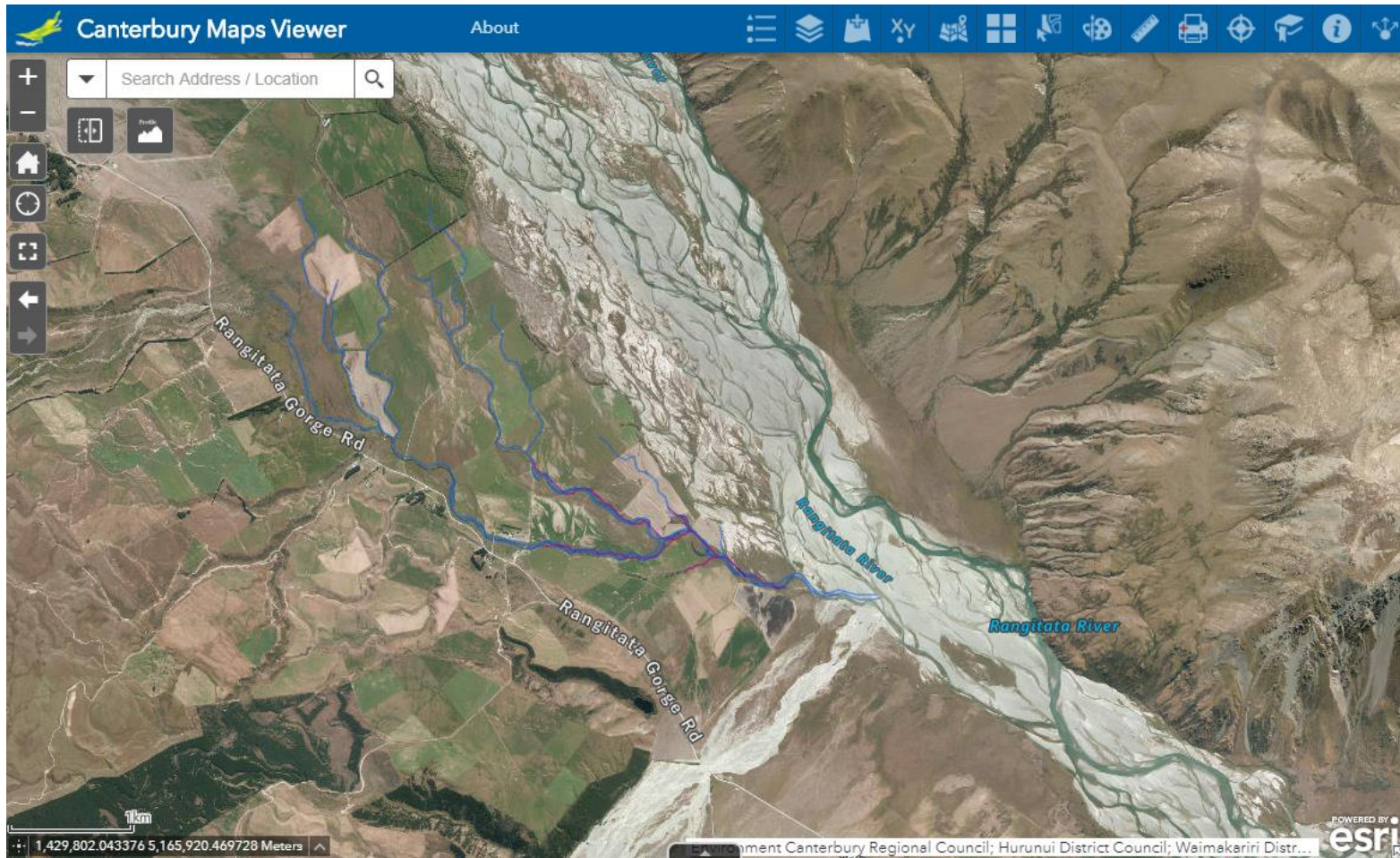


Figure 1- Deep Stream- Recognised for salmon spawning in the Rangitata WCO and Schedule 17 (blue lines) and Habitat of Indigenous Freshwater Species in PC7 (purple lines)

