Submitter No: 797

Submitter Name: TRONT

Date Received: 27/9/17

Dr Gail Tewaru Tipa on behalf of Ngā Rūnanga (Waihopai Rūnaka, Te Rūnanga o Awarua, Te Rūnanga o Ōraka Aparima and Hokonui Rūnaka) and Te Rūnanga o Ngāi Tahu
Summary of Evidence, 27 September 2017
Presented at hearing on Proposed Southland Water and Land Plan

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1. I have provided evidence about the development of cultural indicators on behalf of Waihopai Rūnaka, Te Rūnanga o Awarua, Te Rūnanga o Oraka Aparima, and Hokonui Rūnaka (**Papatipu Rūnanga**) and Te Rūnanga o Ngāi Tahu (collectively referred to as **Ngāi Tahu**). My evidence relates to cultural and scientific matters.

2. My evidence describes the relationship of cultural health indicators and the Ministry for the Environment's Environmental Performance Indicator (**EPI**) Programme. The identification of cultural indicators by Ngāi Tahu was one of four Māori case studies that were supported, to test the efficacy of Māori participation in the formulation of EPIs.

3. My evidence describes the three stages of the project that have been completed. Stage 1 of the project and parts of Stage 2 are most relevant to the matters being discussed today.

4. Stage 1 identified a sizeable set of indicators that Ngāi Tahu use to assess the health of freshwater resources.

5. In Stage 2, the indicators of cultural health and mahinga kai were refined to develop a tool and a process that could be used by kaitiaki to assess the condition of freshwater resources.

6. The indicators that resulted from Stage 1 of the project, reflect Māori concerns for health throughout a catchment, ki uta ki tai – from the mountains to the sea, and express a holistic approach to that health. All of the indicators identified represent the factors that Ngāi Tahu kaumatua and resource managers believe are conducive to a healthy river with a strong vibrant mauri.[1]

7. The indicators also illustrate how the perspectives Māori bring to resource management differ from those of non-Māori. A comparison of the indicators identified by Ngāi Tahu with western science-based indicators identified by the

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1 This concept is discussed more fully in the evidence of Murihiku whānau.

Ministry for Environment's Freshwater Working Group reveals the extent of these differences.

8. I am confident that the cultural health indicators arising from stages 1 and 2 of the project and those included within the Cultural Health Index (**CHI**) are able to be replicated and assessed during fieldwork. I am also confident that the indicators when applied as part of a robust process recognise and provide for Māori values described by other witnesses.

9. Finally, cultural indicators are being applied in other regions of New Zealand and internationally (for example in the Murray Darling Basin of Australia).

10. Cultural indicators provide Ngāi Tahu with the opportunity to highlight fundamental differences between a Māori and non-Māori perspective. One example to highlight the different perspectives was the definition of water pollution. Māori spiritual values with respect to water include perceptions of pollution that conflict with scientific measures. For example, "drinkable" water may be scientifically defined as carrying contaminants, but at a level that is not toxic to humans. In other words, a certain level of degradation can occur. In contrast, Ngāi Tahu would require drinking water to be protected from spiritual pollution, which prohibits certain discharge activities, regardless of the level of physical contamination (Ministry for Environment 1997).

11. While Stage 1 of the EPI project required Ngāi Tahu to identify indicators of stream health, Stage 2 sought to operationalise the indicators through the development of a CHI.

12. The stream CHI was thus devised and first used in 2002 (Tipa & Teirney 2003). It has three components:

    (i) Component 1: site status, specifically the significance of the site to Māori;
    (ii) Component 2: a mahinga kai measure; and
    (iii) Component 3: a stream health measure.

13. A concern that was voiced when we were developing indicators and the CHI was the inability of some of the indicators that were identified in Stage 1 to be replicated or applied by others undertaking assessments in the field. As part of Stage 2, we developed a comprehensive research design with advice from

Professor Colin Townsend (Zoology Department, University of Otago) and I jointly managed the project with Laurel Teirney so that we implemented a western scientific – Māori co-development model. Stage 2 included another twenty interviews with Ngāi Tahu whānau from across the rohe of Ngāi Tahu. It was agreed that some indicators would be dropped from further consideration.

14. Because our goal was to develop a tool that was responsive to how whanāu assess a waterway, we also identified how the indicators identified by whanāu were incorporated into the components of the CHI.

15. During Stage 2 we also used statistical analyses (correlations and multiple regression) to identify those cultural indicators that most closely correlate with the assessment that whanāu award for overall stream health. The University of Otago provided advice on research throughout these analyses.

16. I am confident that the cultural health indicators arising from stage 2 of the project and within the CHI are able to be replicated and assessed during fieldwork. The extra analyses that we undertook during Stage 2 give us confidence that indicators are replicable and should address the concerns of Horticulture NZ that cultural indicators are a vague or uncertain matter, that impose undue uncertainty and burdens upon farmers/applicants.