

SUBMISSION TO
ENVIRONMENT CANTERBURY

ON THE

LOWER WAITAKI GROUP HEARINGS
AUGUST 11 2008

by

Lower Waitaki River Management Society (Inc)
Final

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1 INTRODUCTION

Waitaki Regional Plan

1.1 This submission has been prepared by the Lower Waitaki River Management Society, (LWRMS or the Society). Details of the Society, how it was formed, who it represents and its general objectives have been provided in our submission to the NBTC scheme.

1.2 For the purposes of this submission, the Society has generally accepted the current WRP (the Plan) provisions, as it understands this is not the forum in which they can be explicitly addressed.

1.3 However, before addressing these particular applications, the Society should like to reiterate that, while it supports the objectives of the Plan, it does not agree that its provisions necessarily mean those objectives will be achieved in every case.

1.4 Examples where doubt lies include the minimum flow in the Hakataramea River, the minimum flow for “all other rivers and streams” and the flushing and flood flow allowances to maintain a braided river system in the Waitaki mainstem.

Relative impact

1.5 The Society has resolved to oppose all applications for water if they are non-complying for whatever purpose.

1.6 It is important, however, to make a clear distinction between the totally different degree and nature of potential impact posed by the irrigation activities being heard and that posed by a bulk diversion of water for hydro under the Plan (such as that proposed for NBTC) on, most notably, the mid-river reach of the mainstem of the Waitaki.

- 1.7 Scale of take is one difference but another key one is that irrigators will take over and above the “naturally” varying flow in the river downstream of the Waitaki Dam. This amounts to a level of “skimming” that will reduce peak flows during the irrigation season but beneath it, still retain a level of natural flow variability.
- 1.8 By contrast, in having access to “all other flows” above the environmental and irrigation take (save prescribed conditions for flushing), a sufficiently large-scale hydro scheme could flat-line the river for extended periods.
- 1.9 The Panel may recall the NBT Hearing that the potential to flat-line the river at or near minimum flows for prolonged periods is one of the primary concerns the Society has with the Plan. This phenomenon we see as a major threat to the existing form of the river and hence it’s unique ecological assemblage. It is the sheer magnitude of the “all that’s left” provision of the hydro allocation for the mid reach that embodies this threat, not the cumulated effect of the irrigation allocation per se.
- 1.10 Accordingly, it follows that the granting of both a major hydro scheme and the majority of these applications has the potential for the greatest adverse impact on the river. So the Society considers that the sustainability of granting these irrigation applications is directly impacted by a decision on any major hydro scheme (such as the NBTC) and would make it more difficult for irrigation applicants (now and in the future) to meet the environmental outcomes anticipated by the Plan.

2 PROCESS, PLANNING AND LEGAL CONSIDERATIONS

- 1.11 The Submission addresses those applications that have been listed in Appendix 4 of the s42A Officers report prepared for the Hearing of 11 August by Claire Penman dated 18 July 2006
- 1.12 The planning and legal considerations are set out clearly in the s42A report and we concur with them, including the finding that with respect to the

Plan, many of the applications are non-complying because of the annual flow allocation (Rule 6 of the Plan) or the minimum flow.

1.13 Constraints on voluntary time available to prepare this submission means that it has been necessary to focus more on generic issues that the Society considers are important, rather than make comments on individual applications. In any event, there are limits to the extent this is possible for an organization whose membership may be involved directly with individual applications.

3 SUBMISSIONS

Sustainable irrigation

1.14 LWRMS has an objective to “advocate for the sustainable allocation of water for irrigation, stock, domestic and fire-fighting uses” (Objective 5). Because of the relative quantities involved, allocation for irrigation is potentially the most significant in terms of impact. We consider this Society objective consistent with Objective 2 of the Plan.

1.15 The problem of defining 'sustainable irrigation' is similar to the problem of defining sustainability per se, being, as it is, something of a moving target – economically, politically, environmentally and socially. Sustainability also can't be too precise because it is future orientated. So while it's easy to say, we don't think sustainable is at all easy to define.

1.16 While each individual case requires specific scrutiny the Society has focused on umbrella recommendations that may be useful for application to all irrigation applications. For scoping the concept of sustainable irrigation the Society found the following catalogue of questions, devised by Abernethy (1994), helpful in this connection:

- What is it that is to be sustained?
- Which threats are most important?
 - Which are most likely?
 - To which is the system most vulnerable/least resilient?
- How can we know whether we have achieved sustainability?

- How can we monitor sustainability?
- How can we evaluate?
- What management actions are possible/desirable to enhance sustainability?

1.17 Another way is to consider irrigation supply simply as a component of the “sustainable management of natural and physical resources” as defined in the RMA. That is the idea of provision of (in this case) water for irrigation in a way and at a rate which enables people to provide for their social, economic and cultural wellbeing...while a) sustaining future potential b) safeguarding life supporting capacity c) avoiding or minimising effects on the environment (paraphrasing s5 (2) RMA).

