In the Environment Court of New Zealand
Christchurch Registry

I Mua I Te Kōti Taiao o Aotearoa
Ōtautahi Rohe

ENV-2018-CHC-037
ENV-2018-CHC-050

Under	the Resource Management Act 1991 (**RMA**)
In the matter of	an appeal under clause 14 of Schedule 1 of the RMA in relation to decisions on the Proposed Southland Water and Land Plan
Between	**Royal Forest and Bird Protection Society of New Zealand Incorporated**
	Appellant
And	**Southland Fish and Game Council**
	Appellant
And	**Southland Regional Council**
	Respondent

Statement of Evidence of Ben Farrell

Topics B2, B3, B4, B5

20 December 2021

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INTRODUCTION

Qualifications and experience

1 My full name is Ben Farrell. I reside in Queenstown. I am an environmental planning expert. I hold a Master of Environmental Policy and Bachelor of Resource Studies (majoring in environmental policy and planning). I am a full member of the New Zealand Planning Institute.

2 I have been involved in the environmental planning sector for the last 23 years, 19 of which practicing as an environmental planner for a range of different employers on a range of policy and development projects.

3 My qualifications and expertise are set out in my evidence in chief (**EiC**) for Topic A dated 17 February 2019. Since preparing that evidence I have gained further experience in relation to regional planning relevant to this matter for example in respect of:

(a) Preparation of further briefs of planning evidence and participation in the Topic A hearing procedures;

(b) Provision of expert planning services to:

(i) The Royal Forest and Bird Protection Society of New Zealand Inc (**F&B**) on its appeals on the farming activity / discharge provisions in the Greater Wellington Regional Natural Resources Plan;

(ii) F&B and Southland Fish and Game (**F&G**) in respect of the implications of the 2020 RMA amendments, the National Policy Statement for Freshwater Management 2020 (**NPSFM 2020**) and the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (**NESFM 2020**);

(iii) F&G regarding consenting options for a wetland restoration / enhancement project in Southland; and

(iv) F&G Otago on Proposed Plan Changes 7 and 8 to Otago's Regional Freshwater Plan the Proposed RPS 2021.

(c) Speaking with numerous people in Southland and Otago involved in farming and other land uses, Murihiku Southland and Otago governors/councilors, and my own experience volunteering on farm work assisting with various farming activities including intensive winter grazing.

4 In preparation of this evidence, I have considered the following documents:

(a) Various background documents including the briefs of evidence, Court directions and decisions made in respect of this matter (available from the Environment Southland website), particularly:

(i) Memo for Ngā Rūnunga Ngai Tahu 29 November 2019 (Cultural Indicators of Health)

(ii) Evidence in Chief on Topic A of Mr McCallum-Clark dated 14 December 2018

(iii) Evidence on Topic B by Mr McCallum-Clark dated 22 October and 28 October 2021

(iv) JWS Farm Systems 1, 22 November 2021

(v) JWS Farm Systems 2, 6 December

(vi) JWS Forestry, 29 November 2021

(vii) JWS Planning, 10 December 2021

(viii) JWS Science, 22 November 2019

(ix) JWS Science, 26 November 2021

(b) Evidence of Ms McArthur dated 20 December

5 In my evidence I also refer to other background information and Technical Reports, and I reference those documents accordingly.

6 I have prepared my evidence based on my expertise as a planner given my qualifications and experience noted in my Evidence in Chief (**EiC**) as updated above.

Code of Conduct for Expert Witnesses

7 I confirm I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2014 and that I have complied with it when preparing my evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of Evidence

8 I have prepared this evidence in relation to the appeals by F&B and F&G respectively. Many of the specific points of appeal by F&B and F&G have been resolved through mediation and the set of provisions set out in the JWS Planning dated 10 December 2021. Accordingly, my evidence is focused on the following matters:

(a) Identification of degraded waterbodies (Schedule X)

(b) References to ephemeral rivers

(c) Wetlands (Rule 51 and Rule 74)

(d) Weed and sediment removal for drainage maintenance (Rule 78)

(e) Farming Activities (Policy 16, Rule 20/20A, Rule 25, Appendix N

9 I support the provisions as agreed in the JWS Planning except as discussed above and listed in Appendix 1. Accordingly, my evidence does not address the following provisions which were discussed in my Will Say:

(a) Rule 5 – Discharges to surface waterbodies

(b) New Schedule X

(c) Rule 20 – Farming

(d) Rule 24 – Incidental discharges from farming

(e) Rule 25 – Cultivation

(f) Policy 18 – Stock exclusion from waterbodies

(g) Rule 70 – Stock exclusion from water bodies, and all ephemeral waterbodies

10 To avoid repetition, my evidence builds on from, and relies on the abovementioned: evidence of myself and others on Topic A and the court decisions on Topic A; respective JWSs; the evidence of Mr McCallum-Clark dated 28 and 29 October 2021, and the evidence of Ms McArthur dated 20 December 2021.

EXECUTIVE SUMMARY

Identification of degraded waterbodies (Schedule X)

11 I support mapping of the extent of degraded waterbodies (all with the other planners) in order to clarify and demonstrate the extent of degraded waterbodies identified in the Freshwater Science JWS 2019.

Defining "minimise" and applying it across the pSWLP

12 I support clarifying in the pSWLP what the term "minimise" means in respect of the pSWLP, defined as follows in the JWS Planning:

> Minimise means to reduce to the smallest amount reasonably practicable.

13 I am aware this term has been used in provisions relating to farming activities in at least one other regional freshwater planning document[1]. To clarify, the planners (when conferencing) reviewed all plan provisions referencing the term minimise and concluded that it was appropriate to apply this meaning across all plan references to the term "minimise".

Reference to ephemeral rivers

14 I have slightly revised my position given in the JWS Planning. I consider that the definition of "ephemeral rivers" should be retained in the plan and the definition of "ephemeral flow path" should be replaced with "ephemeral waterbody". Consequently, the definition of "critical source area" should include reference to "ephemeral waterbody", not "ephemeral flow path".

Wetlands (Rule 51 and Rule 74)

15 It is appropriate for any drainage of wetlands, irrespective of the cause, to be classified as a non-complying activity because:

(a) The extensive loss of wetlands to drainage and clearance to date in Southland means that effectively all remaining natural wetlands are of significant value, coupled with the very strong direction in Policy 33 to *"prevent the reduction in area, function and quality of natural wetlands, including through drainage, discharges and vegetation removal*".

(b) The non-complying activity status retains a consenting pathway for any activity, including for example those particularised in the NESFM.

[1] Greater Wellington Natural Resources Plan

16 I note F&G's appeal sought reference to the "grazing by stock or drainage activities" to Rule 74(c). However, these matters are dealt with via other provisions, namely:

(a) Drainage activities are addressed in Rule 51 (as above).

(b) The grazing of stock within wetlands is addressed by Rule 70 (cb): "*The use of land within a natural wetland or the disturbance of the bed of a water body within a natural wetland for access or grazing by stock is a non-complying activity"*.

Weed and sediment removal for drainage maintenance (Rule 78)

17 The SRC changes to Rule 78(a)(iia) generally addresses the relief sought by F&G and F&B in respect of limb (a)(iia).

18 However, the recommended new limb (xiv) proposed by SRC (reference to Map Series 8 as a habitat of threatened non-diadromous galaxias) fails to adequately protect the habitat of other threatened native fish. Therefore, Rule 78 should be further amended by inclusion of a new clause restricting sediment removal for drainage within habitats of threatened native fish.

19 I understand from conversations with Mr McCallum-Clark, Ms Kirk and Ms Davidson that evidence tabled for the Director General for Conservation and Ngā Rūnunga will provide further information about the presence of threatened native fish and threats from drainage maintenance activities.

Farming Activities (Policy 16, Rules 20/20A, Rule 25, Appendix N)

20 I support further (minor) plan drafting amendments to the farming activity provisions to clarify or reinforce the intent of the provisions agreed in the JWS Planning, as set out in Appendix 1.

Recommended amendments

21 I support the provisions as agreed in the JWS Planning except as discussed above and listed in Appendix 1.

STATUTORY CONTEXT AND POLICY DIRECTIONS

State of Freshwater quality in Southland & the SRC Response

22 As set out in the evidence of Ms McArthur most of Southland's waterbodies where farming occurs in the catchment are degraded. This finding is a stark contrast to the beginning of the Topic A hearing when SRC put the position in very mild terms as "*water quality, in some places, shows declining trends in the Southland Region*."[2]

23 A report by Mr Snelder[3] describes and illustrates the spatial extent of degraded waterbodies in Southland and the significant amount of reduction of contaminant loss that may be required to achieve hauora. Figure 20 of the report identifies that a reduction of more than 70% of Total Nitrogen load is required across the majority of Southland's developed land to achieve hauora.

