

BEFORE THE INDEPENDENT COMMISSIONERS

UNDER of the Resource Management Act
1991

AND

IN THE MATTER of the Proposed Canterbury
Land and Water Regional Plan

**STATEMENT OF EVIDENCE OF CATHY FAY BEGLEY
ON BEHALF OF NGĀ RŪNANGA OF CANTERBURY, TE RŪNANGA O NGĀI
TAHU AND NGĀI TAHU PROPERTY LIMITED**

4 February 2013

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1. INTRODUCTION

- 1.1 My name is Cathy Fay Begley and I am a Senior Environmental Advisor for Te Rūnanga o Ngāi Tahu (Te Rūnanga).

Qualifications and Experience

- 1.2 I have 14 years of experience in planning and resource management. Prior to joining Te Rūnanga I was employed by GHD Ltd as a Senior Environmental Planner and then as Team Leader Natural Resources Planning South Island for 2 ½ years. Prior to this I was employed by Davie, Lovell-Smith Ltd as a Senior Resource Planner for 4 years and by the Canterbury Regional Council (Environment Canterbury) as a Consents Investigating Officer and then as a Senior Investigating Officer for 5 ½ years. I hold the degrees of Bachelor of Resource Studies and Masters in Applied Science (Environmental Management) from Lincoln University. I am an Associate Member of the New Zealand Planning Institute.
- 1.3 I have a rural background, which means that I am very familiar with pastoral farming activities and the unique resource management issues experienced by rural communities. I have worked throughout the South Island (Te Waipounamu) assisting both local authorities and private clients with statutory planning, environmental assessments and other resource management requirements.
- 1.4 One of my main areas of planning and resource management work has been in the preparation and auditing of assessments of environmental effects, and the processing of resource consents through various statutory steps and requirements. This required me to co-ordinate and prepare assessments of environmental effects for a wide range of projects involving inter-related technical assessments, including attending both local authority hearings and acting as an expert witness in the Environment Court. Some recent examples include providing an assessment of effects for 7 of the 23 individual farming clients within a collective known as the Upper Waitaki Applicants Group (UWAG); assisting in auditing the assessment of effects of the Arnold River hydroelectric power scheme on behalf of Grey District Council; auditing the assessments of effects of the Project Aqua hydro-electric power

scheme on behalf of Environment Canterbury, and providing an assessment of effects for the groundwater permit for Lynton Dairies Ltd.

- 1.5 I have read the further submissions received in response to the submissions lodged. I have also read the technical reports and evidence prepared for this hearing on behalf of Environment Canterbury's Reporting Officers.
- 1.6 I am familiar with the Proposed Canterbury Land and Water Regional Plan (pLWRP), the Canterbury Regional Policy Statement (CRPS), the National Policy Statement Freshwater Management 2011 (NPS Freshwater), and other relevant statutory planning documents.
- 1.7 I have read the Code of Conduct for Expert Witnesses (Rule 330A, High Court Rules and Environment Court Practice Note) and agree to comply with it. I confirm that I have complied with it in the preparation of this statement of evidence. This evidence is within my area of expertise except where I state that I am relying on information provided by another party. I have not knowingly omitted to consider material facts known to me which might alter or detract from the opinions expressed.

Scope of Evidence

- 1.8 I have been asked to prepare a brief of evidence outlining:
 - i. Te Rūnanga's involvement in consultation on the management of effects of land uses on water quality in the preparation of the pLWRP; and
 - ii. Ngāi Tahu's position on the management of land uses which affect water quality and the reasons for the relief requested in Te Rūnanga's submission.
- 1.9 An analysis of the merits of Te Rūnanga's submission will be undertaken by Sandra McIntyre in her planning evidence.

