

# Waitangi River Catchment: Farming for the Future

Notes from Waitangi Catchment Farmers Meeting. Pakaraka Hall, Tuesday 28 August 2012

Thanks for attending the meeting last week. Here is a summary of what was discussed.

The project is intended to add value to a modern farm business by addressing the themes of;

- **Environmental stewardship:** to encourage farm-based actions that reduce contaminant run-off from productive land.
- **Farm resilience:** to encourage farm-level strategies that build resilience to climate change and the impacts of adverse weather events.
- **Financial profitability:** to provide expert information (in partnership with farm owners) to optimise catchment farms for profitability.

The project is an opportunity for farmers in the area to take a leadership role in developing workable solutions. The project will run for 3 years.

The NZ Landcare Trust will provide facilitation, coordination and promotion of the project.

Project partners, AgFirst Northland, Dairy NZ and Northland Regional Council will work with landowners to provide on-farm advice and support. Farm environmental improvements may be eligible for financial assistance through the Environment Fund which is administered by the regional council.

Your involvement is voluntary – there is no obligation for you to implement anything that comes out of this project. It is simply an opportunity for you to grasp if you so wish.

Representatives of Beef & Lamb NZ and Fonterra who attended the meeting were keen to see the project succeed and to assist where possible. They see this project aligning with their objectives around sustainable farming.

The underlying principles of the project are:

- Engagement & respectful collaboration.
- Farmers on top, scientists and experts on tap.
- We all know what someone else could do. This project is about what we can do.



### **Next steps in the project**

- Establish the working group (thank you to those who expressed an interest).
- Conduct one-on-one farm surveys with landowners between September and October.
- Develop farm plans for a number of catchment farms between now and February 2013.
- Host an on-Farm field day/workshop in late February – this will be an opportunity to look at and discuss solutions in more detail.

Jon Hampson from the NZ Landcare Trust will contact you regarding these next steps.

### **Recap on water quality**

The Bay of Islands Ocean Survey 20/20 undertaken by NIWA suggests that the Bay of Islands coast is accumulating fine sediment.

- The source of this fine sediment is largely land based (from soil erosion) and is delivered to the coast by three main pathways, the Waitangi, Kerikeri and Kawakawa Rivers.
- On average 80% of sediment from these rivers comes from grassland although grassland accounts for only 50% of the land use cover.
- Estimates of annual sediment load by land use type suggest the greatest sediment load comes from pasture used for cattle farming.
- The effect of sedimentation varies across the Bay of Islands depending upon where the sediment is deposited.
- Nutrient concentrations in the Bay of Islands were also found to be above the ideal range.
- Overall the study is suggesting that our recent and current land uses are influencing the appearance, health and ecology of the Bay of Islands and this influence is not necessarily a positive one. (More info available from [www.os2020.or.nz](http://www.os2020.or.nz))

Northland Regional Council monitors water quality at several sites along the Waitangi River.

- The monitoring results show that sediment, nutrient and pathogen (bacteria) concentrations are often above the recommended levels. The classification system used for grading recreational bathing sites grades the Waitangi River sites as poor.
- There is room for improvement in the overall water quality of the Waitangi River.
- Cause and effect – during the meeting several unknown variables were highlighted by those attending about the water quality science. For example that the correlation between nutrient levels and the application of fertilisers to land has not been made.
- There are often unknowns or uncertainties that occur in scientific monitoring. Science can help us to understand cause and effect but we also need to know when more science is not needed. More science can sometimes be a means of putting off action or delaying difficult decisions.
- Despite some uncertainties in the water quality data it still remains that agricultural land use is the dominant land use in the catchment. Ensuring best practice is applied across farms in the catchment is likely to lead to improvements in water quality over time. Preparing a farm environmental plan is a useful way for individual landowners to prioritise on-farm actions.
- One variable raised by several participants was the influence of stream bank erosion on water quality. These are the types of issues that can be picked up by the farm assessment and addressed in the farm plan.