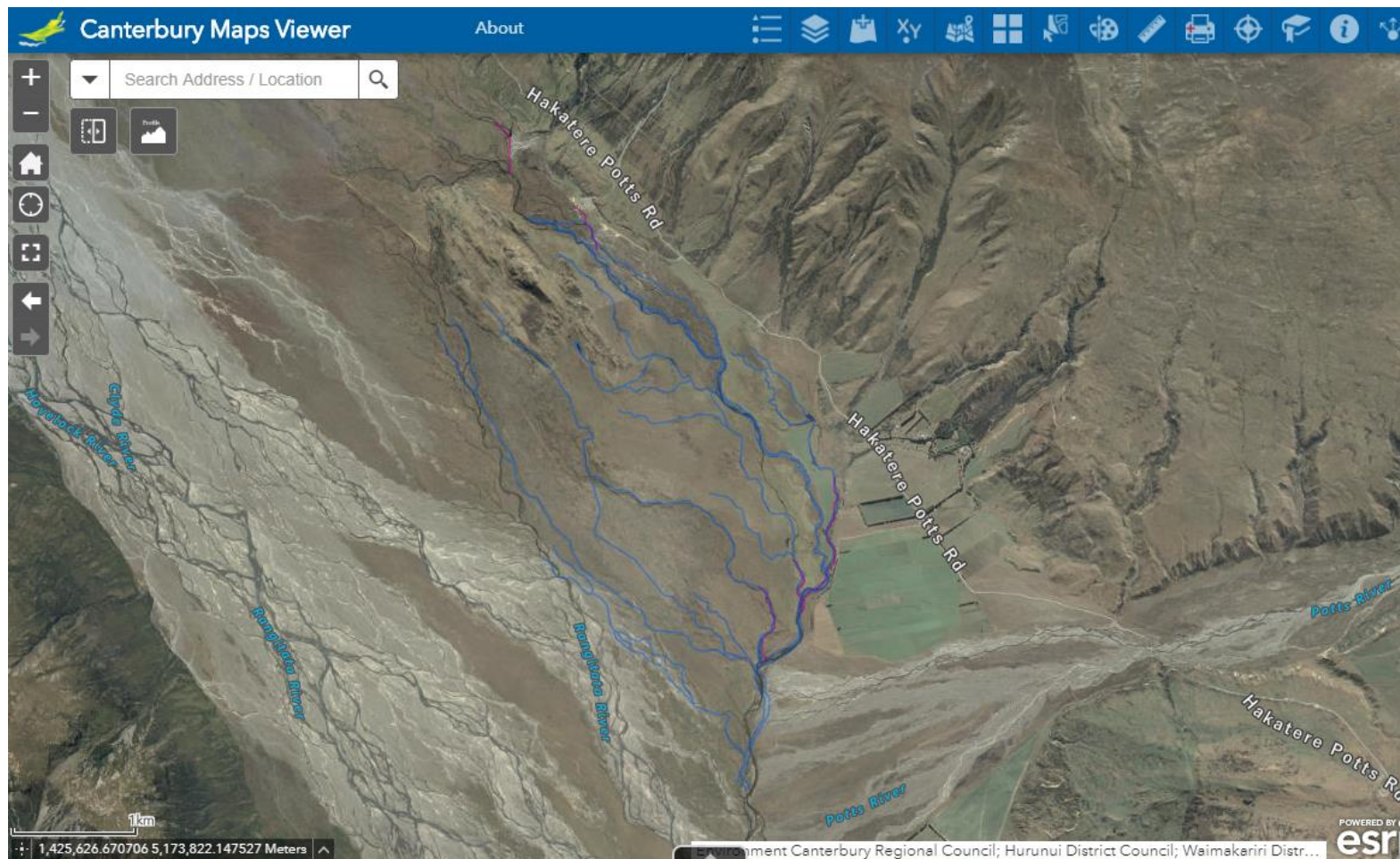


Figure 2- Deep Creek- Recognised for salmon spawning in the Rangitoto WCO and Schedule 17 (blue lines) and Habitat of Indigenous Freshwater Species in PC7 (purple lines)