2. **PART ONE CONSULTATION ON LAND USE AND WATER QUALITY; GOVERNANCE GROUP AND POLICY ADVISORY GROUP**

- 2.1 In her evidence, Lynda Murchison records Te Rūnanga's involvement in consultation on the pLWRP in general. The provisions for managing effects of rural land uses on water quality were not included as part of that process, but through a separate "Governance Group"; later the Policy Advisory Group.
- 2.2 In June 2011 I became involved in the Governance Group on behalf of Te Rūnanga. Te Rūnanga has had representatives on this group since its inception in 2010. When I joined, the Governance Group a draft report on the preferred approach to managing water quality within Canterbury had been prepared. This report later became the Draft White Paper on the preferred approach for managing the cumulative effects of land use on water quality within the Canterbury Region. I note that this report has yet to progress beyond the draft stage.
- 2.3 The Governance Group was made up of representatives from DairyNZ, The New Zealand Fish and Game Council, the Royal Forest and Bird Protection Society, the Ministry of Agriculture (Now Primary Industries), Fonterra, the Foundation for Arable Research, Horticulture New Zealand, Lincoln University, NIWA, Federated Farmers and Environment Canterbury.
- 2.4 The main aim of the report was to set some high level guidance for both setting limits for contaminant concentrations in fresh water and how to manage land uses and discharges to keep within those limits. As outlined in the report, the aim was to provide "*...a process for agreeing a catchment-by-catchment response...*" to managing the cumulative effects of land use on water quality "*...rather than an inflexible blueprint of specific actions and regional plan provisions.*" In other words, the report aimed to provide an agreed recipe for addressing cumulative effects of land use on water quality; this way avoiding having to re-litigate whether or not the underlying approach taken to managing water quality was appropriate in each catchment.
- 2.5 The report sets out a 7 step process to be used when setting limits. The process is further informed by 10 guiding principles. The report also anticipates that this process will be undertaken within the CWMS/Zone

Committee framework. The main rationale for this assumption was that the report was written using the experience within the Hurunui Waiau Catchment as a case study. However, in my view care should be taken when relying solely upon the CWMS/Zone Committee process, as these committees are not elected representatives of the community and many interested and affected parties are not represented on them. They also have limited access to information; therefore while a useful 'sounding board' these committees are not a substitute for the full statutory planning process.

2.6 In Part Three of my evidence I provide more detail on the findings and recommendations of the Draft White Paper. While those recommendations were not adopted by Environment Canterbury into the pLWRP, in many instances they are similar to the relief sought in the submissions by Te Rūnanga (and others). In summary, the Draft White Paper recommended:

- i. A catchment-specific approach to managing water quality, but using a consistent approach and methodologies to set and implement water quality limits.
- ii. Catchments identified by geographical features.
- iii. Nutrient allocations set considering the sensitivity of the receiving environment.
- iv. Focussing regulation on higher nutrient leaching activities (over 20kgN/ha/yr); and
- v. Working with resource users/industry groups.

2.7 A copy of the draft paper can be made available to the Hearing Commissioners if required.

2.8 Upon completion of its report, the Governance Group was asked by Environment Canterbury to become the Policy Advisory Group (PAG) in July 2011. The initial brief for the group was to take what was within the report and see how it could be incorporated into the pLWRP.

2.9 Underpinning the PAG was the fact that a number of its members had signed up to the third Land and Water Forum (LWF) Report which had

been published by this time and provided a higher level of support for a number of the concepts contained within the document.

- 2.10 This group discussed a number of possible policy approaches. The approach proposed was that land use and water quality would be managed at the catchment level and the management is based upon 'co management'. This approach requires industry and landowners to take the lead backed by regional rules.