24 The cause of the region's degraded water in rural areas is attributed to rural land use. The *Southland Economic Project: Agriculture and Forestry Technical Report*[4] provides very useful historical and contextual information about the extent of land use in Southland. It effectively describes the spatial extent of different rural land uses across Southland and also how the number of diary cows have increased dramatically (1.6 million since 1993):

> Overall, there is 1.2 million hectares of developed land in Southland. Agriculture covers over 1.04 million hectares (86.7% of the developed land). This sector includes a range of different industries, from drystock (sheep, beef and deer) and dairy (almost entirely cattle) through to arable and horticulture, but it has always been predominantly pastoral farming. There is considerable variation between these industries in both total land areas and rates of nutrient loss. Forestry (commercial, indigenous and farm forestry) covers 118,000 hectares (9.9% of the developed land)…. Forestry has generally relatively low rates of nutrient loss (i.e. kg/ha/year), in comparison to agriculture, although the rates are variable during the rotation. The remaining 3.3 percent of developed land is used for all other activities, such as urban centres, transport networks, and manufacturing or processing industries…
>
> In 2015, just over 99 percent of farms in the region were pastoral: either drystock or dairy. Originally, drystock farming meant sheep and beef, but in the 1970s the term widened with the emergence of the deer industry. Drystock farms usually have a mix of stock types and can include other enterprises such as arable cropping and dairy support. The number of dairy farms in the region has fluctuated over the years until the early 1990s when they expanded rapidly. The dairy expansion has created new opportunities for dairy support. There are

[2] SRC opening legal submission

[3] Assessment of Nutrient Load Reductions to Achieve Freshwater Objectives in the Rivers, Lakes and Estuaries of Southland Including Uncertainties, November 2021

[4] The Southland Economic Project: Agriculture and Forestry Technical Report April 2017 (re-edited May 2019)

> examples of sheep dairy farming developing in Southland, but it is still on a small scale.
>
> One way to indicate possible nutrient losses from pastoral industries at a broad scale is through stock units. … Sheep stock units peaked in 1986 and have been generally declining since. After 1985 there has been a clear shift from sheep to dairy, with the decline in sheep stock units being mirrored by an increase in dairy stock units. … From 1985 to 1993 there was a period of decline, following de-regulation of the New Zealand economy, which included structural changes to agriculture (particularly the removal of subsidies). However, between 1993 and 2014 total stock units in Southland increased from roughly 9.5 million to over 11.1 million. This overall increase of around 1.6 million stock units since 1993 … The more recent increase in total stock units (from 1993) was caused by the expansion in the dairy industry. By 2010 dairy cattle stock units had surpassed sheep stock units in Southland and in 2014, there were 5.5 million dairy compared to 4.3 million sheep stock units.[5]

Purpose of the Proposed SWLP

25 The opening legal submission for SRC clarified that the pSWLP seeks to:

(a) First maintain water quality and improve water quality where it is degraded.

(b) Secondly, to achieve the region-wide implementation of good environmental practices by all activities; and

(c) Thirdly, to set up a framework to enable further improvements where water quality is degraded through the Freshwater Management Unit process that will set freshwater objectives and limits in the future.

26 I have no real understanding of what, if any, effect the pSWLP has had on reducing contaminant loss from farming activities since its notification in 2016. I think it would be helpful to the Court if SRC provided some evidence on this. I note the pSWLP was intended to have taken effect by now and for farming activities (individually and collectively) to be well on their way to improving water quality where it is degraded. The pSWLP was notified in 2016 but promulgated long before that. As set out in my EiC Objective 4 of the Operative Water Plan sought to manage the discharge of contaminants and encourage best environmental practice to improve the water quality in surface water bodies classified as hill, lowland (hard bed), lowland (soft bed) and spring fed, and in particular to achieve a minimum of 10 percent improvement in levels of (a) microbiological contaminants; (b) nitrate; (c) phosphorus; and (d) clarity by January 2020. This objective failed.

[5] Pages 5-7: Southland Economic Project: Agriculture and Forestry Technical Report, May 2019

27 SRC's 2015 Progressive Implementation Regime, outlined the following stages, processes and timeline (refer processes and timelines set out in Table 1 below):

> Environment Southland, in partnership with Ngāi Tahu tangata whenua, will be working with the communities of Southland to implement the programme above as part of its Water and Land 2020 & Beyond project which includes a science programme and an economic project. The final reports for the economic project to understand the implications of potential policy decisions will be completed by January 2017. Key completion dates for the three main themes within the science programme are: Land Use inputs (completed by February 2016), Fluxes and Flows (completed by February 2016), Ecosystem Response (completed by September 2016), with the exception of the Freshwater Ecosystem Health and Monitoring Predictor (completed by March 2017) and then Freshwater Ecosystem Health Monitoring is to be in place by November 2017.

Table 1 Summary of SRCs first progressive implementation programme for setting FMU catchment limits

Stage	Process	Timeline
Community conversations	Establish process for community conversations about catchment scale limit setting following notification of regional framework in Water and Land Plan for Southland.	By 30 June 2016.
Fiordland and Islands FMU	Develop catchment limits through a community and council process.	Commence late 2016, with catchment limits to be developed by July 2018
Mataura-Toetoes Harbour FMU	Develop catchment limits through a community and council process.	Commence late 2017 with catchment limits to be developed by July 2019.
Aparima and Jacobs River Estuary FMU	Develop catchment limits through a community and council process.	Commence late 2017 with catchment limits to be developed by July 2019.
Waiau-Waiau Lagoon FMU	Develop catchment limits through a community and council process.	Commence late 2018 with catchment limits to be developed by July 2020.
Oreti and and Waihopai - New River Estuary FMU.	Develop catchment limits through a community and council process.	Commence late 2018 with catchment limits to be developed by July 2020.
NPS-FM fully implemented	Water and Land Plan for Southland notified.	Plan Change(s) for all FMUs to be notified by December 2025.

28 The above is despite the fact that *"the pSWLP is the culmination of a long period of community engagement, with early engagement occurring in 2011"*[6] and the need to improve water quality has been a statutory direction in Southland's RMA policy since notification of the proposed RPS in the late 1990s which sought to gradually improve water quality (where it was degraded) by 20% (through the public notification process this target was amended to 10% improvement by 2020). As identified in para 27 of my EiC:

> From reviewing previous regional freshwater planning documents (for example the RWP and the RPS 1997) the Southland community has agreed that the water quality has degraded (in places) and that it should be improved. Section 3.1 of the IPS confirms that the pSWLP is the culmination of a long period of community engagement, with early engagement occurring in 2011. This statement is true insofar as it relates to the pSWLP document. However, under the Act the period of community engagement relating to the management of freshwater and Environment Southland's own policy direction to maintain water quality has been clearly signalled since 1997 when the first regional policy statement was notified and became operative. The RPS 1997 (through Objective 5.2) sought to maintain water quality as a minimum. The successive planning documents have consistently sought to achieve this outcome, as a minimum (the RWP4 through Objective 4) and the RPS 2017 (through Objective WQUAL.1(c)).

29 I acknowledge that SRC is continuing to work on the FMU limit setting process in accordance with its Revised Progressive Implementation Programme (2018). However, there is no evidence (yet) that the background work SRC is undertaking in support the FMU limit setting workstream is on track to deliver the regulatory responses required to significantly reduce contaminant loss from farming activities in Southland.

30 I observe the SRC Revised Progressive Implementation Programme (as discussed in Ms Millar's EiC SRC[7]) identified that, through the Regional Forum process, it would:

(a) Develop the team and building knowledge (April 2019 to July 2019);

(b) Sense check Southland's values and objectives for water (August 2019 to February 2020);

(c) Come up with advice on limits, methods and preferred tools (ways to meet them) (March 2020 to December 2022);

(d) SRC also advised the Court that "*In addition to the values and draft freshwater objectives package, an assessment of the current state of*

[6] Section 3.1 of the IPS

[7] Millar EiC @ par 32

the region's water bodies against the draft freshwater objectives will be presented to the Regional Forum in November 2019"[8].

31 In my opinion it would be helpful (and entirely relevant) for SRC to outline, in evidence, how it is progressing in respect of a-d above.

FMU workstreams

32 Mr McCallum-Clark has outlined work SRC is undertaking to complete its implementation of the NPSFM, resulting in:

(a) Notifying amendments to the RPS in mid-2022; and

(b) Notifying plan change Tuatahi in late 2023;

33 A series of technical reports have been prepared by the Regional Forum as part of SRC's approach for completing its obligations under the NPSFM. These include:

Draft Murihiku Southland Freshwater Objectives: Providing for hauora, the health and well-being of waterbodies in Murihiku Southland

(a) The Draft Murihiku Southland Freshwater Objectives Providing for hauora, the health and well-being of waterbodies in Murihiku Southland Technical Report (November 2020) describes draft freshwater objectives that reflect qualities of hauora that support the health and well-being of waterbodies within Murihiku Southland, following national direction and regional direction for freshwater management. The report incorporates community values, including Ngāi Tahu ki Murihiku values, that have been identified for waterbodies in the region. A combination of mātauranga (a Ngāi Tahu ki Muirhiku knowledge system in this context) and environmental science informed the identification of the qualities, or attributes, of hauora for waterbodies. Draft numeric and narrative freshwater objectives are produced in the report that are designed to provide for hauora in combination, including an identified range for particular numeric attributes. The report findings and results are intended to support freshwater management decision-making in the region, in the context of implementing the NPSFM.

