BEFORE THE ENVIRONMENT COURT **I MUA I TE KOOTI TAIAO O AOTEAROA**	**ENV-2018-CHC-000037** **ENV-2018-CHC-000050**
IN THE MATTER	**of the Resource Management Act 1991**
AND	**of appeals under Clause 14 of the First Schedule of the Act**
BETWEEN	**SOUTHLAND FISH AND GAME COUNCIL** **Appellant**
BETWEEN	**ROYAL FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND INCORPORATED** **Appellant**
AND	**SOUTHLAND REGIONAL COUNCIL** **Respondent**

AFFIDAVIT OF BEN FARRELL

Dated 31 August 2020

Rout Milner Fitchett Solicitors
PO Box 580
Nelson 7040

Counsel: Sally Gepp
12 Harley Street
Nelson 7010
sally@sallygepp.co.nz
021 558 241

I, Ben Farrell, resource management planner, Queenstown, solemnly and sincerely affirm:

1. My full name is Ben Farrell.

2. My qualifications and experience are set out in my evidence in chief, dated 17 February 2019.

3. I have been engaged by Southland Fish & Game Council and the Royal Forest and Bird Protection Society of New Zealand Incorporated to produce planning evidence for the purpose of their appeals and interests in appeals relating to the proposed Southland Water and Land Plan.

4. I confirm that I have read the Code of Conduct for expert witnesses as contained in the Environment Court Practice Note 2014. I have complied with the Code of Conduct when preparing this affidavit. The data, information, facts and assumptions I have considered in forming my opinions are set out in my affidavit. The reasons for the opinions expressed are also set out in my affidavit. Other than where I state I am relying on the evidence of another person, my 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.

5. I advise that I am married to Ms Ailsa Cain has provided evidence on behalf of Nga Runanga o Ngāi Tahu, but I do not consider that any conflict of interest arises out of this.

6. This affidavit responds to the affidavit of Mr McCallum Clark dated 21 August 2020. I generally concur with the opinions expressed in Mr McCallum Clark's affidavit, except as discussed in my affidavit below.

7. I have attached the following documents to my affidavit as **Exhibit A**:

    a) Email from Zane Moss, Manager Southland Fish & Game, dated 27 July 2020.

    b) A copy of my brief of evidence dated 3 August 2020 confirming my opinions, in relation to matters arising from the Courts minute dated 13 July 2020, in advance of the scheduled expert witness conferencing.

Life-Supporting Capacity v Ecosystem Health

8. Mr McCallum Clark[1] responds to the Court's queries regarding "life-supporting capacity". I am one of the planners Mr McCallum Clark refers to[2] as recommending that the term "life-supporting capacity" should be retained in the Objectives, because "life-supporting capacity" does not have the same meaning as "ecosystem health".

[1] At paragraphs 28-31
[2] At paragraph 31

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9. To provide an example of the difference, I attach an email from the Southland Fish and Game Manager (Mr Zane Moss), which states:

> *"In a healthy freshwater ecosystem ecological processes are maintained, there is a range and diversity of indigenous flora and fauna, and there is resilience to change (NPSFM 2017). This can occur at any flow until habitat is altered to such an extent that an individual species' habitat requirements are no-longer met (e.g. parameters such as depth or velocity). It does not necessarily deal with abundance of individuals within a species, which I believe life supporting capacity does.*
>
> *An illustrative local example is provided by the upper Waiau River (between lakes Te Anau and Manapouri) and lower Waiau River (below the Manapouri Lake Control Structure, MLC). The upper Waiau River has a median flow of around 300 cumecs whereas below the MLC the lower Waiau River has a summer flow of 16 cumecs. It can be argued that both have healthy aquatic ecosystems, however, surveys by Fish & Game show that the upper Waiau River supports between 300-400 large (>400mm) brown and rainbow trout, whereas the lower Waiau River only supports 60-80 large trout. This illustrates the difference in life supporting capacity between these two rivers, despite functionally similar aquatic ecosystem health".*

10. I am unsure if the "quantum" example above is the only difference between life-supporting capacity and ecosystem health.