### **Closing remarks from those attending**

- This project is an opportunity to promote what we do.
- Environment and profit are connected.
- In some instances there are some easy solutions.
- Seize the opportunity.

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# Waitangi River Catchment: Farming for the Future

Notes from Waitangi Catchment Farmers Meeting at Ludbrook Farm, Friday 15 February 2013

Thanks for participating in the event at Roger Ludbrook's place last month. It was community-led management in action with local farmers sharing workable solutions to real farm problems.

Roger gave us a tour of the paddocks and described how he is intending to compliment waterway management with production on his beef farm.

He will achieve this using a cell grazing system (with 1 and 2 wire electric fences) and upgrading the capacity in the water reticulation system. This will allow him to intensify production over a core area while retaining wetland areas for filtration and excluding stock from the farm's waterways.

Bob Thomson and Ian Hanmore of AgFirst Northland went on to present aspects of the farm plan which they have developed in discussion with Roger and which will guide him over the coming years. The plan identifies the farm soil types and environmental hotspots (such as waterways) with a view to getting the most out of the grazing system.

It focuses grazing effort on the more robust silt loam pastures while farming more cautiously on the Aponga and Waipapa clay soils which cover around a third of the farm. These clay soils are generally more prone to soil erosion and Roger currently grazes them with lighter stock to minimise the impact.

The plan also looks at economic performance and Bob explained that in several years time the farm could be yielding a net carcass weight of 450kg. By comparison the average net carcass weight for Northland is around 200kg.

The event drew attention to the benefits of farm planning for both production and environmental gains. However, the recently completed Waitangi catchment farmers survey suggests that many farmers are not taking advantage of the planning tools available.

There are a variety of options available to farmers, from free farm planning tools (such as the Beef & Lamb New Zealand toolkit) through to the commercial services provided by companies like AgFirst Northland.

For those interested the Northland Regional Council is also offering to prepare water quality improvement plans for Waitangi catchment farms. The plans are free and farms participating may also be eligible for financial assistance, for any improvements identified, through the Council's Environment Fund.

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# Waitangi River Catchment Farmers Survey

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February 2013



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## 1. Purpose

This report presents the findings of the Waitangi River Catchment farmer survey. The survey is an initial stage in the NZ Landcare Trust's project *Waitangi River Catchment: Farming for the Future*. The project seeks to support the farming community to address land and water management issues and increase resilience to climate change and future adverse weather events. It is funded through the Ministry for the Environment's Community Environment Fund and runs from July 2012 to June 2015.

The purpose of the survey is to capture baseline information about the catchment's farming practices, to gain an understanding of their perceptions around the environment and farm resilience and identify any information gaps. The survey results will also refine future project planning to ensure that it delivers information and guidance that is relevant to the Waitangi River catchment community.

Towards the end of the project the survey will be repeated using the same questions and comparative analysis used to measure changes in community awareness and understanding. This approach has been used in previous NZ Landcare Trust managed projects with very successful outcomes.

## 2. Methodology

The survey questionnaire was developed using survey templates from previous NZ Landcare Trust water quality and climate resilience projects and was refined in consultation with the project partners, academics and NZ Landcare Trust staff. A copy of the questionnaire is appended to this report.

The survey is largely a piece of qualitative research to better understand the perceptions of and the trends within the Waitangi River Catchment farming community. It was primarily conducted through face-to-face interviews with farmers during October 2012. A small number of questionnaires were completed individually by farmers and returned via email.

### 3. Results and Discussion

A total of 15 questionnaires were completed from an initial contact group of 50 farmers. This response rate is considered to be a sufficient population sample for the qualitative nature of the research and is supported by the diversity of thought and opinion that was uncovered during the research. The survey comprised five beef farms, seven dairy farms, two integrated beef and dairy units and one mixed sheep and beef farm.

The average size of a farm participating in the survey was 215ha with an average area of effective pasture of 171ha. The average herd size of the participants was 300 cattle for a dairy farm and 374 for a beef farm. 40% of the farmers interviewed described their farm business as profitable and a further 40% that "debt is manageable". The remaining interviewees (20%) described their business as being under "some debt stress". Only four out of the 15 farms surveyed were proposing to increase their farm operation over the next three years.

