



water

• for the

waimea

basin

Newsletter 9 • December 2008

Waimea Water Augmentation Committee (WWAC)

Chairman's message

The region has experienced a relatively wet spring and early summer. River flows and groundwater levels are in the best position for many years. Consequently irrigation to date has been sporadic. Despite this the WWAC committee has been busy forging ahead with the Upper Lee dam site investigations. It should always be remembered that this is a long term community project to enhance river and groundwater reliability into the future.

The committee met recently to workshop the various options for future governance and ownership and is now developing what appears to be a good fit to satisfy all the affected parties.

Geotechnical work continues to refine the preferred dam site, which involves a lot of exploratory drilling and surveys. Unfortunately the severe storm in August 2008 caused a lot of damage, particularly to the surrounding forests. The consequence of this is that access has been very limited in recent months as logging crews recover fallen timber. The result has meant that the project is running about three months behind schedule. Despite this our lead consultants Tonkin and Taylor are working hard to make up lost time.

WWAC continues to work closely with central government and despite a change at the top we are confident that we have continued support from Wellington. Nick Smith our local MP has been recently briefed on our project and is supportive.

Yet another year has passed and despite this the committee continues to function well with no drop in attendance or resolve to get a water augmentation system up and running. Thanks must go to the members of the committee for their time and energy, and special thanks to our project manager Joseph Thomas for his enthusiasm and dedication.

Wishing you all a Merry Christmas and productive New Year.

Murray King

Chairman - Waimea Water Augmentation Committee



Drillers on site in the Lee Valley.



Drillers remove core samples.

Geotechnical investigations

Investigations into the upstream site started in mid-August but were delayed by the storm which toppled trees in the valley.

Contractors and drillers were unable to get to the site until late November. Investigations have been progressing in earnest since the third week in November and most work should be completed by mid-December.

Reporting on the suitability of site two is projected for early February 2009.



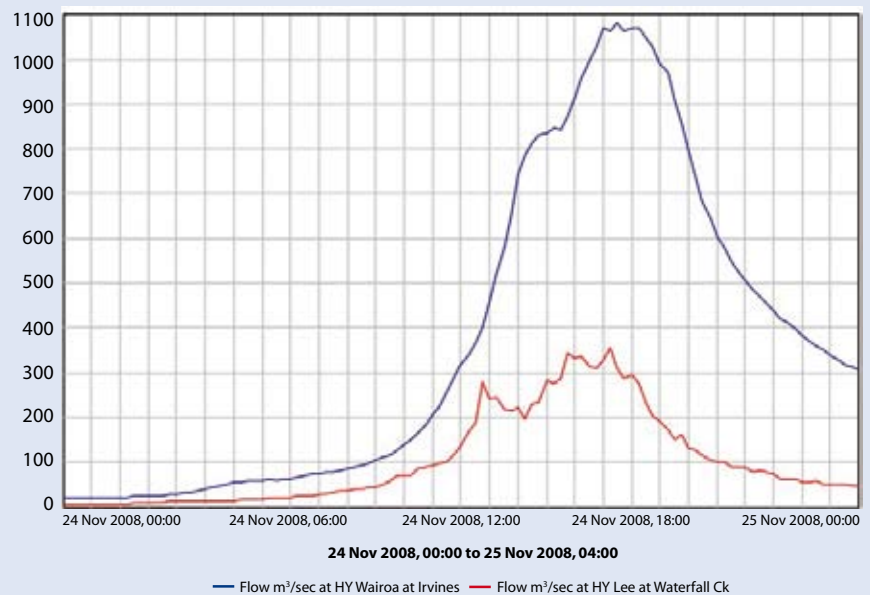
Rock core samples.

Lee River in flood

This measurement was taken above Anslow Creek and measured 356,000 litres per second coming out of the catchment on Monday 24 November 2008 at the peak river flow. This confirms the ability of the catchment to easily fill the dam.



Joseph Thomas checks the flow recorder upstream of the dam site in the Lee River.



Ecological assessment of the dam effects

Cawthron Institute has produced three reports on in-stream ecology for the Waimea Water Augmentation project.

Initially a review of biological data over the wider catchment was conducted, to see what was known about the in-stream values that exist in different parts of the catchment. Then an in-stream flow assessment was made to establish minimum flow requirements in the Waimea River and at the proposed dam site. This also identified potential effects of a dam in the Lee River and possible mitigation measures.

River flow augmentation provides an opportunity to redress historic impacts of low flows on in-stream values in the Waimea and Wairoa rivers.