1.18 Beneath this general concept of sustainable irrigated agriculture there are a multitude of factors that come into play. Many of these are directly or indirectly addressed in the Plan. A broad definition has the advantage of providing a perspective toward the activity as an integrated system which might be lost if it were over-itemized.

1.19 Overall, it seems that beyond meeting basic internal, technical and financial feasibility criteria, “sustainable irrigation” is mainly about controlling adverse external impacts of the activity on the interests of others and the environment. These revolve around determining the effects

- i. on the source of the irrigation take and
- ii. of the discharge of the water onto the land (including by-wash or runoff).

Design and management

1.20 The job of the designer is to understand the potentially adverse impacts of these two aspects and design a scheme that can be operated in a fashion which avoids, minimizes or negates them. The job of the operator is to manage it in the manner that was intended.

1.21 That’s at an individual farm level, but there is also a question of sustainable irrigation at collective level – scheme, sub-catchment, and catchment.

At this level the question becomes whether the cumulative effect of the irrigation activity is sustainable? Indeed, it's possible that the adverse effects of individual takes may be mitigated by the cumulative effect – a larger “system” scale.

Sustainability criteria

1.22 The Society recognizes that the purpose of developing the Plan was to arrive at a sustainable water allocation framework. So to the extent that a given application complies with the Plan, sustainable irrigation criteria could be assumed to be met. However, there is room for interpretation of Plan provisions, and certainly at an individual level, applications could have specific local effects that mean it fails to meet the intent of the Plan.

1.23 The Society therefore considers it is necessary to measure all irrigation scheme proposals against sustainability criteria. While not exhaustive, the Society has identified the following as important:

- i. An effective environmental flow regime that protects the river source (in the case of surface water)
- ii. A robust set of quantifiable sustainability indicators that can be used to monitor irrigation activities, link cause and effect and underpin enforcement provisions.
- iii. Monitoring, reporting provisions to ensure that target sustainability outcomes are achieved
- iv. A clear picture of the baseline environment and river condition from which change can be gauged.
- v. Annual allocations that take into account change in seasonal demand, but include some flexibility within this to allow accommodation of extreme events.
- vi. A farm (and, where appropriate, scheme-wide) irrigation management plan that links to the conditions of the take to provide a baseline and firm leverage for best management practice (refer to Appendix A).

- vii. An institutional and regulatory framework with a meaningful level of deterrent to enforce standards.

Allocation limits and minimum flows

- 1.24 The Society supports the principle in the Plan that priority be given to in-catchment irrigation demand before considering out of catchment demand (Policies 12(h) and 14). By implication, before granting water to schemes like Hunter Downs, adequate allowance needs to be made for applications for water takes within the Waitaki. This applies particularly to the shortfall in annual water allocation to the mid-river reach. In this reach there appears to be a calculation error in the Plan.
- 1.25 This anomaly apart, the Society opposes all applications that do not comply with the Plan as already indicated. Most notably, this concerns applications that propose minimum flows below 150cumecs.
- 1.26 In previous hearings the Society has indicated its wish to see the irrigation provision in the Plan implemented (Rule 7 of the Plan) to provide reliable water to farmers. It sees the application for a lower minimum flow by farmers and the much higher risk to the environment as a direct consequence of Meridian Energy Ltds unwillingness to make this water available. Irrigators become a convenient lever for lowering the minimum flow and improving economic return to hydro.
- 1.27 The Society considers that, because the minimum flow in the Plan was selected after exhaustive hearings, it needs to be tested before it is lowered. This is particularly the case given the potential magnitude of the change in take from the river after the current set of hearings.
- 1.28 Minimum flow regime in the Lower Waitaki is a cornerstone provision in the Plan (Rule 2). If it is to be abandoned already, then we consider that the correct place for this to be considered is a Plan Review. A Review would provide the opportunity for the Society (and all others) to submit specifically on current concerns with the Plan including, for example, adequacy of flushing and flood flows that could also affect minimum flow requirements.

1.29 The Society also considers it is very important that flow gauges are located, as far as possible, to maintain the minimum flows and connectivity envisaged by the Plan (Policies 1 and 21, Rule 2 Table 3).

Impact of takes

1.30 The Society is concerned that treating the tributaries independently of the main stem in rivers like the Hakataramea River may well undermine the capacity to sustain an environmental flow in the main stem. It also understands that the ecology of smaller streams may be more vulnerable than that of larger rivers to the diversion of an equivalent proportion of baseline flow.

1.31 Schemes that reduce direct impact on flows in crucial summer period by tapping indirectly connected groundwater or using out of stream storage should be given preference (Promotion of Objectives 1, 2 and 5).

1.32 Takes from the mainstem of rivers to be preferred over takes from springs or ponds that have potential as wetland features or which provide depth of habitat for native fish, spawning etc (Policies 4 and 5).

