

**BEFORE THE INDEPENDENT COMMISSIONERS
AT CHRISTCHURCH**

UNDER the Resource Management Act 1991

IN THE MATTER of Plan Change 5 to the Canterbury Land and Water
Regional Plan

**EVIDENCE IN CHIEF OF SCOTT PEARSON AND ANGELA CHRISTENSEN
ON BEHALF OF
NORTH CANTERBURY AND CENTRAL SOUTH ISLAND FISH AND GAME
COUNCILS**

21 July 2016

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QUALIFICATIONS AND EXPERIENCE

- 1 My name is Scott Pearson.
- 2 I provide environmental advisory services to the North Canterbury Fish and Game Council, and have done so since September 2012.
- 3 I hold a Master of Science degree (Hons) in natural resource management and tourism from Lincoln University and an undergraduate degree in Resource Studies, with majors in ecology and land and water management.
- 4 Over the last four years, I have coordinated North Canterbury Fish and Game's responses to the Hurunui Waiau Regional River Plan, the proposed Canterbury Land and Water Regional Plan, and Variations 1,4,5 (Nutrient Management) and 6; as well as major resource consent cases such as the Hurunui Water Project, Ngai Tahu Farming Limited, Grasmere Station (P&E Limited) and MainPower/Rooney Group. This work involved preparing and presenting submissions and expert evidence.
- 5 My role with Fish and Game has included acting as environmental spokesperson for the North Canterbury Region and the provision of national advice to the New Zealand Office of Fish and Game on RMA matters.
- 6 I am contracted by North Canterbury Fish and Game, a statutory body that works in the interests of Fish and Game New Zealand, in the management, maintenance and enhancement of sports fish and game and their habitats (section 26C Conservation Act 1987).
- 7 In preparing my evidence I have reviewed Plan Change 5 to the Canterbury Land and Water Regional Plan ("**PC5**"). I have reviewed the Section 32 report and the S42A officers report from Environment Canterbury.

QUALIFICATIONS AND EXPERIENCE

- 8 My name is Angela Fay Christensen.
- 9 I am employed as a Resource Officer by the Central South Island Fish and Game Council ("**Fish and Game**"). I have been employed by Fish and Game since February 2015.
- 10 As a Resource Officer I am required to provide direction and professional advice to the Chief Executive Officer 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.

- 11 I hold a Bachelor of Environmental Studies from Massey University and a Master of Sustainable Communities with Distinction from Northern Arizona University.
- 12 I am familiar with the Land and Water Regional Plan and have been involved with the processes and hearings as they relate to the subregional plans on behalf of Fish and Game.
- 13 In preparing my evidence I have reviewed Plan Change 5 to the Canterbury Land and Water Regional Plan ("**PC5**"). I have reviewed the Section 32 report and the S42A officers report from Environment Canterbury.

SCOPE OF EVIDENCE

- 14 We have been asked by Fish and Game to prepare evidence in support of the requested relief in relation to Part A Nutrient Management. This evidence also considers any consequential or revised relief as a result of the S42a analysis, to the extent that scope exists to remain "on PC5".
- 15 The following evidence has been developed with reference to the S32 and Section 42a Officer's Report; the submissions of other parties to the proposed plan change; and Fish and Game's involvement in the GMP/MGM Governance and Policy Working Groups.
- 16 **Our evidence will cover the following:**
 - Overview
 - Definitions
 - Nutrient Management Policies and Rules
 - Permitted Activities in Red and Orange Zones
 - Permitted Activity Monitoring
 - Phosphorus Risk Zone

OVERVIEW

- 17 Fish and Game has acknowledged the importance of improving minimum farming practices across Canterbury. The Canterbury Land and Water Regional Plan is designed to achieve the sustainable management of land and water resources under the Act, as well as providing a policy framework for the development and implementation of sub-regional plans.
- 18 The proposed PC5 amendments seek to introduce and implement Good Management Practices (GMP) via a systematic and managed process with appropriate checks and balances. The incorporation of the Matrix of Good Management (MGM) provides further guidance to both land users and the Regional Council, through the provision of nutrient discharge levels as per the operating parameters of a farm in a particular environmental context within Canterbury.
- 19 Our understanding is that the application of GMP and MGM is not designed to deliver all aspects of the nutrient allocation process, but instead to ensure bottom-line standards are achieved within a manageable and more equitable consenting framework.
- 20 Fish and Game supports the overall intent of PC5, subject to the relief it has requested and the enclosed evidence. While there are many advantages from the PC5 approach, there are also significant risks, particularly in relation to red and orange nutrient allocation zones (NAZ) failing to maintain or enhance water quality.