11. I have not discussed this matter with any freshwater science expert.

12. I have not turned my mind to the other parts of the Plan (including Appendix K) which could be affected by deleting the term life-supporting capacity.

13. Mr McCallum Clark[3] opines that the concept of life-supporting capacity is "subtly" incorporated into the Plan (referring to the water quantity criteria in Appendix K as an example) and suggests "*the concern expressed by the planners about the quantity of habitat being overlooked may be unwarranted*". In my opinion the Plan should avoid being "subtle" (if this can be avoided), because in my experience, subtlety leads to ambiguity and this in turn can result in unnecessary costs and inefficiencies with plan implementation.

14. The terms "life-supporting capacity" and "ecosystem health" appear to have materially different meanings and therefore deleting "life-supporting capacity" from the Objectives may have unknown consequences for the application of these Objectives and other provisions in the Plan.

15. If the respective meanings of "life-supporting capacity" and "ecosystem health" are found to have materially the same meaning then I would support deletion of the term "life-supporting capacity" where the term "ecosystem health" exists within the same provision (e.g. Objectives 9/9A and 14).

Objective 18

16. I do not support the Objective being amended to include reference to Te Mana o te Wai and ki uta ki tai as was set in the brief by Mr McCallum Clark dated 20 July 2020[4], because it could be read as meaning those outcomes are achieved solely through improved land use and water management practices.

[3] At paragraph 31
[4] At paragraph 54

17. I agree with Mr McCallum Clark with deletion of the references to Te Mana o te Wai. Mr McCallum Clark (at paragraph 19) implies that the planners agree Objective 18 should be deleted. My agreement to Objective 18 being deleted was on the basis that it would be replaced with a policy that supports the intent of Objective 18 to "drive positive change". In my opinion the intent to drive positive change should be retained as either an Objective or a policy because:

    a) It will have more standing (carry more statutory weight) than the interpretation statement; and

    b) It is unclear how the whole Plan embodies ki uta ki tai and upholds Te Mana o Te Wai, especially people that use resources. A specific objective or policy directing "*all persons will demonstrate improved land use and water management practices*" will be an effective tangible/measurable outcome that is likely to be highly consistent with the intent of embodying ki uta ki tai upholding Te Mana o Te Wai.

18. My opinion is that the wording provided in the Interim Decision should be retained, albeit as a policy applying to all persons in Southland.

Affirmed at Queenstown

This day of 2020 .....

Ben Farrell

Before me .....

Paula Squire-Thomas
Deputy Registrar
Queenstown District Court

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A

This is the exhibit marked "A" referred to in the Affidavit of Ben Farrell affirmed at Queenstown this 31st day of August 2020 Before me

Registrar/Deputy Registrar/Solicitor of the High Court of New Zealand

From: Zane Moss
To: Ben Farrell
Subject: aquatic ecosystem health is not equivalent to life supporting capacity
Date: Wednesday, 29 July 2020 12:29:18 pm
Attachments:

Dear Ben

You have asked for my opinion regarding whether or not ***aquatic ecosystem health*** is the same as ***life supporting capacity*** with respect to water quantity. In my opinion they are not the same.

In a healthy *freshwater* ecosystem ecological processes are maintained, there is a range and diversity of indigenous flora and fauna, and there is resilience to change (NPSFM 2017). This can occur at any flow until habitat is altered to such an extent that an individual species' habitat requirements are no-longer met (e.g. parameters such as depth or velocity). It does not necessarily deal with abundance of individuals within a species, which I believe life supporting *capacity* does.