3. **PART TWO - NGĀI TAHU ISSUES AND APPROACH TO MANAGING EFFECTS OF LAND USES AND DISCHARGES ON WATER QUALITY**

- 3.1 The role and values of water as part of Ngāi Tahu culture, customs and traditions is outlined in the evidence of Mr Lenihan, and the role of Ngāi Tahu as resource users owning and developing agricultural properties is outlined in evidence by Mr Sewell and Dr Cowie. In summary, my understanding of the Ngāi Tahu position is:

- i. Wai or water is an integral and essential element of Ngāi Tahu culture and values. It is the source of life, identity, ancestry and the link between the physical and metaphysical worlds. Fresh and coastal water and associated wetlands are also the major source of mahinga kai – the food, fibre and other materials that sustain Ngāi Tahu and the fabric of social interaction that has woven around learning and using the skills associated with mahinga kai.
- ii. Therefore there is a strong culture around the management of wai; not just the end state of the fresh water or wetland but also the process by which it is managed and its quality maintained. For water quality, it is not just the end chemical and physical state of the water which is important, but what it has and has not been used for and had discharged into it along the way.

- iii. Ngāi Tahu are also resource users both traditionally and today. As both Mark Solomon and Mr Sewell describe in their evidence, Ngāi Tahu are strong users of natural resources with Ngāi Tahu Tourism Ltd; Ngāi Tahu Seafoods Ltd and Ngāi Tahu Properties Ltd. As natural resource users, Ngāi Tahu are keenly aware of the importance of a robust agricultural economy to Canterbury and New Zealand's economic and social well-being. Ngāi Tahu does not believe there has to be a choice between economic and environmental aspirations. If action on water quality is led by the resource users and is kept simple to implement, much can be achieved. Mark also noted that Ngāi Tahu are inter-generational in their focus. Ngāi Tahu accepts that complex land and water issues will not be fixed overnight, but at the same time 50 or 100 years to fix a problem is not, for Ngāi Tahu, an excuse not to address it
- 3.2 Ngāi Tahu acknowledge that managing the cumulative effects of non-point source discharges or land uses on water quality isn't easy, given both where the science is in terms of cause and effects, and the framework available to measure effects in a way which can be easily ascribed to individual resource users. However, Te Rūnanga's response in both consultation on the pLWRP under clause 3(1) of Schedule 1 to the RMA and in submissions is that the approach taken in the pLWRP is not the most appropriate method.
- 3.3 Te Rūnanga's position is that water quality issues need to be addressed on a catchment-by-catchment basis; and need to be identified and resolved considering the values and uses of fresh water bodies. Scientific measures of the physical or chemical state of the water are tools to help indicate whether the quality of fresh water is fit for its uses and values, but they are not the values themselves.
- 3.4 Te Rūnanga agrees that region-wide management of the effects of land uses on water quality is necessary in the pLWRP to avoid problems being exacerbated while catchment-specific solutions are developed. Te

Rūnanga does not support the current approach in the pLWRP as being the most appropriate to do this. The reasons are:

- i. Te Rūnanga's view is that regulation should be targeted to those high nutrient leaching activities that significantly affect water quality, not a blanket regulation of all farming activity.
- ii. The definition of change of land use as an increase of 10% in nitrate discharges is impractical given the margin of error in Overseer, and is biased against low nutrient leaching activities. An activity which increases its nutrient leaching from 2 to 2.5kgN/ha/yr requires resource consent and in a red zone must show a significant reduction in nutrient discharges, but an activity discharging 50kgN/ha/yr can increase to 55kgN/ha/yr as a permitted activity.
- iii. The approach is over-simplistic as to the cause and effects of water quality issues. It assumes that periphyton growth is an indicator of poor water quality in all cases, and that this poor water quality is the result of nutrient discharges from intensive rural land uses. While that is undoubtedly the case in some catchments, it is not in every catchment.. For example, in a recent hearing on the proposed Hurunui-Waiau Regional Plan water quality experts agreed a proposed nitrate cap would be unlikely to reduce periphyton growth in the river by more than 4 days per annum on average, and that continuing to manage phosphorous run-off and ensuring the flow regime protected scouring freshes was more important to manage periphyton growth in the main stem.
- iv. The approach manages nutrient discharges based on the current state of the water quality in a catchment, not the sensitivity of the receiving environment to nutrient enrichment. Therefore, a high nutrient leaching activity, as long as it complies with a yet to be developed nutrient discharge allowance, can locate in green, orange and

light blue zones. The perverse outcome of this approach is that high nutrient leaching activities, now unable to set up in over-allocated down country catchments (red zones) can locate in areas with good water quality, many of which are located upstream of red zones.