The survey findings suggest that the main issues of concern to the catchment's farmers are farm profitability, the need to balance environmental requirements with production (and ultimately profitability), and the effects of adverse weather events. These three issues were overwhelmingly the dominant concerns for the farmers interviewed although a variety of other issues did arise. These other issues tended to be farm or farmer specific with little commonality.

The interviewees were encouraged to consider the effects of farming upon Waitangi River water quality and to describe what practices they had implemented to mitigate soil erosion, nutrient run-off, water contamination (pathogens from animal faeces) as well as any practices to restore biodiversity.

The survey responses suggested that individual farmers' perceptions of their farm's effects on river water quality was generally low while, at the catchment scale, there is an overall perception that the combined effects of farm practices are having a moderate effect on river water quality.

#### Managing soil erosion

73% (11 out of 15) of farmers had implemented some form of management practice to control soil erosion. The practices described can be arranged into three themes:

1. Managing wetland areas as sediment traps (usually through fencing and stock exclusion).
2. Planting to stabilise areas of eroding land. This included the use of poplars and willows as well as native species.
3. Pasture management techniques. This included practices such as fence subdivision to build pasture cover and extend the length of rotations, matching stock class to soil capability and improving the farm's infrastructure (feed/stand-off pads) to limit soil pugging.

## **Managing nutrient run-off**

80% (12 out of 15) of the farmers surveyed had some form of nutrient management practices in place. Dairy farmers in particular cited the improvements they had made to their effluent disposal systems. These were largely the conversion to total land disposal supported by large volume storage ponds to manage periods when ground conditions prevent effluent application. Other nutrient management methods referred to by interviewees included:

- Nutrient budgeting and following professional advice and guidelines.
- Soil testing to understand chemical and physical properties.
- Using wetland areas for nutrient uptake.
- Commonsense fertiliser/effluent application, such as avoiding wet areas and applying smaller but more frequent dressings.
- One farmer cited the planting of deep rooting trees to capture nutrients lost from the pasture root zone.

## **Limiting pathogens entering waterways**

This was primarily addressed by farmers limiting their stock access to waterways. However, less than a third of the farmers said they had excluded stock from 85% or more of their farm watercourses. For the dairy farmers surveyed, the benchmark standard for stock exclusion was Fonterra's "Red Band" standard. This requires dairy farmers supplying Fonterra to fence off all farm watercourses that are deeper than a "Red Band" gumboot, wider than a stride (one metre) and permanently flowing. The survey highlighted that there is no equivalent standard for beef farmers. This creates uncertainty for the beef farming sector in determining when the "job is done" and in meeting expectation from the public, the regulator or even within the industry itself. This is an important consideration for a catchment in which beef farming is the greatest agricultural land use.

Although not explicitly stated by interviewees, fencing for many of the farmers appears to mean fixed post fences with only two farmers highlighting the use of break fencing techniques for stock and pasture management.

## **Protecting and restoring biodiversity on the farm**

Overall there was a lesser response to this issue and this is possibly due to biodiversity restoration not being regarded as a central component of farming operations. Just over half the farmers interviewed had carried out some form of restoration work at some time. This was mostly described as fencing to exclude stock from pockets of native bush. Some farmers had also undertaken animal pest control work but this seemed to be an ad hoc affair rather than part of a plan or strategy for the restoration of native plants and animals on the farm. Only one farmer specifically mentioned riparian planting while there were several references to native tree plantings on unproductive land or cleared forestry areas.

Not all environmental improvement practices are successful and several examples were cited where the anticipated outcome was not realised. For example one farmer described an area of native bush that he had fenced out to allow the forest understory to regenerate. Instead



of regenerating, the forest floor subsequently became infested with tradescantia and tobacco weed once the stock were eliminated.

