

# AORERE - A COMMUNITY APPROACH TO CATCHMENT WELLBEING

**Sue Brown**  
**Aorere Farmer and Contact Person for the Aorere Catchment Group**

## **Aorere means “floating or flying clouds”**

When the words ‘A community approach to catchment wellbeing’ were first suggested to us by Don Ross, then CEO of NZ Landcare Trust, we really didn’t understand the full meaning, but they sounded way more intelligent than “farmers with a problem without a clue of what to do”. Those key words however, have guided our project to success at a level none of us thought possible at the beginning, and I wish to thank him for them and for leaving us in the capable hands of his staff.



It’s scary to think of what the state of wellbeing of our community would be in now if Don hadn’t been willing to offer to the Aorere the help of the unique ‘cross boundary’ organisation called the NZ Landcare Trust and helped us to move forward.

My presentation is going to focus on the Aorere’s issues and solutions and what it was like, from a farmers’ perspective, to have problems dumped on us, and gradually move from denial and fear to confidence, by learning about our catchments land/water interface,

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strengthening community links, planning and taking action. My presentation aims to not only to impress you with our success, but to inspire you to tackle water quality.

Our story is about dairy farmers taking ownership of our environmental performance, seeing it as an integral part of future business success, not a compliance issue. Our journey began with a 'trigger event'. Nearby cockle and mussel farmers were facing closure due to e-coli levels in the coastal waters severely affecting harvesting, and with their businesses threatened they had no choice but to raise the issue.

Looking back it wasn't a pleasant time but with hindsight I now feel the dairy farmers in the Aorere catchment were actually quite lucky. We had a prompt, and we're already well down the road to learning how to farm productive pastures alongside pristine waterways - essentially where every dairy farm in New Zealand has to be to future proof our businesses and our industry.

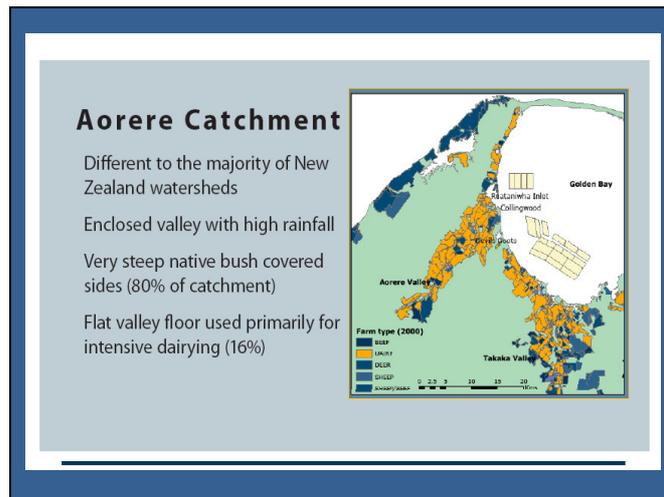
I believe dairy farmers can no longer wait for local trigger events to be spurred into action, the reality is that there is already a loaded gun pointed at all of us in the form of pending legislation.

The draft National Policy Statement on Fresh Water has been released by the MfE. This proposed document will override all district legislation and district plans (which will need to be altered to fit its intent). It requires local government to ensure all NZ waterways are swimmable and do not deteriorate. It also requires District Councils to undertake land-use planning to stop the adverse effects of land-use on water quality.

The Primary Sector Water Partnership Draft Plan of Action for Water is the primary industry response. It is vital reading for every dairy farmer. If you have not read it yet, do so. Hardcopies are available from DairyNZ or download from <http://www.dairynz.co.nz/page/pageid/2145836756>, or <http://www.fedfarm.org.nz/water>

The Aorere, except when we have heavy rainfall, is clear and beautiful. Many farmers found it surprising we even had a problem. Generally farmers didn't talk about environmental issues. They were seen as the nemesis of modern agribusiness.