PLANNING FRAMEWORK AND POLICY INSTRUMENTS

- 21 With the development and implementation of PC5, the Regional Council must fulfil 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 of the RMA. Part 2 of the RMA focuses on sustainable management, which 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.
- 22 In order to achieve the purpose of the RMA, the regional council must give particular regard to the intrinsic values of ecosystems, the maintenance and

enhancement of the quality of the environment and the protection of the habitat of trout and salmon when managing the use, development and protection of natural and physical resources.

23 As set out under section 30 RMA, every regional council has the following functions 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 resource of the region;

(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;

(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.....

24 PC5 is required to give effect to the New Zealand Coastal Policy Statement 2010 ("**NZCPS**") as the area contained within PC5 includes coastal marine areas and coastal environments. The NZCPS recognises that activities that take place on land can adversely impact coastal water quality, attributable to point source and non-point source contamination. The NZCPS works towards meeting a number of objectives through a policy framework in order to achieve the purpose of promoting the sustainable management of natural and physical resources as per the RMA in relation to New Zealand's coastal environment.

25 NZCPS Objective 1 states:

Objective 1 To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by:

- maintaining or enhancing natural biological and physical processes in the coastal environment and recognising their dynamic, complex and interdependent nature;
 - protecting representative or significant natural ecosystems and sites of biological importance and maintaining the diversity of New Zealand's indigenous coastal flora and fauna; and
 - maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of discharges associated with human activity.
- 26 The Canterbury Water Management Strategy ("**CWMS**") lists a number of fundamental principles to underpin the strategy, namely the environment, irrigation, recreation and amenity, access and sustainable management. A set of targets (including, but not limited to, ecosystem health, water use efficiency, recreational and amenity opportunities) are identified to help establish clear direction in order to reach the desired outcome. The outcome states:
- "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".*
- 27 While the targets are not bound by legislation, the CWMS provides a framework to help achieve the purpose of the RMA.
- 28 PC5 is required to give effect to the Canterbury Regional Policy Statement 2013 ("RPS") as per section 67 of the RMA. Policies and methods are set out within the document to guide how the objectives will be met. The RPS contains a number of objectives, policies and methods that address freshwater management.
- 29 RPS 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 wellbeing 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:

(1) the life-supporting capacity ecosystem processes, and indigenous species and their associated freshwater ecosystems and mauri of the fresh water is safe-guarded;

(2) 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

(3) any actual or reasonably foreseeable requirements for community and stock water supplies and customary uses, are provided for.

30 RPS 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 fresh water ecosystems are safeguarded.

31 Objective A1 of the National Policy Statement on Freshwater Management 2014 (NPSFM) sets clear direction as to the management of contaminant discharges as they relate to ecosystems and life-supporting capacity in freshwater bodies. The objective states:

To safeguard:

a) the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water; and

b) the health of people and communities, at least as affected by secondary contact with freshwater;

in sustainably managing the use and development of land, and of discharges of contaminants.

32 Objective A2 provides an overarching mandate to protect the overall quality of regional water bodies and to address freshwater degradation, where over-allocation has occurred.

The overall quality of fresh water within a region is maintained or improved while:

a) protecting the significant values of outstanding freshwater bodies;

- b) protecting the significant values of wetlands; and
- c) improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.

DEFINITIONS

33 **Nitrogen Loss Calculations:**

Fish and Game supports the retention of the amended definitions for **Baseline GMP Loss Rate**, the **GMP Loss Rate** and the **Nitrogen Baseline** and **Nitrogen Loss Calculation**, using an average loss calculation over a four year period, as opposed to use of the highest annual loss rate. Dairy NZ was one of the parties who requested further amendments to these definitions on the basis of the highest annual loss rate, which was opposed by Fish and Game in its further submission.

- 34 Use of the average can account for farming and climatic variation over the four year period, rather than effectively grand-parenting the farmer at the highest annual loss. Applying the highest annual loss would skew normal farming practice, and be unlikely to achieve the maintenance or improvements in water quality required under Objectives A1 and A2 of the NPSFM; by effectively increasing the level of headroom in catchment zones.