An illustrative local example is provided by the upper Waiau River (between lakes Te Anau and Manapouri) and lower Waiau River (below the Manapouri Lake Control Structure, MLC). The upper Waiau River has a median flow of around 300 cumecs whereas below the MLC the lower Waiau River has a summer flow of 16 cumecs. It can be argued that both have healthy aquatic ecosystems, however, surveys by Fish & Game show that the upper Waiau River supports between 300-400 large (>400mm) brown and rainbow trout, whereas the lower Waiau River only supports 60-80 large trout. This illustrates the difference in *life supporting capacity* between these two rivers, despite functionally similar aquatic ecosystem health.

Please let me know if I can be of further assistance.

Hei kona mai

Zane Moss
Manager

Southland Fish & Game Council
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P +64 3 2159117 | **F** +64 3 2159118 | **M** 021 244 5384
E zmoss@fishandgame.org.nz | **W** www.fishandgame.org.nz

Exhibit Note:
This is the EXHIBIT marked "A"
referred to in the annexed affidavit/declaration of
BEN FARRELL.
and sworn/declared before me this 31ST day of
AUG 2020.

Deputy Registrar

Paula Squire-Thomas
Deputy Registrar
Queenstown District Court

BEFORE THE ENVIRONMENT COURT

I MUA I TE KOOTI TAIAO O AOTEAROA

AT CHRISTCHURCH

IN THE MATTER	Of the Resource Management Act 1991
AND	of an appeal under clause 14 of the First Schedule of the Act
BETWEEN	Royal Forest and Bird Protection Society of New Zealand Inc
	(ENV-2018-CHC-50)
AND	Southland Fish and Game Council
	(ENV-2018-CHC-37)
	Appellants
AND	SOUTHLAND REGIONAL COUNCIL
	Respondent

WILL SAY STATEMENT OF BEN FARRELL IN RELATION TO MATTERS FOR EXPERT CONFERENCING ON 6 & 7 AUGUST 2020

Dated 3 August 2020

Counsel: Sally Gepp
Barrister
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021 558 241

Provision	Wording	The reasons for my preferred provisions are:
Objective 6	Water quality in each freshwater body, **coastal lagoon and estuary** will be: (a) Maintained where the water quality is not degraded; and (b) Improved where the water quality is degraded by human activities.	As set out in Matthew McCallum Clark ("MMC") evidence
Objective 9/9A	The quantity of water in surface water bodies is managed so that: (a) the aquatic ecosystem health, **life-supporting capacity,** the values of outstanding natural features and landscapes, the natural character and historic heritage values of waterbodies and their margins are safeguarded; (b) there is integration with objectives for freshwater quality (including the safeguarding of human health for recreation); and (c) provided that (a) and (b) are met, surface water is sustainably managed, in accordance with Appendix K to support the reasonable needs of people and communities to provide for their economic, social and cultural wellbeing.	Retain 'life-supporting capacity'. Life-supporting capacity encompasses the extent or quantum of habitat available, a factor that is not covered by 'aquatic ecosystem health'. While the terms are synonymous in the freshwater quality context, in the quantity/habitat context they have different meanings. The consequences of deleting the reference to life-supporting capacity are unclear because the limited technical evidence already given relates to water quality. No evidence relating to life-supporting capacity in the context of water quantity/habitat has been produced.
Objective 9B	Issues: Page 17: Some of these activities can have positive effects on the natural environment, for example, bridges and culverts allow access across a river without disturbing the bed. Others activities, such as infrastructure, are important to enable people and communities **to provide for their have important** economic, **cultural,** and social **wellbeing benefits, for example, erosion control works protect community assets. However, These** activities **in the beds of rivers and lakes** can also have adverse effects on the environment, including generating sediment, disturbing habitat and preventing fish passage. Objective 9B – to be determined no change to interim decision	As set out in MMC evidence
Objectives 13, 13A and 13B	Land and soils may be ~~are~~ used and developed to enable the economic, social and cultural wellbeing of the region provided that: (a) the quantity, quality and structure of soil resources are not irreversibly degraded through land use activities or discharges to land; and	Restructured for reasons set out in MMC evidence, but with "are" changed to "may be" to ensure that the objective enables rather than requires the use and development of land.