[8] Millar EiC @ para 28

(b) The report discusses key concepts such as te mana o te wai, ki uta ki tai, and hauora. In respect of hauora in the Murihiku Southland context, the report[9] includes the following summary:

> Te Mana o te Wai, as described in the NPS-FM 2014 and the proposed regional plan, provides for te hauora o te taiao (the health of the environment), te hauora o te wai (the health of the water) and te hauora o te tangata (the health of the people), which must be provided for when making use of water resources. Recognising Te Mana o te Wai therefore requires identification of the qualities that come together to support hauora, or healthy resilience, within waterbodies, and their associated environment and communities. The focus of this technical report is to identify those qualities that support hauora and ensure they are captured within draft freshwater objectives. This includes identification of a range of attributes that need to be considered together when assessing the state of waterbodies.
>
> Hauora is understood to be a state of health, which can be thought of as meaning fit, well, vigorous and robust. As described by Ngāi Tahu ki Murihiku, the human equivalent for hauora is that "you can take a knock, such as have a cold, and have the resilience to bounce back to a healthy and vigorous state". It is assumed that waterbodies are at their most healthy and resilient in a largely unimpacted state, with mauri intact. As pressures come to bear, cumulatively and over time, waterbodies can shift from a state of hauora, or healthy resilience, into a degraded state that no longer supports natural processes, populations of species, or human activities and uses that were once associated with the waterbody. A direct relationship exists between supporting the resilience of waterbodies and preparing for the effects of climate change. …
>
> The following principles are drawn from the draft Ngāi Tahu ki Murihiku values and objectives report and have informed development of the draft freshwater objectives. They are all considered equally applicable by the authors of this report and are presented in no particular order, with the 'A' to 'F' labels provided for ease of identification and consistency between reports:
>
> A A state of hauora will be the result of the interaction of a combination of attributes, including Ngāi Tahu Indicators of Health.
>
> B The nature and behaviour of particular waterbodies is important to understand when considering attributes.
>
> C Nationally directed attributes alone cannot describe a state of hauora for waterbodies, so additional measures are needed, including assessing against Ngāi Tahu Indicators of Health.
>
> D Where a water quality attribute is associated with risk of people getting sick, this risk will be reduced to the lowest possible level.
>
> E Where a water quality attribute is assessing levels of toxicity or aspects of harm to aquatic species, in order to avoid harm to these species this risk will be reduced to the lowest possible level.
>
> F Hauora is most likely to be provided for when waterbodies are closest to their natural condition, so an understanding of natural state or reference state is needed to help decision-makers.

[9] @ pages 19-29

Southland Economy and the Southland Economics Project

(c) In 2013 Market Economics Limited[10] identified that:

(i) Of the 48 economic sectors agriculture remains the backbone of the Southland economy. The agricultural sector contributed almost 17% of Southland's economy in value added terms.

(ii) Livestock and cropping farming contributed 7% and Dairy cattle farming contributed 9%. These are the two largest primary sectors. The primary sector accounts for 23% of Southland's total employment.

(d) Agriculture occupies 87% of the developed land in Southland.[11] It is unclear the percentage of waterbodies directly traversed by agricultural land use but the highly connected nature of land and water has been acknowledged in the Agriculture and Forestry Technical Report 2019:

> This report highlights Southland's reliance on agriculture, compared to other regions, and it develops a number of themes. One is the role of Southland's environment in the development of agriculture and forestry and, in turn, how this development has modified the environment over the years. Southland's water and land is highly connected, in comparison to many other regions. Water now flows more rapidly through the landscape than in the past, and there are fewer opportunities for the natural processing of nutrients carried in it. Other themes are the complexity and diversity within agriculture, and the connections (and integration) between its different industries, both on-farm and between farms, which were all important considerations in this research.

(e) A southland economic model has been developed to help understand the economic impact (costs) associated with changing farm practices. The following is provided on the WRC website:

> The Southland Economic Project
>
> What is it?
>
> We set up The Southland Economic Project to develop robust tools to help us understand the impacts of achieving environmental 'limits' set under the National Policy Statement for Freshwater Management. So far, the project has given us a set of reports, datasets and an economic model which we are now using to provide information for our community discussions and water policy development in Southland.

[10] Southland Region: Economic Impacts of Water Policy Decisions Workstream Regional Economic Profile & Significant Water Issues Ministry for the Environment, Prepared by Market Economics Limited, May 2013. While these statistics are based on 2013 research, I assume these figures/statistics are relatively similar today (in any event I have relied on them.

[11] The Southland Economic Project: Agriculture and Forestry Technical Report April 2017 (re-edited May 2019)

> The Project was a joint initiative between DairyNZ, Beef + Lamb New Zealand, Department of Conservation, Ministry for the Environment, Ministry for Primary Industries, Southland Chamber of Commerce, Te Ao Mārama, and Environment Southland. A wider group of organisations were involved in the project, including the three local councils (Gore District Council, Invercargill City Council, and Southland District Council), Deer Industry New Zealand, Southland Branch - New Zealand Deer Farmers' Association, Foundation for Arable Research, and Horticulture New Zealand.
>
> What is the Southland Economic Model?
>
> The Southland Economic Model is a tool that will help us understand possible economic impacts by testing a range of 'what if' scenarios. The model uses data from the farm and town case studies, as explained in The Agriculture and Forestry Report and The Urban and Industry Report, and was designed in a way that made sense to the resource users.

(f) SRC prepared a paper in 2020 to describe the approach that the Regional Forum will be using to assess potential impacts on local communities, particularly the testing of 'what if' scenarios[12]. I understand the Southland Economic Project inclusive of the Southland Economic Model have not been used in the preparation of the pSWLP provisions. SRC prepared a paper in 2020 about general conclusions to describes a set of general conclusions used in developing the 2020 baseline scenario for Southland (i.e. a forecast about the future without further freshwater management). The 2020 Baseline Scenario is a key piece of information used in The Southland Economic Model. One of the "factual statements" made in the general conclusions document is:

> Even without limit-setting, the region's environment has constraints - there are bounds to how much it can take before our natural capital, and therefore its use, declines.

(g) Similarly, the first paragraph in the executive summary of The Southland Economic Project: Agriculture and Forestry Technical Report acknowledges that:

> Water, and the land it flows through, has a natural capacity to process (or attenuate) nutrients and other substances. When by-products from economic activity end up in water this natural capacity is 'used' or taken up. They add to the concentrations and loads (or total amounts) of substances in the environment and can cause water quality issues

34 It can be concluded from these findings that, irrespective of the outcomes of the FMU limit setting process, it is accepted there is a need for land uses to operate within "natural capacity" to attenuate contaminants irrespective of economic impacts. This supports the need for the pSWLP to achieve the following among other things in the interim period:

[12] The Approach to Economic Impact Assessment: Technical Paper for the Regional Forum, June 2020

(a) Manage farming activities to ensure they are occurring within the natural capacity (limits) of waterbodies. In my opinion the natural capacity is likely to be same as a waterbody being in a state of hauora, or at a minimum meeting the ecological health parameters identified by the freshwater scientists (JWS 2019). Consequently, where a farming activity occurs within a catchment that is identified as being degraded then the pSWLP should seek to ensure that farming activity is reducing its contaminant losses to help improve water quality.

(b) This is consistent with the Court findings that the mauri of water is neither acknowledged nor provided for where water is allowed to or has become degraded by human activities[13] and that the pSWLP needs to provide an interim regime that includes methods that will improve water quality. The Court held that it is essential the narrative and numeric attributes for degraded water are known and that land management of individual properties address the linkages between those attributes and the contaminant pathways.[14]

Gaps in Evidence / Information

35 As there is no evidence before the Court about whether or not the Council has or will adopt the Draft Freshwater Objectives or whether it accepts the findings of the technical reports referred above, it is difficult to know if that information can be relied on as evidence of what Council plans to do.

36 I consider that the Court would be assisted if the following information was produced as evidence by SRC:

(a) An updated PIP, inclusive of:

(i) Confirmation of the status of the Draft Freshwater Objectives, for example commentary on whether or not they are endorsed by SRC – what is their status?

(ii) Outline of the progress to date (Mr McCallum-Clark refers to "*papers based on direction of travel indicated by the Regional Forum, to show implications for the plan change*"). For example, summarising the assessment of the current state of the region's

[13] First Interim Decision at [94]

[14] First Interim Decision at [119]

water bodies against the draft freshwater objectives (which was to be presented to the Regional Forum in November 2019)

(iii) The anticipated content of Plan Change Tuatahi which will be released for notification in mid-2023; and an assessment of whether realistically SRC is on track to notify Plan Change Tuatahi by December 2023;

(b) Identification of what type of land use change is being considered to reduce contaminant loss; and who in Southland does SRC think will be responsible for / obliged to lead the farm practice changes that will be required to reduce contaminant loss, for example:

(i) What work has been done to identify what changes existing farming activities might need to do to reduce contaminant load to an extent that water quality will be improved so that waterbodies are no longer in a degraded state?

(ii) Has any modelling been understanding using the Southland Economic Model?