Water management

1.33 That there is scope for instream interest group representation on any local “river management” entity (Policy 25) and that this be integrated for all stakeholders (e.g. Meridian Energy) within a defined river reach.

1.34 The Society supports the universal adoption of Irrigation Management Plans to help control potential adverse impacts of intensive irrigated agriculture, and has identified aspects for inclusion in Appendix A.

1.35 Irrigation Management Plans need to be a requirement of all other existing irrigation consents when they come up for replacement.

Fish passage and survival

1.36 The Society supports the need for effective fish screening in all intakes as promoted by Environment Canterbury (Policies 4 and 45).

Amenity, wetlands, indigenous species, habitat and mixing of waters

1.37 The Society's objectives are to promote the protection and enhancement of backwaters and wetlands on the floodplain and terraces to retain landscape variety and interest and sustain native and natural flora and fauna. All applications should be considered for their potential impact on these aspects of retaining or enhancing biodiversity (Policies 4 and 45).

Water quality and efficiency of water use

1.38 Indications that existing water quality is deteriorating is of real concern to the Society (NBTC application evidence, Meridian Energy Ltd).

1.39 The location, extent and intensity of nutrient and microbiological contamination of land, and natural and constructed drainage need to be very carefully considered to prevent any further deterioration in water quality (Policy 13). It is unacceptable to have extensive nutrient leaching affecting groundwater. We know enough now about nutrient load and migration processes to avoid risking an aggravation of the current water quality. We also know from state of the environment reporting that we have fairly consistently overshot sustainability thresholds in Canterbury Rivers both in terms of quality and quantity.

1.40 Low irrigation conveyance and storage loss, high irrigation scheme uniformity coefficients and soil moisture monitoring needs to be employed to minimise deep percolation and nutrient leaching down the soil profile (Policy 16).

1.41 The absence of major hydro that permits "all remaining water" to be diverted will sustain good flow rates and maintain the existing (although still inadequate!) level of seasonal flow variability. These characteristics will maintain dilution and flushing capacity and minimise the need for landuse controls over new irrigation applications/consents arising from these and subsequent applications (Objectives 1 and 2, Policy 13).

Benefits of irrigation

1.42 The benefits of irrigation in revenue generation for the district need to be included in the consideration of all applications.

1.43 There is also evidence that irrigation and associated landuse change can improve soil conservation.

Consent duration

1.44 Given the uncertainty of climate change and cumulative impacts on river flows, the Society proposes 15 year consent terms with moves toward a common date of expiry to allow coordinated adjustments between activities as required.

4 KEY RECOMMENDATIONS

1.45 The Society, as a matter of principle, opposes all applications which are non-complying with respect to key provisions of the Plan. It does not automatically, however, oppose applications which are non-complying according to the annual water allocation for the mid-section of the river because it considers this provision anomalous.

1.46 The Society supports “sustainable irrigation” use of the Waitaki River. It has therefore listed key considerations that it feels need to be included in the assessment of any application for irrigation water from the Waitaki with a view to sustainable irrigation.

1.47 The Society supports the use of monitored and enforceable Farm Irrigation Plans as part of the conditions for all new and replacement consents and in Appendix A has proposed a list of generic criteria for inclusion.

1.48 Fundamentally, the Society’s wish is that the Waitaki River environment be secured from the fate of so many of Canterbury’s rivers – one of over-allocation and/or degraded quality. This outcome seems most likely when we fail to accept the extent to which our socioeconomic systems depend on a healthy environment and when allocating water, we fail to act with sufficient caution and humility.

1.49 While the Society believes that irrigation activities that comply with key parameters and with appropriate conditions, can be a sustainable use, in combination with major hydro in the Lower Waitaki, this appears increasingly less likely with new and replacement applications now and into the future.

Reference

ABERNETHY, Ch., 1994: Sustainability of Irrigation Systems. - Zeitschrift für Bewässerungswirtschaft 29; 135 - 143.

Appendix A

Important subjects proposed for inclusion in any Irrigation Farm Plan. The list is not exhaustive.

- i. regular warrants of fitness for irrigation scheme and levels of efficiency being achieved as well as compliance provisions
- ii. conditions for mitigating the potential impact of in river works at times when fish are vulnerable (e.g. spawning)
- iii. Ecan standard requirements for monitoring and reporting on water take and auditing programme
- iv. Nutrient budgeting and recycling of nutrient to control nutrient leaching
- v. Sustainable nutrient load calculated for individual schemes and cumulative effect within individual catchments and limits to intensification set accordingly.
- vi. Irrigation scheduling requirements based on soil moisture budgeting and monitoring by soil type including monitoring of the groundwater quality beneath or adjacent to high-sensitivity irrigation blocks.
- vii. Mechanisms for the permanent protection of wetlands and backwaters
- viii. Adaption procedures and strategies to be employed at times of low water availability