- v. The approach relies on activities complying with nutrient development allowances (NDAs) which have yet to be developed and included in the pLWRP. Te Rūnanga questions how anyone, including the Council, can be satisfied that this approach will achieve the purpose of the RMA when the NDAs aren't developed yet.
- vi. Te Rūnanga suggests the pLWRP should impose a holding pattern for water quality, so problems are not created or exacerbated with changes in land uses while catchment-specific solutions are developed; however the plan should not be a barrier to changes in land use, provided such changes do not exacerbate water quality issues.
- vii. The pLWRP is inconsistent in the management of point-source and non-point source discharges in the rural areas and between rural and urban activities; eg. non-point source and point source (land drainage water) discharges in rural areas and between animal effluent and human sewerage.

3.5 Therefore, Te Rūnanga's submission requested changes to the approach in the pLWRP to address some of these issues. We suggested this approach should be undertaken by way of a variation because there may be some parties who would be affected and who are not submitters on the pLWRP. Since making our submission we have also been working with our primary sector colleagues on the development of a joint approach. Unfortunately, the pLWRP timetable has not allowed for us to develop a set of agreed provisions in time for filing this evidence, but this is something we will continue to work towards for Hearing Group 2.

3.6 Suffice to say from working with the primary sector group that Te Rūnanga's position is summarised as:

- i. The pLWRP should have a policy position that changes in land use do not result in the deterioration of water quality within a catchment;
 - ii. Addressing specific issues of over-allocation is best done catchment by catchment;
 - iii. The pLWRP policy position described above would allow the region to prioritise catchment-specific work in catchments with the greatest over-allocation issues, taking comfort that any changes in land uses in other catchments will not, in the interim, create or exacerbate water quality issues;
 - iv. Change of land use is defined as a change in the type of farming (or other land uses) which is likely to result in significant changes to the potential nutrient discharges from the property; and
 - v. All activities should be encouraged to adopt good practice to minimise the amount of contaminants they discharge to water, no matter how good the water quality in the catchment and no matter what the activity. This approach is part of respecting the multiple high values water has as a public resource. This sort of good practice is most appropriately led by the resource users themselves, and the regulatory arm of local government should focus on the high nutrient leaching activities.
- 3.7 Te Rūnanga's submission has suggested a modification to the definition of 'change of land use' so that it applies only to land subject to new or additional irrigation or land uses which involve the discharge of more than 20kgN/ha/yr. That request is based on a combination of three things: the definition in the pLWRP; that the pLWRP only requires active management of farming activities involving discharges of more than 20kgN/ha/yr; and evidence from Dr Bob Wilcock on the relationship between irrigation and the potential for higher nutrient leaching activities.
- 3.8 Te Rūnanga has also requested a permitted activity rule for farming activities which are exempt from the provisions for nutrient management

on the basis that those activities are unlikely to have discharges of anything like 20kgN/ha/yr. I understand there is sufficient information to identify the sorts of activities which would fall into this category. These sorts of activities are also the ones which are likely to find themselves with multiple non-compliances under the pLWRP with the current definition of change of land use, as their Nitrogen (N) discharges fluctuate by more than 10% with even the smallest changes in farm practice, given the very low nutrient levels. Te Rūnanga felt such a rule adds an incentive for low nutrient leaching activities to keep on with current practice. Regulating them may encourage them to move to higher nutrient leaching activities where the economic returns are better, if they have to go through the same regulatory hoops and associated costs as higher nutrient leaching activities.