(iii) Has SRC identified or quantified the environmental costs of not improvement freshwater quality?

(iv) What role will SRC have in regulating or not regulating the above, or is the expectation that it will be left to others?

(v) Does SRC have sufficient in house farm environment / systems advisors or will SRC rely on the private sector for this support?

37 That information would assist in assessing the efficiency and effectiveness of interim options for water quality improvement.

Evaluation of policies, rules and other methods

38 While not always directly or explicitly stated in my evidence below, I have considered the following relevant assessment matters:

(a) Whether the provisions accord with and assist the Council in carrying out its functions and achieve the purpose of the Act (s74(1) of the Act);

(b) Whether the provisions accord with Part 2 of the Act (s74(1)(b));

(c) Whether the provisions give effect to the regional policy statement (s75(3)(c)) and have regard to any proposed regional policy statement (s74(2));

(d) Whether the provisions give effect to a national policy statement (s75(3)(a));

(e) Whether the provisions have regard to the actual or potential effects on the environment, including, in particular, any adverse effect (s76(3));

(f) Whether the policies and methods are the most appropriate way to achieve the Plan Objectives, having regard to their efficiency and effectiveness (s32(1)(b)) and taking into account (under s32(2): (i) the benefits and costs of the proposed policies and methods; and (ii) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules of other methods.

39 In summary, for the reasons set out in my evidence below, I consider:

(a) The plan provisions, as I recommend be amended, will better accord with and assist the Council carrying out its functions to achieve the purpose of the Act and implement the respective National Policy Statements.

(b) As identified by Mr McCallum-Clark, in 2020 the RMA and NPSFM were updated, and the Government gazetted new freshwater management regulations within a new national environmental standard relating to freshwater management. The provisions in the pSWLP directly engage with the freshwater directions Mr McCallum-Clark identified, and in places I support rules in the pSWLP which are more stringent that rules set out in the NESFM. In those instances I have considered whether greater stringency is warranted, and given reasons. The NPSREG and NPSREG are also directly engaged by suggested changes to Rule 51 in respect of wetlands.

(c) Any changes to a proposal that are made after the initial section 32 evaluation has been completed require further evaluation under section 32AA of the Act. This further evaluation must be undertaken in accordance with section 32(1) to (4) of the Act and must be undertaken at a level of detail that corresponds with the significance of the changes. Section 32(1) and 32(2) specifies what the evaluation must examine:

> (1) An evaluation report required under this Act must—

> (a) examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and
>
> (b) examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by— (i) identifying other reasonably practicable options for achieving the objectives; and (ii) assessing the efficiency and effectiveness of the provisions in achieving the objectives; and (iii) summarising the reasons for deciding on the provisions; and
>
> (c) contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.
>
> (2) An assessment under subsection (1)(b)(ii) must—
>
> (a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for— (i) economic growth that are anticipated to be provided or reduced; and (ii) employment that are anticipated to be provided or reduced; and (b) if practicable, quantify the benefits and costs referred to in paragraph (a); and
>
> (c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

40 As the Plan Objectives have been determined, 32(1)(a) is not appliable and the primary assessment is to examine whether the provisions in the proposal are the most appropriate way to achieve the Plan Objectives, by identifying other reasonably practicable options for achieving the objectives; and assessing the efficiency and effectiveness of the provisions in achieving the objectives.

41 Section 32(1)(b)(i) requires the identification of other reasonably practicable options for achieving the purpose of the plan change (noting that, in this case, there are no new objectives proposed) as part of the plan change evaluation. These options are to be examined to determine whether or not the different options before the Court are the most appropriate way to achieve the Plan Objectives. As stated above an assessment under subsection (1)(b)(ii) must also: identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for— (i) economic growth that are anticipated to be provided or reduced; and (ii) employment that are anticipated to be provided or reduced; and (b) if practicable, quantify the benefits and costs referred to in paragraph (a); and assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

42 While not always explicit in my evidence below, I have considered options relative to the scope of each appeal point relative to the pSWLP Decisions Version.

Objectives of pSWLP (Plan Objectives)

43 The Plan Objectives are settled. As set out in the pSWLP's interpretation statement, the pSWLP directs that:

> All persons exercising functions and powers under this Plan and all persons who use, develop or protect resources to which this Plan applies shall recognise that:
>
> (i) Objectives 1 and 2 are fundamental to this plan, providing an overarching statement on the management of water and land, and all objectives are to be read together and considered in that context; and
>
> (ii) The plan embodies ki uta ki tai and upholds Te Mana o Te Wai and they are at the forefront of all discussions and decisions about water and land.

44 Plan Objective 1 relates is:

> Land and water and associated ecosystems are sustainably managed as integrated natural resources, recognising the connectivity between surface water and groundwater, and between freshwater, land and the coast.

45 Plan Objective 2 is:

> The mauri of water provides for te hauora o te taiao (health and mauri of the environment), te hauora o te wai (health and mauri of the waterbody) and te hauora o te tangata (health and mauri of the people).

46 In respect of maintaining and improving water quality the Plan Objectives clearly direct that:

(a) Land and water achieve a state of hauora (Objective 2).

(b) Improvement in water quality is required if it is degraded by human activities (Objective 6b).

47 In respect of improvement, the Objectives do not specifically identify how much improvement is required or by when, as that is intended to be the role of the limit setting process (as addressed in Objective 7 and directed by RPS Objective WQUAL.1(c)). Ms McArthur[15] discusses the gap between the provisions in the pSWLP and what is required to improve water quality to an extent that achieves the Plan Objectives. As identified by Ms McArthur:

> *The implementation of Appendix N (alongside the rules for consented farming activities) is unlikely to significantly shift the required improvements in water quality above national bottom lines or the degraded thresholds for Southland (ecological and cultural) and thereby begin to 'close the gap'. This is particularly the case with respect to the management of nitrogen through FEMPs, but also applies to limitations on improvement in sediment, phosphorus and*

[15] @35-42

> *faecal contaminant loads. Further intensification must be avoided to prevent losses from intensification from offsetting any improvements in water quality (particularly nitrogen) that may be provided by mitigations on existing farms (Monaghan et al. 2020). I support the provisions in Rule 20 which seek to halt intensification. However, as noted above, halting decline does not go far enough towards achieving objectives and improving beyond degradation. A clear and certain framework is needed in the Plan that is capable of directing the required contaminant reductions for existing farms to address degradation and move towards hauora. To achieve hauora, such a framework might also eventually require landscape-scale changes to farms, such as the exclusion of stock from all headwater/ephemeral streams*).

48 Objectives 3, 4, 5, 9/9A, 9B, 10, and 13 recognise and provide for the benefits of using resources. Objective 3 relates to all activities while the other Objectives provide outcomes for specific matters. Coupled together these Objectives provide respective outcomes to be considered when examining the particular matters to be addressed in Topics B2, B3, B4 and B5 respectively.

49 Objectives 4, 9/9A, 12, 13, 14, 15, 16 all relate directly or indirectly to the protection or safeguarding of ecosystems. Objectives 14 and Objective 17 include specific direction for protecting waterbodies including wetlands.

50 Objective 18 also applies to all persons implementing the plan. It effectively seeks that all persons implementing the pSWLP optimise efficient resource use, safeguard the life supporting capacity of the region's land and soils, and maintain or improve the quality and quantity of the region's water resources.

51 In my opinion the Plan Objectives, read together, embody the concepts of hauora and ki uta ki tai by managing uses to meet natural environmental outcomes (bottom lines) such as improving the quality of water where it is degraded and safeguarding the life supporting capacity of ecosystems. In respect of managing the adverse effects of activities on wetlands, ecosystems, and water quality (which my evidence is focused on) it is my interpretation of the Plan Objectives that all supporting policies and rules must protect wetlands, ecosystems, and water quality.

DEFINING "MINIMISE" AND APPLYING IT ACROSS THE PSWLP

52 I support clarifying in the pSWLP what the term "minimise" means in respect of the pSWLP, defined as follows in the JWS Planning:

> Minimise means to reduce to the smallest amount reasonably practicable.

53 I am aware this term has been used in provisions relating to farming activities in at least one other regional freshwater planning document[16]. To clarify, the planners (when conferencing) reviewed all plan provisions referencing the term minimise and concluded that it was appropriate to apply this meaning across all plan references to the term "minimise".

REFERENCE TO EPHEMERAL RIVERS

54 Rule 20 (decisions version) stated that intensive winter grazing, cultivation or disturbance by livestock in, on or over the bed of an ephemeral river was a permitted activity. A number of the pSWLP rules applying to farming activities in or affecting waterbodies expressly excluded ephemeral rivers from their application. The planners agreed that this approach failed to recognise the importance of ephemeral rivers as critical source areas. In the JWS Planning I supported deletion of reference to ephemeral rivers. This was on the basis that I agreed with Mr McCullum Clark's recommendations (and other planners' opinions) that "ephemeral rivers" are better expressed in the plan as:

(a) A river (because intermittent rivers are captured by the definition of river); or

(b) By reference to "ephemeral flow path" within the reference to "critical source area" (on the basis that ephemeral flow paths are not rivers or waterbodies).