The Aorere Valley is situated at the top of the South Island, on the northern side of Golden Bay. Our catchment begins in the hills of Kahurangi National Park; just where the Heaphy tracks starts, and flows into the Ruataniwha estuary at Collingwood. Rainfall is high and varies throughout the catchment. Some in Rockville will have rainfall of only 2.5m per year, while 3m plus is common and some years it has reached 5m at the top of the valley.



### Aorere Catchment

- Different to the majority of New Zealand watersheds
- Enclosed valley with high rainfall
- Very steep native bush covered sides (80% of catchment)
- Flat valley floor used primarily for intensive dairying (16%)

The mussel farm area above the words ‘Ruataniwha Inlet’ is the currently farmed area. Of the other areas shown, some are currently operational for spat catching for both mussels and scallops but the rest of the areas shown are not yet farmed – however permission for it to be farmed is highly likely in the near future.

Collingwood shellfish industry harvesting days were as low as 28% with recurrent bacterial contamination of the growing area.

The shellfish industry does not expect to be able to harvest in times of heavy rainfall events. A salinity buoy, anchored off the Aorere river mouth, is triggered by changes to river flow and alerts them to cease harvesting. They are also required to monitor e-coli levels in the water surrounding their operations. The issue is e-coli ‘spikes’ when there is little or no change in river flows.

From the mussel farmers’ perspectives the need for improvement in water quality was two-fold. Improvement was needed for the survival of existing farms off Ruataniwha Inlet and improvement would prove the viability of farming the proposed area off the Takaka river estuary.

Dairy and shellfish industries are both important to the local economy. There is also one operator who commercially harvests cockles from the beaches of Ruataniwha Inlet exporting them, in their shells, to restaurants overseas. Cockles, along with pipi and tuatua, are gathered recreationally from many Golden Bay beaches.

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In March 2005 a stakeholder meeting was held including Fonterra, Tasman District Council (TDC), Marlborough Shellfish Quality Programme (MSQP), Manawhenua ki Mohua, marine farmers and Aorere dairy farmers. Three sources of e-coli were indentified; being sewerage (coastal settlements septic tanks and the Collingwood township scheme), avian (black swans) and dairy.

A working group consisting of representatives from stakeholder groups was appointed.

With genetic identification of the source of e-coli not then practically possible, no one could be sure of the proportion of contribution of any specific source. Establishing facts around sources would take years; time the shellfish farmers did not have. The saying, 'If you are not part of the solution then you are part of the problem' fitted well and the working party began the process of working together; a far better option for all stakeholders than heading to the environment court.

And, it's fair to say, there were times when we were a tad resistant to hearing of the marine farmers problems; after all, dairying was here first! And, shellfish farming had been around for about 20 years without a problem. So how come e-coli was suddenly a problem now? In that same timeframe, Aorere district land use was static with no change in hectares farmed or cow numbers. One key factor is shellfish quality standards tightened – just like they did in dairying for things like somatic cells.

The working group initiated a TDC study of the waterways running through the seven coastal dairy farms to determine the source(s) and extent of the bacterial contamination, and areas of concern, and reported back to Aorere farmers in December 2005.

TDC indicated tha, resource consent conditions for ponds systems would tighten, the number of compliance inspections would increase, and they would increase enforcement of existing rules around the permitted activity of disposal of dairy effluent to land. TDC offered no example to farmers of an effluent system that would comply, now and in the future.

The TDC report also considered swans. They concluded that swan pooh could be part of the problem, some of the time, for the inshore cockle beds. Sadly, that meant that eradication of the swans was not going to provide a silver bullet solution and let dairying of the hook! Mind you, we found out these Aussie overstayers eat the eel grass, directly competing with juvenile fish species like snapper, and that's enough for me to say they should all go, but...I digress and their ecological impact is currently being studied.

The TDC report concluded human sewerage was not as likely a cause as dairy, although, it was not, and has not been, ruled out completely as a possible source on some occasions. Soon testing will be available locally and define the source as human, avian or bovine e-coli when spikes occur. It is possible that at different times, each of the three sources will have caused the problem, especially so for cockles.

TDC have installed UV treatment at the Collingwood sewerage treatment plant and recently the pumping station system has been upgraded. Septic tanks are common in coastal housing settlements and currently have no 'warrant of fitness' requirements.