- 3.9 The proposed rule in Te Rūnanga's submission includes a condition that the land is not stocked more intensively than 10 stock units per hectare. The evidence from Dr Bob Wilcock indicates that a more appropriate condition may be one which states that the land is not irrigated. In her evidence Ms McIntyre will assess the merits of this request and any appropriate adjustments.
- 3.10 Te Rūnanga's submission has also requested that the nutrient allocation zones be amended to identify the sensitivity of the receiving environment to nutrient enrichment rather than just the current state of the water quality. In short, Te Rūnanga does not agree that a regulatory regime which pushes high nutrient leaching activities from over-allocated zones (red zones) into zones with good water quality achieves the purpose of the RMA or gives effect to the NPS for Freshwater, in particular Objective 2A. Dr Bob Wilcock includes in his evidence an assessment of the feasibility of identifying nutrient zones based on sensitivity of the receiving environment and it was also a recommendation in the Draft White Paper which I discuss now in Part 3 of my evidence.

4. **PART THREE – SUMMARY OF THE DRAFT WHITE PAPER ON LAND USE AND WATER QUALITY IN THE CANTERBURY REGION**

4.1 The Draft White Paper described in Part One of my evidence recommended a 7 step process to managing effects of land uses on water quality. The steps are as follows:

- i. Identifying priority outcomes. These are akin to a 'Freshwater Objective'. They are based upon the values the community holds for the waterways within the catchment and should contain both *intrinsic values* (amenity, cultural, conservation, recreation etc.) and *use values* (cultural, land use, economic etc.).
- ii. Nodes setting. The Node step aims to determine where water quality limit(s) will be monitored within the catchment, sub-catchment and/or aquifer system. This step also reviews the quality of existing data and associated monitoring regimes along with the costs and benefits associated with increasing the monitoring regimes.
- iii. Setting scenarios. This step looks at various futures which are based upon the priority outcomes established in the first step. For example, a priority outcome may be a thriving community and sustainable economies. The future scenarios associated with this priority outcome could include: current land use, some intensification based upon what has occurred historically, or extensive irrigation.
- iv. Environmental, Social, Economic, Cultural analysis. In this step, each of the scenarios is assessed against the four bottom lines (environmental, social, economic and cultural) along with an on-farm analysis. To undertake the analysis of the various future scenarios against the 4 bottom lines, appropriate and robust models may be needed to understand the implications of each of the scenarios.

- v. On-farm analysis. This analysis is required to determine the implications of each future scenario on-farm. While it would be anticipated that the economic and social implications will be addressed when undertaking the previous analysis, if a future scenario required extensive mitigation, this step allows the practicality of the mitigation to be assessed.
- vi. Discussion and decision making. Once each of the future scenarios has been assessed as outlined above, then this step allows for the necessary discussion and decision-making in order to determine a 'preferred approach'. This process will quickly identify the investable conflicts between the various scenarios which associated with the various priority outcomes.
- vii. Translate freshwater objectives into load limit. This is the last step in the process and brings together all of the above steps into a meaningful output. Once the 'load limit' is set it is anticipated that such limits would be formalised through the regional planning process.

4.2 The above process had a suite of overarching or guiding principles; 'touch stones' or reference points throughout each step in the process. These are:

- i. Focus on outcomes – these need to be clearly defined and articulated as they are essential start and end points for any meaningful discussion around land use and water quality;
- ii. Collaborative management – to recognise that many parties have interests in and/or influence over nutrient management;
- iii. Quadruple bottom lines – to recognise and provide for a decision making framework which recognises the environmental, social, cultural and economic costs and benefits of the scenarios;

- iv. Adaptive management – is needed due to the fact that there is not perfect information is not available to make decisions;
- v. Catchment approach – any effort needs to be at the catchment/sub-catchment level to ensure that it is as effective as possible;
- vi. Flexibility – goes hand in hand with adaptive management and allows for innovation and for communities to develop solutions which fit with their community/farming type/management style;
- vii. Manage both Nitrogen and Phosphorus – both nutrients need to be managed;
- viii. Certainty – a desirable level is required not only for investment/decision making on-farm but also for the health of the community;
- ix. Equity – recognises the rights of existing resource users along with the rights of new and intergenerational users, while acknowledging that this does not give the right to pollute; and
- x. Avoidance of irreversible and/or perverse outcomes – when trying to achieve a suite of outcomes it is important to understand how actions impact on other outcomes, in particular around the implementation of any such actions.