55 Upon reflection, informed by Ms McArthur's evidence[17] (on her understanding of intermittent rivers versus ephemeral waterbodies) and discussions with counsel (on matters of statutory interpretation) I have revised my position:

(a) I consider that the definition of "ephemeral rivers" should be retained although it would be more correct to rename them "ephemeral waterbody".

(b) Any references to "ephemeral flow path" (for example in the meaning of "critical source area") should be replaced with "ephemeral waterbody".

[16] Greater Wellington Natural Resources Plan

[17] McArthur EiC @ paras 64-70

56 The consequences of this amendment, compared to the terminology agreed in the JWS Planning are:

(a) Negligible in respect of costs or impacts on farming activities.

(b) More appropriate in respect of acknowledging that ephemeral waterbodies should be managed as a waterbody, not land.

(c) More accurate in respect of statutory interpretation.

WETLANDS (RULE 51)

Wetland loss in Southland

57 It is frequently quoted that 90% of wetlands in New Zealand have been lost since the mid-1800s, including in Southland. Wetland loss continues in Southland, particularly on privately owned land in lowland areas, despite abundant national and regional policy designed to protect them. This is principally through drainage of lowland wetlands and conversion to pasture, which is likely to amplify nutrient losses to receiving waters by both reducing nutrient interception properties and by increasing the land area upon which agricultural nutrients are applied. For example, 1,362ha of wetland area was lost in Southland between 2007 – 2014/2015[18], which equated to a rate of approximately 1.5% reduction in the total area per year:[19]

> 20. Wetland loss due to the conversion of wetlands to other land use is one of the critical pressures on wetlands in Southland. There has been a large amount of historic loss with only about 10% of the original extent of Southland wetlands remaining. This extent of wetland loss is similar to overall wetland loss for all of New Zealand as a whole.
>
> 21. Wetland loss is continuing in Southland. For example, in one recent Southland study the loss, or increase in risk of loss, in the period 1990 to 2012 was estimated to be 23% of the remaining wetlands in the study area. (i.e. 7,395 ha) (Robertson et al, 2018)

58 Environment Southland received advice from Landcare in 2011[20] that concluded the large extent of the loss of wetlands (90%) in the Southland region study area indicated that virtually all remaining wetlands could be considered significant.

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[18] Environment Southland Wetland Inventory and Monitoring Project: Monitoring wetland extent outside of public conservation land and assessment of wetland status in the Southland region. Report prepared by Richard Ewans (Eco-South) Prepared for Environment Southland, September 2018

[19] As above (Environment Southland Wetland Inventory and Monitoring Project, 2018)

[20] Current and historic wetlands of Southland Region: Stage 2 Report prepared by Beverley Clarkson, Craig Briggs, Neil Fitzgerald (Landcare Research), Brian Rance (Department of Conservation), Hamish Ogilvie (Environment Southland) Prepared for Environment Southland, June 2011

59 In respect of the cause of wetland loss, Robertson et al identified the following:

> The predominant cause for the change in wetland extent in Southland was an increase in the development of high producing grassland to support agricultural production in Southland… We determined that most wetland decline occurred on private land (97%), and conversion to agricultural/horticulture accounted for >60% of wetland loss… Wetland conversion will typically require drainage and clearing of vegetation. Under the RMA, and associated statutory planning rules, consents are generally needed by landowners to clear indigenous vegetation, including consents to drain or modify wetlands. The specific rules vary dependent upon the individual local authority in New Zealand. For instance, Myers et al. (2013) noted the regional authority in Southland had only weak rules to limit the drainage/modification of wetlands. Other local authorities (e.g. Invercargill City Council, Southland District Council) also have varied rules to protect wetlands, and even where regulations are in place, considerable loss of wetlands since 1990 was detected. This further supports a need for a review of environmental rules, and increased enforcement of regulations...[21]

60 Despite this advice, wetland loss in Southland has continued and there is yet to be regional scale identification of wetlands. Despite the magnitude of loss, I understand that Environment Southland has rarely taken compliance action in relation to wetland drainage in Southland.

61 Given the above it is appropriate for any new drainage of wetlands, irrespective of the cause or purpose, to be classified as a non-complying activity. This is on the basis that:

(a) The extensive loss of wetlands to drainage and clearance to date meaning that effectively all remaining natural wetlands are of significant value, coupled with the very strong direction in Policy 33 to *"prevent the reduction in area, function and quality of natural wetlands, including through drainage, discharges and vegetation removal*".

(b) The current version of Rule 51 fails to strongly discourage further wetland loss. The non-complying activity status should strongly discourage further wetland loss.

(c) The non-complying activity status retains a consenting pathway for any activity, including for example those particularised in the NESFM[22].

[21] NZ Journey of Ecology: Loss of wetlands since 1990 in Southland, New Zealand (November 2018)

[22] Clauses 38-51 in relation to Restoration of natural wetlands; Scientific research; Construction of wetland utility structures; Construction of specified infrastructure; Maintenance and operation of specified infrastructure and other infrastructure; Sphagnum moss harvesting; Arable and horticultural land use; Natural hazard works.

62 I am cognisant of the direction in the NPSREG and NPSET to provide for the national significance of renewable electricity generation activities and the national grid (and classified as specific infrastructure in respect of clauses 45-47 of the NESFM). However, it stands to reason that drainage of wetlands in Southland should be avoided as a first priority, which should be practical for most forms of renewable electricity generation and transmission activities. If avoidance of adverse effects cannot occur then the national significance of the benefits of any proposal can be considered in the context of any resource consent application.

63 I conclude (in terms of s32(1)(b)(iii) of the Act) the method identified under Option 2 will be the most appropriate for achieving the Plan Objectives.

WEED AND SEDIMENT REMOVAL FOR DRAINAGE MAINTENANCE

64 F&B sought the following three amendments to Rule 78:

(a) Amend clause 78(a)(iia) as follows:

The removal of ~~river bed material other than~~ aquatic weeds, plants, mud or silt must not result in the removal of other riverbed gravel ~~avoided, as far as practicable~~;

(b) Add new clause to Rule 78(a)(xiv) as follows:

(xiv) the modified watercourse is not a habitat of threatened native fish

(c) Add a schedule to identify habitats of threatened native fish.

65 F&G sought the following three amendments to Rule 78:

(a) Amend heading as follows:

Rule 78 – Weed, ~~and~~ sediment and gravel removal for drainage maintenance

(b) Amend 78(a)(iia) as follows:

the ~~removal of river bed material, including gravel, other than aquatic weeds, plants, mud or silt is avoided as far as practicable~~ removal of aquatic weeds, plants, mud or silt must not result in the removal of other riverbed gravel;

(c) Amend 78(a)(iv) as follows:

upon completion of the activity, fish passage is not impeded ~~as a result~~ because of the activity;

(d) Amend 78(b) as follows:

The removal of aquatic weeds and plants and fine sediment from any modified watercourse for the purpose of maintaining or restoring drainage outfall and any associated bed disturbance and discharge resulting from the carrying out of the activity that cannot meet one or more of the conditions of Rule 78(a) is a discretionary activity.

(e) Amend the definition of "Gravel" as follows

***Gravel**: Fluvial inorganic aggregate matter or river bed material ~~of any size~~ with an individual grain size greater than 2mm.*

(f) Insert a new definition for "Sediment", as follows

***Sediment**: Clay, silt and sand with an individual grain size of less than 2mm.*

66 Council's amended version of Rule 78 generally addresses the relief sought by F&G and F&B in respect of limb (a)(iia). Similarly, the inclusion of "*the activity is restricted to the removal of aquatic weeds and plants or sediment deposits, provided that at least 95% of the sediment removed shall have a grain size of less than 2mm*" deals with the uncertainty regarding gravel and sediment such that definitions "gravel" and "sediment" are not required.

67 The new limb 78(a)(xiv) proposed by SRC (reference to Map Series 8 as a habitat of threatened non-diadromous galaxias) fails to adequately protect the habitat of threatened native fish. As identified in the evidence of Ms McArthur the ecological experts have identified among other things that:

> The affected drainage network is extensive across Southland and includes the habitats of most of Southland's freshwater indigenous species. A higher level of protection is required, and the proposed permitted activity does not address many of the effects identified by the experts.
>
> …A longer term view needs to be taken, rather than simply relying on best management practices to reduce impacts (which cannot avoid significant residual effects on indigenous and taonga species). The experts consider there is a hierarchy of actions that can be taken with the first priority being the prevention weed and sediment accumulation, before contemplating mitigation of drain clearance practices. The experts have identified some mitigation practices in Table 1 on page 6 of the Ecology 2021 JWS, but stress throughout that effects will still be significant and that taonga and indigenous species will not be adequately protected through mitigation alone and that this is inconsistent with the SWLP Objective 15 and Policy 3 provisions for taonga species.

68 Based on the evidence of Ms McArthur and the freshwater ecologists, I consider the relief sought by F&B (to insert an additional limb to restrict drain clearance activities in habitats of threatened native fish) will be more appropriate than the decisions version. I understand from Ms McArthur, the freshwater ecologists, and Ms Kirk and Ms Davidson that any schedule or mapping tool will not be able to identify all habitats of all threatened native fish species. Therefore, other mechanisms or methods may be required to ensure habitats of threatened native fish can practically be identified.