Studies show the Waimea trout fishery has undergone a decline in catch rates, especially from the 1940s to the 1960s. This may improve with an increased minimum flow, as occurred in the Waiou River, below the Manapouri Power Scheme (trout numbers/km increased from 100 up to 300-400, when minimum flows increased from 0.3 m³/s to 16 m³/s in summer and 12 m³/s in winter).

Cawthron Institute has suggested three alternative minimum flows at Appleby with differing levels of environmental conservatism.

Cawthron Institute concluded that with augmentation there was likely to be mainly increased habitat availability in the Wairoa and Waimea rivers in summer and no effect in winter. There would also be increased minimum flow in the Lee in much of the summer.

The study also noted that there may be a need to have flushing flows released to flush periphyton biomass following prolonged periods of low flow caused by the reservoir filling.

Flat-lining of river flows in autumn as the reservoir fills may impact on downstream migration of eel and koaro, and upstream spawning migration of brown trout. However, these events are likely to be rare, and the flow plots reported for the Lee dam site will be the worst case scenario for a fairly short section of stream, before flow is augmented by tributary inflows. Flushing flows may also help stimulate migration.

Potential reservoir water quality effects

Construction sediment effects are likely to be relatively short lived (~two years construction time), until flushed out. There will need to be mitigation measures to minimise sediment during construction. Cawthron Institute is recommending the removal of as much vegetation and soil as possible from within the dam footprint prior to filling the dam to minimise the release of nutrients from organic matter as it decomposes on the lake bed.

The lake will naturally have temperature and water quality variation with depth. These features will have to be considered when water is released. One method to manage this is to have controlled release from various levels in the water column. This has been used successfully in other dams in the world.

Algal blooms are unlikely to be an issue, given the low nutrient supply in the Lee River.

Fish passage

With a 50 m high dam fish passage is infeasible for all but the most adept climbing migrants. A fish pass will not be feasible for trout. Therefore, trout population in the reservoir will be dependent on successful spawning upstream of the dam.

Significant wildlife and vegetation

A survey has been completed on wildlife in the area that could potentially be affected by the dam. The survey included mapping vegetation over 67 hectares, identifying rare and endangered plants, weeds and an assessment of wildlife.

Vegetation

More than half of the area is planted in pine trees and the rest is native forest, mostly on the valley floors.

Significant plant species identified include:

Alluvial kahikatea, white maire, *Scutellaria*, *Coprosma areolata*, *Melicactus micranthus*, *Scutellaria novae-zelandiae*, kanuka and beech.

Gorge turf (riparian) plant community: Liverworts, lichens, spider orchids, *Nertera*, *Epilobium*, tree seedlings, *Pratia* and other species. There is a very diverse plant community which is maintained by flooding of river.

There is a mature kahikatea-podocarp river flat forest and regenerating kanuka forest under which large populations of *Scutellaria* are present.

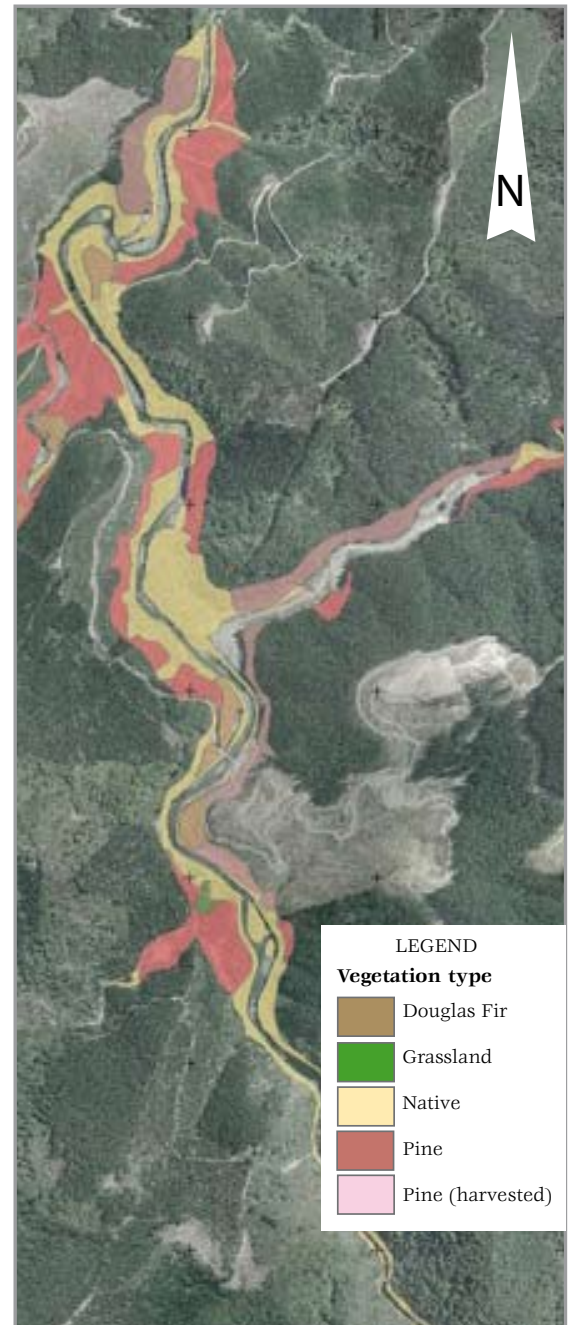
Pest plants identified included: old man's beard, blackberry, wilding pines, willow, poplar, broom, hawthorn and barberry.