The value of the TDC study was in gathering baseline data and prompting us to start questioning our on-farm practises. The trouble with it was it didn't give any indication of the ideal effluent system, or 'tool' for dealing with point source pollution, or whether meeting the Fonterra Clean Streams Accord would solve the problem by sufficiently mitigating non-point source pollution given our high rainfall. It was a problem beginning.....with no end in sight!

I do want to acknowledge however that TDC has supported us always, even stepping back to allow the farming community to digest the information and shape our own destiny. TDC also supported the formation of a Streamcare group – an amazing bunch of volunteers that I'll talk about further on in my presentation.

In May 2006, TDC Resource Scientist, Trevor James, gave a presentation based on the coastal farms study, entitled 'Water Quality Issues in Golden Bay' to the NIWA Conference, 'Land Based Activities and their Effects on the Coastal Waters'. The Landcare Trust sent me to this NIWA conference. The key take-home message from the conference was that re-drawing community boundaries to match watersheds, and sharing knowledge with all stakeholders is the way to go if we are to have an impact on cleaning up the waterways. I commend Trevor James for his presentation. It was honest, not damning, and gave the perspective of a council becoming aware of an environmental issue and its role–sometimes the meat in the sandwich between stakeholders – in working towards community solutions.

In January 2006 farmer to farmer conversations grew to action. A letter was sent to all dairy farmers in the catchment highlighting the issues and followed up by a farmer to farmer phone survey to scope interest in forming a catchment group supported by the NZ Landcare Trust, and applying to MAF Sustainable Farming Fund. (MAF SSF). An amazing response - 80% of farmers were keen; the remainder didn't personally feel they needed help with environmental issues but still chose to support action to help other farmers. No-one said, "No"!!!

February 2006 – the MAF SFF application was made; and June 2006 - funded! Ready, set and going – yahoo! Don't think we'd have managed this without Landcare's help with all the administration, from sorting our problems and ideas into a sensible written funding

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application, to the workload of reporting since being funded. And just a word about time-frames. Applying for, and successfully getting funding, can easily take a year or longer!

## **Project milestones**

These included: contracting expert modellers to depict potential impacts of land use on water quality, identifying key sources of bacteria, understanding current farm knowledge and action barriers, understanding best on-farm practices for managing bacterial run-off, and implementing individual farm plans to ensure waterways are healthy.

### ***Catchment modelling***

We employed Dr Barry Robertson and Leigh Stevens, of Wriggle Consulting, who specialise in the assessment, monitoring and management of coastal resources. Wriggle used modelling, using known water quality data, to provide us with a reality check about what our environmental issues were and were not. Farmers found the plume model a very helpful visual learning tool. The model shows e-coli levels and dispersal patterns in the coastal water over a period of time including two rain events.

#### *Summary of the Wriggle Model findings*

- The Aorere River does not have a nutrient issue.
- The Aorere River has a moderate faecal bacteria (e-coli) issue.
- The main source of faecal bacteria is run-off from grazed paddocks with rainfall.
- Avoiding bacteria run-off from paddocks after rainfall is currently not possible under intensive agriculture.
- Effluent management is also important to ensure high water quality in low flows, especially in localised smaller streams).
- Fencing is important to reduce erosion and direct defecation into waterways. Fencing and culverts/bridges assist in maintaining good water quality in low flow conditions.

Three farmer reps, supported by Landcare and Fonterra, took Wriggle and their findings to meet with the Tasman District Council Mayor, Councillors and staff. We were proud of the information and our new understandings. The dialogue was honest, positive and invaluable. Later that same day we had an equally successful meeting with the marine farmers and Landcare Research staff involved in the Motueka ICM project. Some of us even carpooled cross-industry, enjoying a meal at a Thai restaurant on the way home! Invaluable rebuilding of relationships.

### ***Farmer survey***

Interviews were conducted with 31 of the 33 dairy farmers within the catchment, to tailor project deliverables to farmers' needs.