35 **Winter Grazing:**

After considering the revised definition of winter grazing, as discussed by Ian Brown in Appendix F of the S42 Officer's report, we are satisfied that this revised definition is more appropriate in terms of practicality, and therefore withdraw our requested relief for this particular definition.

PC5 NUTRIENT MANAGEMENT POLICIES AND RULES

- 36 As indicated through its submission, Fish and Game supports the intent of the nutrient management policies to minimise nutrient loss from farm activities. Policies 4.34 to 4.41D set out the policy framework to implement this approach.
- 37 In Policy 4.34, Fish and Game requested the insertion of a new clause (d) to take into account the potential inaccuracies in Overseer, assuming

certain farm practices were already completed, such as irrigation ponds being lined for example. In response to the S42a Officer's comment, we are prepared to accept that assessment of the variation between assumed compliance and actual compliance within Overseer is not practical at this stage of PC5's development, and will therefore withdraw this proposed relief.

- 38 In its "Further Submission", Fish and Game has supported the request from Horticulture New Zealand and many other parties, to consistently redefine "good practice" under Policies such as 4.34(b) and Policy 4.36 as "good management practice". Given the level of support across most parties this would be a practical amendment to achieve consistency of interpretation.
- 39 Policy 4.37 is considered critical for systematically applying the policy framework. Fish and Game does not support changing this process to an alternative consenting pathway, because this would remove the "portal" and supporting MGM framework as the means of consistently determining GMP compliance and meeting associated nutrient management policies and rules.
- 40 Fish and Game has seen a growing number of resource consent applications for irrigated intensification of land, where it is argued there will be only minor changes in nutrient leaching. For example, P&E Ltd consent application (Lake Grasmere Station) and the Rooney Group Ltd (Kakapo Brook) both applied this argument on relatively porous high country alluvial soils.
- 41 The common trend with irrigation is to increase pasture or crop growth and farm production, through increased inputs like water, fertiliser and higher stocking levels (Dewes, EIC CLWRP, 2013). We are not convinced that modern irrigation practices have created a zero sum game at this stage, given the uncertainties and discretionary aspects associated with Overseer modelling. Fish and Game has strong concerns regarding the potential for Overseer gaming by farm advisors who have significant flexibility in relation to input variables. In the P&E Ltd case, which is still under deliberation in the Environment Court, the comparative Overseer assessments were quite different between Environment Canterbury and P&E Ltd's farm advisors.
- 42 Several submitters in opposition to the portal have argued that it is not adequately validated for nutrient losses. This same argument could be applied to the use of Overseer in general on Canterbury soils, given the

large variations observed in modelled results shown by Alison Dewes (EIC Rebuttal for Variation 1, paragraph 9, 2014). Moving the process back to incremental consent applications, will not solve the validation issues and be more likely to increase them, due to the lack of an overarching method, as provided by the portal.

- 43 For these reasons the approach proposed by the Regional Council is considered the most consistent and equitable approach for all land users in determination of the consenting pathway. Fish and Game agree with the S42a Officer's comments and reasoning that an alternative approach will not ensure sustainable integrated management of freshwater. This could occur by compromising the Baseline GMP loss rate as a limit; undermining the ability of the portal to adequately assess cumulative impacts (associated with catchment wide nutrient management); and reduce the potential efficiencies gained through the proposed consenting pathway.
- 44 For accuracy purposes, we note that reference 6.73 in regard to Policy 4.38(b) in the S42a report should be referenced to Forest and Bird, rather than Fish and Game.

Permitted Activities in Red and Orange Zones

- 45 Fish and Game understands the benefits of applying permitted activity thresholds relative to land use intensity, so that the level of consent based management is proportional to the level of environmental risk.
- 46 Policy 4.37 and the suite of policies under 4.38, and Policy 4.41C, set out the provisions for individual and collective land use activities within the NAZ zones.
- 47 Two critical elements within these thresholds relate to the maximum amount of permitted irrigation and winter grazing.

Permitted levels of Irrigation and Winter Grazing

- 48 For Ashburton and Waimakariri study areas, the anticipated change in nutrient loss between CLWRP and PC5 rules has been modelled, as shown in Appendix C of the S42a Officer's Report (North et al., 2016). The modelling estimated changes for red and orange zones; with comparative assessment interpreted for the green zones. The indicative results show that nutrient losses would be reduced under PC5 when compared against

existing CLWRP rules for these areas. Although it is noted that on page 37, paragraph 2 of the report, that losses on the plains are also applied to the hill country and therefore slightly over-estimate CLWRP losses.