Wildlife

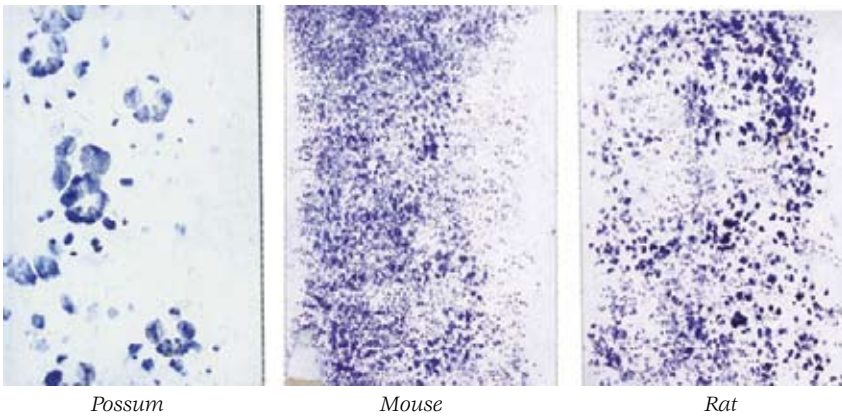
The wildlife present did not include any significant species of bird other than the New Zealand falcon, which would not be directly affected by the dam.

No lizards were found.

Animal pests were monitored with 30 tunnels which recorded rats, mice and possum. Damage to the landscape from wild pigs is also evident.



Animal footprints recorded in tunnels



Dam volume

The required dam volume has been finalised. The consultants recommended 12.35 million m³ to meet the drought requirement. The committee then agreed to build a 13 million m³ dam to allow a small buffer.

Governance and ownership

The committee decided to fast-track this work and has been looking at various options for ownership and governance of the Lee Dam. The committee has set some preconditions for this. They include that the project should be not-for-profit and be owner controlled. Recommendations on the best options for meeting these criteria will be made next year.



Possible dam toe site.

Waimea Water Augmentation Committee



Back, L-R: Barney Thomas, Nelson iwi, Tim King, Deputy Mayor Tasman District Council; Dave Plant, Nelson City Council Engineering; Jeff Cuthbertson, Tasman District Council Engineering; Stephen Sutton, Waimea West representative; David Easton, Upper Confined Aquifer representative; Kit Maling, Waimea East Irrigation Co; Richard Kempthorne, Tasman Mayor; Martin Heine, Department of Conservation; Murray Staitte, Tasman District Council Corporate Services Manager; Dennis Cassidy, Delta Zone representative.

Front: Neil Deans, Fish and Game; Julian Raine, Deputy Chair and Golden Hills/Hope Aquifer representative; Murray King, Chair and Lower Confined Aquifer representative; Joseph Thomas, Project Manager; Valerie Gribble, Executive Assistant.



Looking down the Lee River across Waterfall Flat. This area would be flooded by the dam.



This project is also supported by:

- Waimea Plains water users and landowners
- Fish and Game New Zealand, Nelson Marlborough Region.

In kind support is received from:

- Iwi
- Department of Conservation

WWAC Members

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Mayor Richard Kempthorne (Tasman District Council)	03 544 8082
Peter Thomson (Tasman District Council)	03 543 8440
Neil Deans (Fish and Game)	03 544 6382
Dave Plant (NCC)	03 546 0267
Martin Heine (DOC)	03 546 9335

WWAC members are available to answer your questions.

Lee/Wairoa Liaison Group Volunteers

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