69 The additional costs of option 2 will relate to administrative costs associated with identifying the subject areas/habitats and requiring resource consents for any drain clearance activities that will disturb habitats of threatened native fish. I consider these costs are commensurate with the nature of the adverse effects (which could be significant) and the costs should be appropriate on the basis that they are necessary for SRC to carry out is function of protecting the instream habitats of threatened native fish.

FARMING ACTIVITIES (POLICY 16, RULE 20/20A, APPENDIX N)

F&G and F&B appeals

70 The appeal by F&G effectively sought to ensure that the pSWLP provide framework for existing over-allocation to be phased out ahead of the FMU process being completed, through resource consent application processes[23]. The tool for implementing this was two-fold:

(a) Apply ecological health thresholds to identify which waterbodies are degraded / overallocated in respect of ecological health; and

(b) Require a planning framework, via resource consents, to be used to improve water quality / reduce overallocation in respective of water quality.

71 In its interim decision on Topic A the Court found that:

> [119] A key issue raised by many parties is whether there are methods under the pSWLP that are capable of ensuring, now, that the trajectory of change is towards improvement of a degraded waterbody. In the absence of an allocative regime it will be difficult to relate the magnitude of in-stream improvement to change in the land management of individual properties. If there is to be improvement in degraded waterbodies ahead of the FMU process then our preliminary view is that it is essential the narrative and numeric attributes for degraded water are known and that land management

[23] This would be the outcome of the relief sought to Objectives 6 & 7, coupled with the inclusion of numeric thresholds for ecological health indicators, and relief sough to the various farming and discharge rules

> of individual properties address the linkages between those attributes and the contaminant pathways.

72 The SRC version of Policy 16 and Appendix N provides a substantially better framework for addressing contaminate losses from existing farming activities compared to the decisions version. The version of Policy 16 and Appendix N set out in the JWS Planning elaborates on the SRC version.

73 The amended Policy 16 and Appendix N provide a land use method that intends to set a trajectory of change towards improvement of a degraded waterbody; and adopt narrative and numeric attributes to identifying degraded water and tailoring land management of individual properties to address the linkages between those attributes and the contaminant pathways.

74 There is no dispute that farming activities contribute to the degraded state of freshwater in Southland and that farming activities need to be manged under the pSWLP to reduce contaminant loss to implement (among all other objectives) pSWLP Objectives 2 and 6. The magnitude of improvement required is very large. Environment Southland has been wanting to manage the effects of farming activities on water qualify for over the past decade, with the focus under the operative water plan on regulating point source discharges, managing conversions of land into dairying farming, and promoting GMPs via non-statutory methods. The pSWLP Decisions Version included numerous rules for farming which were "weakened" by the IHP's recommendations[24], and were described by Mr McCallum Clark in the Topic A hearing as a "light touch" to managing existing farming activities[25].

75 The farming provisions set out in the JWS Planning were assumed by the planners to result in some improvement to water quality to the extent that the original interim intent of the plan (in respect of water quality) to "halt the decline" will be achieved. However, we (planners) appear to have missed some key recommendations / observations by some of the science and farm systems experts, for example the farm systems JWS 22 November identified among other things that the Plan fails to explicitly address nitrogen loss:

> The measures in the Plan may not change nitrogen leakages as nothing specifically addresses this. There is an implicit expectation

[24] For example Rule 5 expressly allowing discharges to contain any raw sewage; Rule 14 to reduce buffer widths and expressly allowing the application of fertiliser to ephemeral waterways; Rule 20 in respect of abandoning physiographic zone specific rules to IWG, reducing buffer widths, increasing the area of permitted IWG; expressly permitting IWG activities within the bed of ephemeral waterways; Rule 25 in respect of expressly permitting cultivation within the bed of ephemeral waterways, reducing buffer widths, increasing the maximum permitted height for cultivation activities from 700m to 800masl.

[25] Topic A Hearing Transcript (week 1)

> that the measures in the plan will reduce leakages in nitrogen, but this is not explicit. The Plan should contain additional incentives to reduce nitrogen leakages. Explicit reference are needed in Farm Management Plans that will manage N losses. Clear objectives are needed in Appendix N and Farm plans should deal with nitrogen as a key component.

76 Additionally, Ms McArthur[26] has identified that, in her opinion or as recorded in the respective JWS Science 2019 and 2021:

(a) There is sufficient data to make reliable decisions for planning purposes and that degraded waterbodies can be (and have been) spatially identified.

(b) Appendix N does not list specific mitigations but requires landowners to meet specific objectives (part B section 5 of Appendix N). In order to strengthen Appendix N to better achieve hauora, additional objectives in Table 2 of the Science JWS [2021] could be added to Appendix N that specifically relate to ecological and cultural health.

(c) There is a large gap between the current state of water quality and objectives consistent with hauora (albeit the minimum hauora state or bottom of the hauora envelope). The reductions necessary to achieve hauora are large, and reductions to achieve national bottom lines are also large. To even achieve the national bottom lines in the NPS FM (2020) for several attributes in many waterbodies, where the current state is within the red 'D band', will still require a significant amount of improvement in the current state at the regional scale. The amount of improvement required at the site or FMU level will depend on the attribute and the location. There is a substantial gap to close to meet freshwater objectives for faecal indicators for groundwater drinking supply and human contact; for nutrients (and nutrient affected attributes), particularly in lowland rivers, lakes and estuaries; and for sediment (and sediment related attributes), particularly in lowland rivers, lakes and estuaries.

(d) Further work on reductions necessary to achieve freshwater objectives (including the minimum hauora state) has been recently completed. A summary of the region-wide TN and TP load reductions required was included in the Science 2021 JWS as Table 1 (page 9) and shows that to improve enough even to achieve the national bottom lines with require reductions of 47% and 21% respectively for TN and TP. To achieve pSWLP standards will require nutrient load

[26] @ par 17-25

reductions of 66% TN and 69% TP, and to reach the minimum state of hauora will require 70% TN and 70% TP reductions.

77 The provisions agreed to date largely only employ GMPs (such as Farm Management Plans, avoiding cultivation and winter grazing in critical source areas and setting back stock and cultivation from waterbodies). There is uncertainty about how effective the farming provisions, as per the JWS Planning, will result in improvement in water quality. In 2014 Snelder and Legard provided an *Assessment of Farm Mitigation Options and Land Use Change on Catchment Nutrient Contaminant Loads*[27] in the Southland Region, and concluded among other things:

> The largest reductions in nutrient loads can be achieved when both sheep & beef and dairy farms adopt mitigation measures. This is because sheep & beef remains the dominant land use by area in the Southland region, but losses from dairy farmers are greater per hectare. Overall, the contributions from both land uses are significant. However, given the higher per hectare losses, it follows that mitigation on dairy farms provides a greater per hectare benefit for water quality.
>
> It is concluded that under the status quo of ongoing conversions and increasing production on dairy farms, water quality will not be maintained (or improved by 10% as required under the current Plan) in the long term even if very stringent mitigation requirements (i.e. M3 on all farms) were to be adopted. Setting limits for catchment nutrient loads and then managing discharges to meet these limits appears to be the most appropriate method for ensuring that the goal of maintaining and improving water quality in Southland will be achieved.

78 This report shows:

(a) The possibility of reductions in contaminant loss associated with both sheep and beef and dairy farming in Southland if mitigations are fully implemented. For example, the report concludes: "

> Agricultural loads of nitrogen were reduced by between 18 and 32% when all farms adopted M1. M3 made more substantial reductions in all catchments with reduction in nitrogen loads from 29-37% and phosphorus loads from 40-80%."

(b) The need to prevent / arrest further intensification and for all farm types to implement mitigations if the benefits of mitigation implementation are to be realised. This is illustrated by the following quotes:

> "Intensification of agricultural land use, particularly the conversion of land use from traditional sheep and beef to dairy farming and ongoing production increases on existing dairy farms, continues to drive increasing loads of nutrients discharged to Southland's aquatic environments."

[27] Assessment of Farm Mitigation Options and Land Use Change on Catchment Nutrient Contaminant Loads in the Southland Region, Prepared March 2014 for Southland Regional Council Report No C13055/04

> "The largest reductions in nutrient loads can be achieved when both sheep & beef and dairy farms adopt mitigation measures. This is because sheep & beef remains the dominant land use by area in the Southland region, but losses from dairy farmers are greater per hectare. Overall, the contributions from both land uses are significant. However, given the higher per hectare losses, it follows that mitigation on dairy farms provides a greater per hectare benefit for water quality."
>
> "The key findings of this study are that mitigation measures on farms could result in reductions in nutrient loads discharged in Southland. However, these reductions could be eroded in the future due to ongoing conversion of sheep & beef to dairy farms and production increases on dairy farms."