- 49 Given the move to GMPs and the permitted activity thresholds, it is not surprising that PC5 rules will generate a greater reduction, in keeping with the requirement to reduce over-allocation where waterbodies are in a degraded state under the NPSFM Objective A2. In the case of the Ashburton District, the larger decrease estimated for the orange zone¹ is also understandable in comparison to the Waimakariri, given the higher number of medium sized consented farms and the proportional area capable of higher N-loss².
- 50 Appendix C also provides a very useful comparison of permitted activity scenarios³ for irrigation and winter grazing rules in red nutrient zones. This assessment clearly shows the significance of increases or decreases in both of these variables. Ian Brown's Winter Grazing report in Appendix F also shows the high Nitrogen losses from strip grazing forage crops, which are compounded under irrigation, due to higher crop yields and associated stocking rates.
- 51 The six alternative red zone rule scenarios show some large variations. The S42a discussion of these scenarios indicates that the 10ha increase threshold for irrigation is in fact very effective in limiting further Nitrogen loss in red zones. In its submission, Fish and Game has requested the same approach be applied for Rule 5.54A (orange zone), to restrict additional irrigation to a 10ha increase. Paragraphs 7.153 and 7.154 of the S42a Officer's report, lend support to the need for a conservative approach to permitted activity rules in orange zones, in order to maintain water quality in waterbodies under Objective A2 of the NPSFM. The difference between allowing up to 50ha of irrigation in an orange zone and a 10ha change from the existing irrigated area (up to 50 ha) as proposed by Fish and Game would be significant, and better safeguard freshwater quality in orange zones.
- 52 The alternative scenarios also demonstrate that winter grazing permitted activity thresholds can substantially change the increase or decrease in

¹ Table 2, Appendix C S42a Officer's Report

² Table 1, Appendix C S42a Officer's Report

³ Page 47, Appendix C S42a Officer's Report

Nitrogen loss. Fish and Game has requested in Rule 5.44A (red zone) and 5.54A (orange zone), that winter grazing is limited to 10 hectares above that which was winter grazed at 13 February 2016, up to a maximum of 20 ha in the red zone and 50ha in the orange zone (as corrected from the original submission). Applying the provisions to both red and orange zones is based on the same principles in the previous paragraph.

- 53 In assessing the winter grazing scenario comparisons, Fish and Game would consider amending its requested relief so that Rule 5.44A and 5.54A permitted winter grazing as the lessor of 10% of the property area up to 20ha or 50ha respectively⁴. However, an increase beyond 10ha of existing winter grazing in either a red or orange zone is not considered acceptable as a permitted activity, and Fish and Game would therefore continue to seek its original requested relief that any increase in the area of winter grazing is limited to 10 hectares above that which was winter grazed at 13 February 2016. It is disappointing that no permitted scenarios were run using the 10ha maximum increase approach for winter grazing as suggested by Fish and Game, and applied to permitted irrigation. However, the proposed 10% change rule does allow for a reasonable comparative analysis between the two approaches in terms of the scale of change.
- 54 The S42a Officer's Report has responded to Fish and Game's requested relief in Rule 5.44A (red zone) and 5.54A (orange zone) by suggesting an amendments to clause 4 and 2 respectively, where in place of Fish and Games proposed 10ha increase over existing, "*any area of winter grazing is set back, and stock excluded from, a distance of not less than 5 metres from the bed of a watercourse*". Fish and Game understands the intent of this amendment is to offset the effects of increased winter grazing area, but we consider the proposed amendments will not achieve this aim, given the uncertainties around slope gradient, riparian width and soil vulnerability to nutrient leaching or loss from bypass flow.
- 55 Alison Dewes, Variation 1 EIC, paragraph 74, (2014) states that Overseer already assumes a 5 metre vegetative strip exists to protect against the effects of winter grazing, so it is therefore very important to retain this requirement but as a generic Good Management Practice.

⁴ It is considered by Fish and Game that having more than 50ha of winter grazing presents a high risk of Nitrogen losses, and would therefore be more effectively managed via resource consent.