Another farmer cited unsuccessful tree plantings for erosion control. Inappropriate species selection, using immature seedlings or simply that the conditions at the time of planting were too harsh were all possible factors cited by the farmer as leading to the failure.

Other examples were also given and all shared similar characteristics. These similarities were that environmental improvements, just like new farm practices, can be a process of trial and error and nearly always require ongoing management. Mismanagement or no management will often result in the intended improvement failing. This is well demonstrated with the example of the forest fencing cited above.

There are a number of groups and organisations advocating for farmers to make environmental improvements and there is perhaps a need for this to be tempered with clearer guidance on the management burden that comes with making such improvements so that farmers can implement practices in full knowledge of the commitment required.

Overall the survey indicates that there is a wide range of environmental practices being applied across the catchment. However, at the individual farm level this breadth of practice is not replicated. The survey suggests that while one factor (e.g. nutrient management) is possibly well managed on a farm, another factor (e.g. soil erosion) may not be receiving enough attention. For example, only four interviewees cited pasture management techniques as a means of preventing soil erosion.

It is an oversight of the survey that it did not deal specifically with the subject of farm environmental planning. Explicit questions ascertaining whether or not a farm has an environmental plan in effect were not asked. That said, the responses to questions on farm environmental management practices indicate that many farmers are not working to a coherent, strategic plan that ensures all significant sources of sediment, nutrients or water contamination are effectively managed. The discussion around biodiversity restoration also indicates that opportunities are not being fully realised.

### **Information and assistance to deal with farm environmental issues**

When asked what information or assistance would be of most use to farmers when dealing with farm environmental management, the most recurring theme was in relation to soil fertility and soil science. Farmers expressed a desire for more one-on-one independent advice on soil science and soil fertility so as to keep nutrients locked in.

At present, most farmers receive their guidance from fertiliser companies who could be regarded as having a vested interest in fertiliser application. Some farmers are curious about alternative methods and non-conventional fertilisers to improve soil fertility. This was summarised by one farmer who said that he wanted to know more about biological farming without the “green edge” while another simply stated “something other than superphosphate”.

## **Factors influencing farm environmental improvements**

Most farmers cited personal ethics and having a strong moral obligation as the biggest influences in choosing whether to implement farm environmental improvements. One farmer said, "I feel guilty if I do something I perceive may damage the environment". However, cost and time availability also appear to be very real and overriding factors when determining whether or not to make environmental improvements.

Other less popular motivators for undertaking environmental improvements were monetary incentives (such as the regional council's E.Fund), stock health improvements and concern for downstream water users.

## **Farm resilience and coping with adverse weather**

This part of the survey attempted to gain insights into how the farming community deals with and responds to adverse weather events, in particular drought and storm events. All interviewees were aware that climate predictions for Northland indicate a greater frequency and volatility of adverse weather events. The majority of those interviewed (66%) were no more than moderately concerned about these predictions.

Generally farmers were more concerned about the effects of a severe drought on their farming operations than the effects of an intense storm event. Many of those interviewed cited physical characteristics of their land (such as soil type and elevation) as factors insulating them against the effects of intense storm events. The relatively short duration and predictability of a heavy storm event were also reasons for the lesser concern.

## **General strategies for coping with adverse weather events**

The responses did not reveal any clear strategies that were applied consistently across the survey group. Indeed, many of the farmers interviewed appeared somewhat phlegmatic about this issue, having spent many years being attuned to the weather and its idiosyncrasies. One farmer felt that coping successfully came down to experience and the ability to read the farm and "look at what's on hand." The practice that recurred most frequently in the interview discussions was that of always keeping supplementary feed reserves on-hand.