79 In the Topic A hearing Mr McCallum-Clark opined, with reference to this paper, that the decisions version of the plan would only implemented M1 and M2 mitigation levels[28]. Significantly, the pSWLP does not:

(a) Require landholders to fully implement the identified suites of mitigations to reduce contaminant loss.

(b) Prohibit further intensification of existing high loss farming operations, such as dairy farms, or the conversion of sheep and beef farms to dairy farms.

(c) Prioritise mitigation of contaminant loss associated with dairy farms, which are higher per hectare and provides a greater per hectare benefit for water quality.

(d) Require landholders to implement the identified suites of mitigations.

80 It is clear from Ms McArthur's evidence that implementation of the farming activity provisions set out in the JWS Planning will not result in the significant reductions in contaminants from existing farming activities that will be required to result in water bodies being improved to the extent they are no longer degraded, let alone reaching a state of hauora. For this to occur drastic mitigation actions and land use change across many farming activities will be required. The actual land use change that will be required to achieve this is uncertain. I envisage the following types of responses are likely to be required if further reductions are to be achieved:

(a) Treatment or avoidance of discharges from sub-surface drains entering water;

(b) Reduction in stock numbers, particularly cows;

[28] Hearing Transcript p409

(c) Considerable reduction in the practice of IWG and avoidance of farming practices which result in pugging where overland flow may end up in water, such as exclusion of stock from critical source areas and probably exclusion of stock from within buffer areas around critical source areas; and

(d) Wetland and riparian planting / enhancement, especially and retiring of pastoral farming of all critical source areas (referred to as headwater streams in Ms McArthur's evidence).

81 I assume the financial and presumably some social / community costs of reducing contaminants to a point where water quality is significantly improved will be significant at an individual scale. It is unclear what economic impact might occur at a community or regional scale in terms of the economy more generally. Irrespective of what the actual financial and socials costs might be, I assume the environmental and financial costs of delaying land use change to drastically reduce the amount of contaminants entering water will only increase over time[29]. I understand Ms McArthur to be saying that the economic costs of restoring Southland water bodies will be greater (to the individual and for the region) if actions to reduce nutrient losses to water are delayed. This applies to all freshwater ecosystems in NZ and is on the basis that nutrients accumulate with time and a greater degree of restoration is needed the higher the loads or concentrations in that system because restoration is a non-linear process. On this basis it is imperative that land use change begins to occur sooner rather than later.

82 Ultimately, human survival (as we know it) relies on our freshwater being in a state of hauora – it should not continue to decline, and it should be improved. The natural capacity across of much of Southland's freshwater is already exceeded. Coupled with applying the fundamental concepts of te mana o te wai and ki uta ki tai, we are at the point where the actual or potential financial and short term socioeconomic costs of significantly improving water quality must become subservient to prioritising the needs of freshwater and safeguarding the freshwater and coastal water resources to provide for the socioeconomic benefits of future generations for the long term.

83 Most of Southland's farming activity occurs in catchments where the freshwater is degraded. There is now no dispute that farming activities need to be manged under the pSWLP to reduce contaminant loss to implement Objectives 2 and 6 (among all other Plan Objectives).

[29] McArthur paragraphs 20-24

84 Driving the actual extent of land use change required (and overall reductions in contaminant losses, and the timeframes) is beyond the intent and practical reach of the interim planning framework. The provisions agreed by planners only provide a stop gap regime and will need to be superseded by the plan change Tuatahi (to be notified in 2023). It is important to recognise the gap between what this plan can achieve, and what is required to improve water quality to a point that achieves the pSWLP objectives. These provisions should not be seen as sufficient for any future plan processes. The actual extent of land use change (and overall reductions in contamination losses, and the timeframes) is outside the intended scope of the pSWLP.

Consideration of consenting versus permitted FEP regime

85 I understand that F&G and F&B are opposed to the currently drafted farming provisions managing existing land use on the basis the provisions may not have the effect of meaningful reductions in contaminant losses on land affecting degraded waterbodies. I understand F&G and F&B still consider that a consenting regime is needed for existing farming activities in locations where waterbodies are degraded, in order to achieve the magnitude of improvement needed.

86 I consider the planning regime for farming activities agreed in the JWS Planning is generally consistent with the relief sought by F&G and F&B, except that:

(a) Existing farming activities within degraded catchment areas would be permitted subject to the conditions under Rule 20 (and 20A). Rather than relying on a resource consent process farming activities are subject to the scrutiny of an "independent certifier" and ongoing auditing processes (Appendix N Part C).

(b) There are no references to "meaningful" or "significant" improvement/ reduction in the incidental discharge of contaminants of concern. There would be no requirements of resource consent conditions, rather the content of the FEP would fulfil this role.

(c) There is no recognition that activities contributing to its degraded state are having a significant adverse effect on ecosystem health and must be meaningfully improved.

87 Accepting that existing farming activities need to reduce contaminant losses to improve water quality, I have considered pros and cons comparing a regime where resource consent is or is not required to enable existing

farming activities to continue within a catchment of a degraded waterbody that requires improvement identified in Schedule X.

88 In summary I conclude it is more appropriate to enable existing farming activities to continue as a permitted activity subject to the permitted activity conditions set out in the JWS Planning, except as I recommend be amended in this evidence. This is based on, and relies on, two large assumptions:

(a) The SQPs (Suitably Qualified Persons) certification process for certifying and auditing FEMPs will be undertaken in a genuinely independent and professional/credible way.

(b) SRC will notify Plan Change Tuatahi in 2023, and it will enable the extent of land use change and on farm mitigation needed to achieve in-stream targets to be determined, and applied directly to individual farms, such that improvement to hauora within a specified timeframe can be demonstrated, required, and achieved.

89 My primary reason for not supporting a consenting regime at this stage is the risk that requiring resource consent for land use activities could undermine the ability of Plan Change Tuatahi to more effectively manage farming activities individually and collectively within each FMU, to reduce contaminant loses. For example there is a risk that determination of resource consents ahead of Plan Change Tuatahi being notified could "lock in" in appropriate land use activities (i.e. allowing diffuse discharges to continue for a duration longer than what will be required to result in effective water quality improvement).

Table 2 *Pros and cons of requiring consents to enable farming activities to continue in degraded catchments*

Option	Pros	Cons
Permitted FEMP regime	Theoretically should be easier uptake by landowners / farmers Reduces risk of land use consents locking in inappropriate farming practices.	Unproven and high risk of not being meaningfully employed by landowners / farmers Potentially difficult for FEMP certifiers or SRC to require a ratcheting up of mitigation efforts if the FEMP regime is failing Delay in significant reductions/actions will increased costs overtime and will delay improvement.

		Potentially delays a baseline being locked extending the time for contaminate loss and incentivising inflated / abused contaminate loss (for example using more inputs than required and keep stock numbers unnecessarily high).
Resource Consent	More incentive and accountability for driving land use change to result in water quality improvements. Deals with risks of "grandparenting" now, rather than later.	Costs and inefficiencies with consenting process Risks associated with ad hoc decision making. Namely: • Risks locking in land uses which may send wrong message as significant land use changes could be required. • Pre-empts outcomes of FMU process, so could duplicate or result in unnecessary costs

Recommended Amendments to Policy 16 and Appendix N

90 The suite of farming provisions will not result in significant improvements to freshwater quality, and nowhere near that required to meet the national bottom lines NOF or hauora throughout the majority of farmed land in Southland. It is imperative that farms contributing contaminants to degraded waterbodies reduce their contaminant loss without delay and in a meaningful way. The farming provisions should be amended to clarify and reinforce this outcome, to prevent further cumulative degradation of freshwater quality, and help nurture people through the transition of shifting many peoples thinking towards applying the fundamental concepts of TMOTW and ki uta ki tai to achieve hauora.

91 While I agreed with the wording of Policy 16 and Appendix N set out in the JWS Planning, for the reasons discussed below I consider Policy 16 and Appendix N should be amended further. These amendments provide clarification / reinforcement of the intent of the provisions agreed in the JWS Planning (the matters are largely plan drafting relating with no material changes to the intent of the provisions as I understood them) while better addressing the matters raised in the JWS Science:

Reference to degraded (Policy 16, Rule 20, Rule 20A, Appendix N)

(a) Insert the term “degraded” before the term “waterbodies that require improvement” throughout the provisions. I consider this a more appropriate option than simply referring to “waterbodies where improvement is required) because it more accurately engages with the language of Objective 6 and that used in the JWS Science.

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(b) Clarify the wording of Appendix N clauses 5 and 6 so that the “objectives” in clause 5 are clearer as to what clause 6 matters need to achieve in respect of “improvement” of degraded water bodies in the context of applying Policy 16 and implementing Objectives 2 and 6 of the pSWLP. For example, insert the additional objectives in Table 2 of the Science JWS 2021 specifically in relation to ecological and cultural health; and a new objective specifically referencing the need for farming practitioners to be aware of the extent of improvement in the quality of water required where it is degraded, as follows:

> *(5) A description of how each of the following objectives will, where relevant, be met: …*
>
> *(d) Waterways and wetland management: To manage activities within <u>and nearby</u> waterways, critical source areas, natural wetlands, and their margins, by avoiding stock damage, and avoiding where practicable, or otherwise minimising inputs of nutrients, sediment and faecal contaminants to ground and surface water.*
>
> *<u>(h) Degraded waterbodies: Where the farm is located within a catchment of a degraded waterbody that requires improvement identified in Schedule X: a reduction in contaminants of concern entering the waterbody, such that the ecological and cultural health of the waterbody become less degraded.</u>*
>
> *<u>(i) Ki uta ki tai and hauora: An understanding by people farming the land how they:</u>*
>
> *<u>(i) recognise the connectivity between land and water including downstream effects on downstream waterbodies; and</u>*

(ii) recognise how the mauri of water provides for te hauora o te taiao (health and mauri of the environment), te hauora o te wai (health and mauri of the waterbody) and te hauora o te tangata (health and mauri of the people).