- 56 The permitted activity allowances for irrigation and winter grazing, as proposed by Fish and Game, are not without environmental risk and assume modelled improvements from GMP practices to at least offset potential water quality degradation. The achievement of GMPs is likely to take 5 to 10 years to be completed across a normal bell-shaped distribution for change. The scale of the change across Canterbury along with the associated audit and compliance challenges, would suggest that a more permissive approach than that proposed by Fish and Game, could result in unintended negative consequences on freshwater bodies.
- 57 Fish and Game could have sought a zero increase⁵ stance for permitted activities in red and orange zones, but with experience of the unintended constraints on low emitting Hurunui dryland farmers, it has recognised that some permitted allowance may provide small to medium dryland farms with an opportunity to improve their drought resilience. It would also afford some flexibility under the permitted activity framework, without significantly degrading water quality. For accuracy, the submission point 7.53 for “no permitted increase” should be referenced to Forest and Bird.

PERMITTED ACTIVITY MONITORING

- 58 Policy 4.38 (b) plays an important role in ensuring that effects on water quality are monitored via the portal. It is therefore supported by Fish and Game in part. The policy also states that information provided to the portal will be “periodically reviewed” as part of Environment Canterbury’s monitoring programme. Fish and Game do not consider the periodic review requirement is explicit enough and remains open to wide interpretation.
- 59 As stated in submission, Fish and Game believe it is important to formalise in this Policy the requirement to carry out random checks of permitted activity Management Plans and associated actions, in order to identify problems and avoid apathy or potential abuse of this self-management system. The significant scale of potential cumulative effects from large numbers of lower emitting land users requires a stronger monitoring backstop; if this policy is to meet the plan objectives and be compliant with higher order RMA documents.

⁵ In regard to irrigation and winter grazing area.

- 60 To address this shortfall, Fish and Game has proposed an addition to the policy:

Effects on water quality...is periodically review by Environment Canterbury as part of its monitoring programme, including random checks for contributions to the portal and minimum Management Plan requirements and achieved actions, for permitted activity land users.

- 61 Without a clear signal that Environment Canterbury is serious about ensuring this self-governance approach is undertaken effectively, Fish and Game suspects the periodic reviews will be over-looked for higher urgency compliance and monitoring issues. This will send the wrong signal to lower emitting farmers and compromise the entire policy framework. The quality of catchment allocation decisions will be reliant to a large extent on portal information, and maintaining the accuracy and efficacy of this self-management system.
- 62 The random checks do not need to be onerous, but they do need to make it clear that certain expectations associated with achievement of GMPs, as supported by a Management Plan, are required in order to benefit from and retain permitted activity status. Fish and Game has requested in submission that Schedule 7A, clause 4, reference the methods to be used by Environment Canterbury for achieving effective monitoring, education and actions associated with the Management Plans. At the least, reference to the proposed amendment by Fish and Game in 4.38(b) for random monitoring checks⁶, should be inserted as an advisory note, to inform land users of this monitoring process and encourage achievement of the required actions. The addition to Schedule 7A is also considered necessary to support the proposed plan amendments to Policy 4.36 (a) and (b).
- 63 While Fish and Game supports the intent of permitted activity frameworks to provide a more manageable system for all parties, this approach is not currently arresting some large scale declines in water quality across Canterbury⁷. We consider a major reason for this decline relates to inadequate monitoring of permitted activities, as demonstrated in recent Press articles on ECan compliance and enforcement performance.

⁶ On the basis random checks are adopted.

⁷ Canterbury Water Management Strategy Targets Report June 2015, with particular reference to the decline in spring-fed plains streams and contact recreation sites.

PHOSPHORUS RISK ZONE

- 64 In relation to Policy 4.38(e), Fish and Game has read the revised S42a amendments to this Policy. We now believe these revisions are inclusive of permitted land use activities, and that clause (c) covers existing use activities by way of Farm Environment Plan requirements. Fish and Game is also supportive of other submitters who have requested that Phosphorus Risk Zones also include areas where there is an elevated risk of Phosphorus loss to groundwater. For example, from the leaching or bypass flow of Dissolved Reactive Phosphorus to groundwater.

CONCLUSION

- 65 We believe PC5 provides a significant opportunity to achieve bottom-line good management practices across Canterbury, within a manageable and more equitable consenting framework.
- 66 Fish and Game supports the overall intent of PC5, subject to the relief it has requested and the enclosed evidence. While there are many advantages from this approach, there are also significant risks, which we have sought to address in our submission and the enclosed evidence.
- 67 We thank you for reading the enclosed Evidence in Chief.

Scott Pearson and Angela Christensen



21 July 2016