4.3 The number and/or set of values which is the end result of the above process may not always be agreed with by all those who were involved in it. In my view, the report does not seek to fetter anyone's rights in terms of the statutory process. Rather it aims to ensure that the process by which the numbers and values are determined is agreed, to avoid repeated litigation as to whether the underlying recipe is valid, and allow catchment planning to focus upon whether the proposed load limits achieve the freshwater objectives for a catchment.

4.4 The report then goes on to outline a 4 step process for managing within the limits set. The 4 steps are as follows:

- a. Nutrient allocation. Once the nutrient limits have been set, a mechanism is determined for allocating the nutrients. A natural system is complex and any allocation regime needs to account for both 'natural' and 'human induced' sources of nutrients, along with time scales (i.e. lag effect etc.). The report outlines 7 principles which could be used when determining an allocation regime. While the 'recipe' for allocating nutrients was not set out within the report, it was a clear intention that firstly an allocation 'recipe' would be determined and secondly that 'recipe' would be included within any statutory documents (i.e. the Land and Water Regional Plan).
- b. Implementation mechanisms. This is to be done at the specific catchment/sub-catchment level. Further the report acknowledges that there are a number of common themes with these two steps and as such discusses them jointly. The report then identifies the sorts of tools that should be included in any allocation 'recipe' such as:
 - i. Audited Self Management (ASM);
 - ii. Individual farm planning; industry benchmarking;
 - iii. Information dissemination; science and innovation; and
 - iv. Financial support.
- c. Farm and community actions. This is where the actions to be undertaken at the catchment/sub-catchment and farm level are articulated within action plans. This step also recognises the importance of selecting the right mitigation measures, both at the farm level but also at the wider community level. Good Management Practices (GMP's) will, overtime, become the norm for all land users. However, the report also recognises that there needs to be a two step process for achieving this. The first step is that for any new or change in land use, GMP's will be required from day one. The second step is to allow a phase in/transition period for existing users. The report also acknowledges that some of the mitigation required is bigger than the individual farmer and/or benefits more than just the farming sector.

- d. Monitoring and review. This step is essential, especially when decision-making is relying on imperfect information.

- 4.5 The report also sets out two concepts which in my view are fundamental, and underpin the processes outlined above. The first concept expectation that there will be a regional plan which provides a regulatory 'backstop'. The second fundamental concept is that of partnership agreements, which operate at two tiers; Regional and Local. The report is also cognisant that any such agreements will need to connect with legal and planning framework.
- 4.6 At the core of the approach and the preferred approach document is the idea of Environmental Management Systems (EMS) and Audited Self Management (ASM). This aspect can be capitated within a number of documents such as industry lead (e.g. HortNZ's GAP accreditation system) or individual Farm Management Plan (FMP's). These documents are a way of clearly articulating the actions industry and land owns need to undertake to achieve the water quality outcome.
- 4.7 The approach also acknowledged that new/changes to land use needed to be treated differently from existing users. However this discussion was also within the context that at some point in time all users had to implement FMP's and following that point, everyone would be treated the same.
- 4.8 The approach and provisions within the plan also need to be effective, pragmatic and workable. Firstly; the concept of industry and land owners taking the lead and supporting this by minimising compliance and resource consent requirements for those land owners 'doing the right thing'. Secondly; a focus on getting the 'best bang for buck'. The last aspect was that management would be done according to the 'traffic light' approach. The main rational for this was that this enabled some form of prioritisation to occur.
- 4.9 With the above approach in mind, the group then discussed the possible rule framework which included an allocation mechanism. The rule framework incorporated a trigger point which aimed to permit activities which were at the low leaching end of the scale. The trigger point proposed was 20Kg/N/ha/year. This would be based upon a rolling average of between 3-5 years. Any activity, regardless of whether the

activity was new/change, or existing and within an under or over allocated catchment, it would be a permitted activity if it were discharging less than 20Kg/N/ha/year.