	(b) the health of people and communities is safeguarded from the adverse effects of discharges of contaminants to land and water; and (c) ecosystems (including indigenous biological diversity and integrity of habitats), are safeguarded. ~~then land and soils are used and developed to enable the economic, social and cultural wellbeing of the region~~	
Objective 14	The range and diversity of indigenous ecosystems~~ types~~ and habitats within rivers, estuaries, wetlands and lakes, including their margins, and their life-supporting capacity are maintained or enhanced.	I support retaining "life-supporting capacity" for reasons set out above in relation to Objective 9/9A
Objective 17	Preserve the natural character values of wetlands, rivers, lakes and their margins, including channel and bed form, rapids, seasonably variable flows and natural habitats ~~that are of significance to the region~~, and protect them from inappropriate use and development.	As set out in MMC evidence.
Objective 18	All persons will demonstrate improved land use and water management practice.	I do not support the reference to Te Mana o te Wai and ki uta ki tai proposed by MMC because it could be read as meaning those outcomes are achieved solely through improved land use and water management practices. Deletion of the concept inherent in this objective is not supported as this objective is intended to drive positive change. However, I could support this objective being reframed as a policy.
Policy 3 – Ngāi Tahu ki Murihiku taonga species	To manage activities that adversely affect taonga species, identified in Appendix M, and their related habitats.	MMC's evidence refers to cultural indicators of health and a link sought by Forest & Bird/Fish & Game. In my opinion, when cultural indicators of health are considered and incorporated into the pSWLP in Topic B, it will be necessary to make the appropriate links to Topic A provisions. This may involve amendment of Policy 3. I do not otherwise consider amendments to Policy 3 are required at this stage.

Policy 4 – Alpine	In the Alpine physiographic zone: 1. avoiding ~~where practicable~~, as a first priority, risk to water quality from erosion and contaminants, and where avoidance is impractical, requiring risk to water quality from contaminants to be minimised by: i. identifying contaminant pathways to ground and surface water bodies; ii. requiring implementation of good management practices to manage erosion and adverse effects on water quality from contaminants transported via overland flow; iii. having particular regard to adverse effects of contaminants transported via overland flow when assessing resource consent applications and preparing or considering Farm Environmental Management Plans; and 2. prohibiting dairy farming and intensive winter grazing and avoiding cultivation where contaminant losses will increase as a result of the proposed activity.	As set out in MMC evidence
Policy 5 – Central Plains	In the Central Plains physiographic zone: 1. avoid **~~where practicable~~, as a first priority,** risk to water quality from contaminants, **and where avoidance is impractical, requiring risk to water quality from contaminants to be minimised** by: i. identifying contaminant pathways to ground and surface water bodies; ii. requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via artificial drainage and deep drainage; iii. having particular regard to adverse effects on water quality from contaminants transported via artificial drainage and deep drainage when assessing resource consent applications and preparing or considering Farm Environmental Management Plans; and 2. avoid dairy farming **~~of cows~~** and intensive winter grazing where contaminant losses will increase as a result of the proposed activity.	As set out in MMC evidence
Policy 6 – Gleyed	In the Gleyed physiographic zone avoiding **~~where practicable~~, as a first priority,** risk to water quality from contaminants, **and where avoidance is impractical, requiring risk to water quality from contaminants to be minimised** by: 1. identifying contaminant pathways to ground and surface water bodies; 2. requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via artificial drainage, and overland flow where relevant; and 3. having particular regard to adverse effects on water quality from contaminants transported via artificial drainage, and overland flow where relevant when	As set out in MMC evidence