## **Impacts of the 2009/2010 drought**

All but one of the farmers interviewed had been affected by the last major drought which occurred in late 2009 and early 2010. The most obvious effects of the drought were the immediate loss of production and the subsequent fall in profits. Stress is another immediate effect and one that perhaps becomes ignored in the face of low production and falling profits. One farmer described the drought as "mentally and physically tough" not least because of the uncertainty about when it might let up. Sharing problems and talking to one

another can be a simple method of dealing with stress and to quote a line of famous verse, “many fears are born of fatigue and loneliness.”<sup>1</sup>

The survey responses indicated that the effects of the drought endured well beyond the period itself. One farmer described how the drought had impacted upon his farm drainage (by creating new flow paths in the soil) and that the soil structure had still not recovered three years later. Another pointed to low stock condition and the subsequent effects on his herd’s reproductive performance. Nearly three years after the event, several farmers described themselves as “only just catching up”.

Despite the negative effects of the drought, nearly all farmers revealed a range of coping strategies that they employed during the drought period. The following actions emerged through the interview discussions and have been classified under the headings of long-range and short-range actions:

<p><b>Short-range actions:</b></p> <ul style="list-style-type: none"> <li>• Seeking advice early and generally acting early.</li> <li>• Early reduction of stock numbers.</li> <li>• Being aware of your financial position all the way through and regularly talking to the bank if necessary.</li> <li>• Purchasing palm kernel although this became more difficult as the drought intensified (and having the feed bins installed was also a big help in one case).</li> <li>• Reducing to once-a-day milking for dairy farms.</li> <li>• Sharing problems; joining discussion groups and generally talking to other farmers can provide confidence and reassurance on the course of action taken.</li> </ul>	<p><b>Long-range actions (farm infrastructure and management):</b></p> <ul style="list-style-type: none"> <li>• Having silage on-hand at all times.</li> <li>• Poplar plantings – these proved to be a good alternative feed supply.</li> <li>• The installation of a reticulated water supply provided greater management opportunities.</li> <li>• Ryes, kikuyu and the older pasture grasses demonstrated good drought resistance.</li> <li>• Ensuring good soil fertility in the pasture.</li> </ul>
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<sup>1</sup> *Desiderata* by Max Ehrmann (1927)

## 4. Conclusion

The main issues for the farming community are maintaining profitability, balancing profitability with environmental performance, and coping with adverse weather events.

Catchment farmers show a good understanding of environmental issues and the farming practices required to minimise any potential effects upon river water quality. There is a desire to implement these practices although financial constraints and limited time are presently very real barriers to implementation. Initiatives such as the regional council's E.Fund are motivating factors that can help to overcome these barriers.

Knowledge gaps have been identified around the disciplines of soil science and soil fertility and in the long-term management of certain environmental improvements. With respect to soil fertility, farmers would like access to more independent, professional, one-on-one advice. Both are opportunities for this project to address.

The breadth of environmental farming practices used across the catchment is an opportunity for farmers to learn from and share techniques with one another, especially as at the farm level good environmental practices are not consistently applied. Many farmers acknowledge that they have work to do. A simple environmental farm plan could assist this work by identifying the key areas of the farm requiring attention.

Beef farmers lack the equivalent of the "Red Band" standard and this may create uncertainty when seeking to achieve appropriate standards of on-farm waterway fencing. An opportunity exists for the catchment farmers to address this matter through this project.

There appears to be a good level of resilience to adverse weather conditions within the catchment. Of most concern to farmers is the effect of drought events but this is only a moderate concern based on the responses of interviewees.

Loss of production and profits are obvious impacts of a drought but longer-term effects on soil and stock health can be more subtle and pervasive. Health effects such as stress should not be ignored and ensuring that support mechanisms are in place during a drought, such as discussion groups, are simple coping strategies.

The survey has identified a range of actions available to farmers to help mitigate the effects of a drought. These include long-range actions that require forethought and potentially investment, such as a reticulated water supply, and short-range actions that hinge on the notion of acting early and seeking support.

Overall, the survey has captured baseline information about farming practices in the catchment and has identified areas for the farming community to investigate further through the *Waitangi River Catchment: Farming for the Future* project.

# **Appendix One:**

## **Survey questionnaire**

**The questionnaire can be viewed in the online version of this report at**  
**[www.landcare.org.nz](http://www.landcare.org.nz)**