4.10 In terms of allocation mechanism, there were several options discussed; these include 'grandparenting,' land use capability/natural capital of soils and equal allocation. The PAG tended to look towards determining whether there could be a hybrid of an equal allocation based upon the soils. The PAG had a lot of discussion with no real resolution as to whether a regional approach, such as that outlined above, was appropriate. The reasons being:

- a. The PAG didn't want the plan to send the wrong signals about trying to halt development or changes in land uses;
- b. There was concern that if at the sub-regional level it was found the regional approach was too permissive then it would be uncertain and confusing for people; and
- c. The PAG were concerned that the regional approach may also have the perverse outcome of forcing intensive development into areas where it would, in the long term, be inappropriate. For example, moving intensive agriculture into areas which are currently reasonably undeveloped.

4.11 Even with the above concerns the PAG did discuss a possible rule framework. The key principles were:

- i. For all land uses, if the activity discharged less than 20Kg/N/ha/year it would be a permitted activity.
- ii. If the discharge is greater than 20Kg/N/ha/year, but meets industry articulated discharge allowances contained within a 'look up table' then it would also be a permitted activity, but if it did not it would become a restricted discretionary activity.
- iii. When land uses change, if the discharge is over 20kgN/ha/yr, meets the 'look up table' and is located in a catchment which is not fully or over-allocated it would be a permitted activity. If it did not comply with the 'look up

table' it would be a restricted discretionary or discretionary activity.

- iv. When land use changes and the new use is over the 20kgN/ha/yr and located in a catchment which was fully or over-allocated for nutrients, the activity would be discretionary if irrigation water was being supplied by an irrigation scheme and non-complying if it wasn't.
- v. A change in land use was defined as gaining 'new' irrigation water and/or an increase of the N discharged of 10%, over and above the 20Kg/N/ha/year trigger. With the PAG there was discussion around the appropriateness of the 10% increase in N as a definition using OVERSEER due to the level of inaccuracy within the model. The PAG agreed that additional discussion around these aspects was warranted. Environment Canterbury staff advised the PAG that the indicator to be used to determine the allocation status (i.e. under, at or over nutrient allocation) for each catchment or zone would be the periphyton indicator set out within Table WQN 5 of the NRRP. Environment Canterbury did acknowledge that this indicator would not be appropriate for lowland streams. I understand that when these indicators were used, it resulted in all of the nutrient allocation zones in the region being over allocated (or red). This situation was considered undesirable by Environment Canterbury so a panel of Environment Canterbury experts reviewed the allocation status of the nutrient allocation zones to create the map on page 4-8 of the pLWRP.

4.12 It is my understanding that the following criteria were to be applied to identify the nutrient allocation zones across the region:

- a. Lines were drawn around catchments which had a clear downstream point which could be monitored (e.g. Conway River) and include all tributary streams;
- b. Lines were also drawn around 'catchments' which were based upon groundwater only being monitored;

- c. Lines were also drawn around catchments where both ground and surface water needed to be monitored (e.g. Selwyn Waihora); and
 - d. Lines were also drawn around catchments which had little or no groundwater (e.g. north Canterbury coastal streams).
- 4.13 Within the PAG there was robust discussion around the merits of 'lines on the map' due to the interaction between ground and surface water within Canterbury. The PAG acknowledged that for management purposes some 'lines on a map' were needed and that such lines would never be perfect. I note that various allocation zones in the Nutrient Zone map on p4-8 of the pLWRP now appear to very closely resemble the CWMS Zone Committee boundaries rather than those which I have outlined above.
- 4.14 I note that the approach I have described above has not been included in the pLWRP. However, I raise it as many of the issues which have formed the basis of Te Rūnanga's submission on the pLWRP are also issues raised in the Draft White Paper and shared by the PAG. Much of the relief sought in Te Rūnanga's submission is similar to the recommendations from this forum.

Cathy Fay Begley

4 February 2013