	assessing resource consent applications and preparing or considering Farm Environmental Management Plans.	
Policy 7 - Bedrock/Hill Country ~~and Lignite-Marine Terraces~~[5]	In the Bedrock/Hill Country ~~and Lignite-Marine Terraces~~ physiographic zone avoiding ~~where practicable,~~ **as a first priority,** risk to water quality from contaminants, **and where avoidance is impractical, requiring risk to water quality from contaminants to be minimised** by: 1. identifying contaminant pathways to ground and surface water bodies; 2. requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via artificial drainage, and overland flow where relevant; and 3. having particular regard to adverse effects on water quality from contaminants transported via artificial drainage, and overland flow where relevant when assessing resource consent applications and preparing or considering Farm Environmental Management Plans.	As set out in MMC evidence
Policy 8 – Lignite-Marine Terraces	In the Lignite-Marine Terraces physiographic zone avoiding ~~where practicable,~~ **as a first priority,** risk to water quality from contaminants, **and where avoidance is impractical, requiring risk to water quality from contaminants to be minimised** by: 1. identifying contaminant pathways to ground and surface water bodies; 2. requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via artificial drainage, and overland flow where relevant; and 3. having particular regard to adverse effects on water quality from contaminants transported via artificial drainage, and overland flow where relevant when assessing resource consent applications and preparing or considering Farm Environmental Management Plans.	As set out in MMC evidence
Policy 9 – Old Mataura	In the Old Mataura physiographic zone: 1. avoiding ~~where practicable,~~ **as a first priority,** risk to water quality from contaminants, **and where avoidance is impractical, requiring risk to water quality from contaminants to be minimised** by: i. identifying contaminant pathways to ground and surface water bodies; ii. requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via deep drainage; iii. having particular regard to adverse effects on water quality from contaminants transported via deep drainage when assessing resource consent applications	As set out in MMC evidence

	and preparing or considering Farm Environmental Management Plans; and 2. avoid dairy farming ~~of cows~~ and intensive winter grazing where contaminant losses will increase as a result of a proposed activity.	
Policy 10 – Oxidising	In the Oxidising physiographic zone: 1. avoiding ~~where practicable~~, **as a first priority,** risk to water quality from contaminants, **and where avoidance is impractical, requiring risk to water quality from contaminants to be minimised** by: i. identifying contaminant pathways to ground and surface water bodies; ii. requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via deep drainage, and overland flow and artificial drainage where relevant; iii. having particular regard to adverse effects on water quality from contaminants transported via deep drainage, and overland flow and artificial drainage where relevant when assessing resource consent applications and preparing or considering Farm Environmental Management Plans; and 2. avoiding dairy farming ~~of cows~~ and intensive winter grazing where contaminant losses will increase as a result of a proposed activity.	As set out in MMC evidence
Policy 11 – Peat Wetlands	In the Peat Wetlands physiographic zone: 1. avoiding ~~where practicable~~, **as a first priority,** risk to water quality from contaminants, **and where avoidance is impractical, requiring risk to water quality from contaminants to be minimised** by: i. identifying contaminant pathways to ground and surface water bodies; ii. requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via artificial drainage, deep drainage, and lateral drainage; iii. having particular regard to adverse effects on water quality from contaminants transported via artificial drainage, deep drainage, and lateral drainage when assessing resource consent applications and preparing or considering Farm Environmental Management Plans; and 2. avoiding dairy farming ~~of cows~~ and intensive winter grazing where contaminant losses will increase as a result of a proposed activity.	As set out in MMC evidence
Policy 12 – Riverine	In the Riverine physiographic zone: 1. avoiding ~~where practicable~~, **as a first priority,** risk to water quality from contaminants, **and where avoidance is impractical, requiring risk to water quality from contaminants to be minimised** by:	As set out in MMC evidence

	i. identifying contaminant pathways to ground and surface water bodies; ii. requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via deep drainage, and overland flow where relevant; iii. having particular regard to adverse effects on water quality from contaminants transported via deep drainage, and overland flow where relevant when assessing resource consent applications and preparing or considering Farm Environmental Management Plans; and 2. avoiding dairy farming **of cows** and intensive winter grazing where contaminant losses will increase as a result of a proposed activity.	