(iii) Understand what species might be present

(iv) Understand the current state of cultural and environmental health

(v) Have an understanding of deposited sediment in farm waterways and changes through time

(vi) Undertake best practice for drain maintenance

(vii) Retain instream debris for habitat

(viii) Restore riparian vegetation with consideration of biodiversity

(ix) Consider taonga and mahinga kai species

(x) Identify ephemeral head water streams, springs and other waterbodies, e.g., wetlands, on farm and the linkages between them.

(xi) Identify and manage spawning habitat.

(xii) Avoid reductions in natural form of your waterway for example, keeping natural winding shape and variations in depth and velocity.

(xiii) Remove fish passage barriers with the exception of barriers introduced for protecting native fish.

(xiv) Avoid piping of waterways.

Consideration of Intensive Winter Grazing Definition and Rules

92 I understand there is no dispute that intensive grazing of livestock resulting in exposed soil/pugging poses significant risks to water quality, primarily

through overland flow (especially after a rain fall event(s) down slopes and via critical source areas.

93 The effect of animals exposing soil/pugging can occur from grazing on both pasture and crops, and I assume that intensive winter grazing on pasture (which results in the exposure of soil or pugging) poses a significant risk to water quality, albeit the risk may be lower compared to winter grazing on crops.

94 On the above basis I support inclusion of new consenting requirements to the activity of "*the grazing of stock between 1 May and 30 September of the same year inclusive on fodder crops or pasture to the extent that the grazing results in the exposure of soil and / or pugging of the soil*", as sought by F&G.

Intensive Winter Grazing – Definition

(a) Relying on Ms McArthur's evidence, I support an amendment to the definition of "Intensive Winter Grazing" as sought by F&G to add a reference to grazing on pasture:

Grazing of stock at any time between 1 May and 30 September of the same year inclusive on fodder crops or pasture to the extent that the grazing results in the exposure of soil and / or pugging of the soil.

(b) Alternatively, I would support the option identified in the JWS Planning (new rule 20B) of identifying a new farming activity (High Risk Winter Grazing on Pasture).

95 From a plan drafting perspective this would be easily achieved by simply amending the definition of Intensive Winter Grazing as sought by F&G. Notwithstanding this, I would also support the alternative option identified in the JWS Planning (providing a new Rule 20B to capture the intent of th relief sought by F&G).

96 The above amendments will not have any materially influence on the costs and benefits of the provisions compared to those supported in by all planners in the JWS Planning. Accordingly, I have not undertaken a costs benefit analysis for the purposes of section 32AA.

Intensive Winter Grazing – Rule 20B(a)(iii)(2)) Setbacks from waterbodies

97 Based on the recommendations of Ms McArthur, and subject to an assessment of any further technical evidence, I would support amending the minimum setback/buffer distance between intensive winter grazing and

waterbodies (in Rule 20A(a)(iii)(2)) from 10m to 20m (as recommended by Ms McArthur).

98 I acknowledge increasing the setback distance from 10m to 20m would result in some opportunity costs given the subject land could not be used for intensive winter grazing (at least without resource consent). However, the adverse effects of intensive winter grazing on waterbodies appear to be significant (as discussed by Ms McArthur) and the setback requirements still provide a consenting pathway to allow applicants to demonstrate that farming within the setback could be appropriate in their particular case.

CONCLUSION

99 My evidence relies on other evidence before the Court including the numerous JWS prepared for Topic A and Topic B. Upon consideration of the relevant policy direction, and reliance on many of the findings and recommendations set out in the evidence of the respective JWS and Ms McArthur, I consider the provisions referred to in the JWS Planning are appropriate, except that the further amendments I have discussed above and listed in Appendix 1 below should be made to better achieve the Plan Objectives.

Ben Farrell

Dated this 20th day of December 2021

APPENDIX 1 - RECOMMENDED AMENDMENTS

Identification of degraded waterbodies (Schedule X)

1 Insert into the pSWLP a schedule and map the spatial extent of degraded waterbodies in Southland (Schedule X).

References to ephemeral rivers

2 Rename "*ephemeral rivers*" to "*ephemeral waterbody*" and retain the definition in the pSWLP.

3 Replace "*ephemeral flow path*" in the definition of "*critical source area*" with "*ephemeral waterbody*".

Wetlands (Rule 51)

4 Amend Rule 51 by deleting "*for the purpose of land drainage*" so that any activity that results in drainage from a natural wetland is a non-complying activity:

…(e) The diversion of water from a natural wetland ~~for the purpose of land drainage~~ is a non-complying activity

Weed and sediment removal for drainage maintenance (Rule 78)

5 Insert new limb Rule 78(a) (xiv): *"the modified watercourse is not a habitat of threatened native fish"*

Farming Activities (Policy 16, Rule 20/20A, Appendix N

Reference to degraded (Policy 16, Rule 20, Rule 20A, Appendix N)

6 Insert the term "*degraded*" before the term "*waterbodies that require improvement*" throughout the provisions wherever Schedule X is referenced (or where water quality is degraded). I understand this would apply to clauses:

(a) Policy 16 clauses (1)(b)(ii), 16(1)(ba)(iii), 16(1)(c)(i), and 16(1)(c)(iii).

(b) Rule 20(2)(a)

(c) Rule 20A(b)(2)

(d) Appendix N clauses 3(j) and 6(b).

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7 As above, insert the term "*degraded*" before the term "*waterbodies that require improvement*" throughout the provisions. I understand this would be limited to clauses

8 Inserting the additional objectives in Table 2 of the Science JWS 2021 specifically in relation to ecological and cultural health.

9 Clarify the wording of Appendix N clauses 5 and 6 so that the "objectives" in clause 5 are clearer as to what clause 6 matters need to achieve in respect of "improvement" of degraded water bodies in the context of applying Policy 16 and implementing Objectives 2 and 6 of the pSWLP. For example, insert a new objective specifically referencing the need for farming practitioners to be aware of the extent of improvement in the quality of water required where it is degraded, as follows:

> *(5) A description of how each of the following objectives will, where relevant, be met: …*
>
> *(d) Waterways and wetland management: To manage activities within <u>and nearby</u> waterways, critical source areas, natural wetlands, and their margins, by avoiding stock damage, and avoiding where practicable, or otherwise minimising inputs of nutrients, sediment and faecal contaminants to ground and surface water.*
>
> *<u>(g) Degraded waterbodies: Where the farm is located within a catchment of a degraded waterbody that requires improvement identified in Schedule X: a reduction in contaminants of concern entering the waterbody, such that the ecological and cultural health of the waterbody become less degraded.</u>*
>
> *<u>(h) Ki uta ki tai and hauora: An understanding by people farming the land how they recognise:</u>*
>
> *<u>(i) the connectivity between land and water including downstream effects on downstream waterbodies; and</u>*
>
> *<u>(ii) how the mauri of water provides for te hauora o te taiao (health and mauri of the environment), te hauora o te wai (health and mauri of the waterbody) and te hauora o te tangata (health and mauri of the people).</u>*

(iii) Understand what species might be present

(iv) Understand the current state of cultural and environmental health

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(xi) Identify and manage spawning habitat.

(xii) Avoid reductions in natural form of your waterway for example, keeping natural winding shape and variations in depth and velocity.

(xiii) Remove fish passage barriers with the exception of barriers introduced for protecting native fish.

(xiv) Avoid piping of waterways.

Intensive Winter Grazing – Definition

10 Define “Intensive Winter Grazing” as sought by F&G:

Grazing of stock at any time between 1 May and 30 September of the same year inclusive on fodder crops or pasture to the extent that the grazing results in the exposure of soil and / or pugging of the soil.

(a) Alternatively, I would support the option identified in the JWS Planning (new rule 20B) of identifying a new farming activity (High Risk Winter Grazing on Pasture).

Intensive Winter Grazing – Rule 20B(a)(iii)(2)) Setbacks from waterbodies

11 Subject to an assessment of the technical evidence, I would support amending the minimum setback/buffer distance between intensive winter grazing and waterbodies (in Rule 20A(a)(iii)(2)) from 10m to 20m (as recommended by Ms McArthur).

Meaning of "Drain"

12 Amend definition of Drain as follows:

> *Drain means any artificial watercourse designed, constructed, or used for the drainage of surface water, but excludes subsurface drains and artificial watercourse used for the conveyance of water for electricity generation irrigation, or water supply purposes.*