- Defining/refining project direction and usefulness
- Creating and strengthening relationships
- Identifying the environmental issues from the farmers perspective.

The farmer survey was an opportunity for across the kitchen table dialogue between farmers and Landcare Trust staff. Everyone got a 'one on one' chance to have input into the project design. The survey showed farmers genuinely cared about water quality, were concerned about their image, and wanted to take a leadership role.

The survey confirmed we are an aging bunch who've lived and farmed in the area a long time. The stability of our farming community however, has definitely been a plus in working together as a catchment group. And, small as we are, opinions are as varied as anywhere!

### ***Effluent field day***

Along the way we learnt how to better deal with effluent - some of us had achieved compliance by adopting deferred irrigation systems, using existing ponds for storage and only irrigating via travelling irrigators when soil conditions allowed.

And then another idea, more farmer friendly, and a solution to compliance was introduced. 'Weeping walls' and low rate (k-line) irrigation systems developed by Southland engineer, John Scandrett. We held a field day at Rob and Deb Haldane's weeping wall and storage ponds. Having this first system installed locally enabled wider adoption. There are now about a dozen of these systems in Golden Bay. Owners of these systems report they supersede compliance as they maximise the farmer's ability to use all the nutrients in effluent, and even provide for irrigation in summer dry.

Rather than digress into effluent systems, let me just say, if word of these systems hasn't reached your area yet check presentations to SIDE 2008, or leave me your email and I'll forward info.

Speaking at the effluent field day, Dr Richard Muirhead of AgResearch, one of our experts 'on tap' during the project, clarified what on-farm practices will and won't work with regard to e-coli.

### ***BMP's to achieve contact recreation standards during normal river/stream flows***

- Fenced waterways
- Culverts and Bridges

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- Three months storage
- Low rate irrigation to land

### ***Farm environmental plans***

Jan Derks, of Taccra Ltd developed a plan template with the key aim of reducing e-coli run-off to waterways. Funding allowed for only 14 farms to be completed. To complete a plan Jan spends a full day on each property conducting interviews, walking the farm and discussing options with the farm owner.

Rhys Barrier, Wetlands Specialist, Fish&Game, was included in fiev visits. This is another example of how the project has helped to break down barriers, and have farmers benefit from the expertise of local field staff, despite the ‘shit being flung’ between the dairy industry and lobby groups at political levels.

The opportunity to have an expert, who carries no compliance stick, look at your farm with fresh eyes, is invaluable. It added some fresh ideas about economically modifying our effluent system, and included some nice surprises about what would give the best bang for our buck, and the priority order that should be given to actions.

These farm-specific plans have taken participating farmers to a new level of confidence. The gain is as much in the process of having an independent and expert person walk your farm with you and talk every detail through, as much as it is in having the written plan and checklist to refer to when discussing and planning for your farm with business partners, bankers and advisors, staff and compliance officers.

Farmers report that having the plan has motivated them to action smaller jobs, such as fencing, so they can “tick them off” and large-scale projects are reaching the implementation phase on several farms. The plans are not legally binding and are confidential to landowners and the NZ Landcare Trust. This is key, but we are also finding that farmers use them with pride, and are mostly keen to share this living record of on-farm environmental action to the extent of making it available to potential purchasers when selling a farm. Each comes with a full written report and we also have a copy on disk so updating in the future is an option for farmers. We are currently seeking funding to make plans available to all farmers in our catchment.

### ***Chowder day***

In November 2008 Aorere dairy farmers again met with aquaculture farmers, this time to celebrate local water quality improvements over a shellfish chowder and fine cheese lunch.

Speaking on behalf of the Marlborough Shellfish Quality Programme (MSQP), Helen Smale (centre) gave credit to the Aorere dairy community, saying, “A great deal has happened

and in October 2007 shellfish harvest days were lifted to 79% to reflect improved water quality results”(given our annual number of high rainfall events, this is tops!).

Local dairy farmers Ross Riley and Rob Haldane spoke of the large voluntary investments local dairy farmers are making. Rob spoke of the high value his family put on swimming, fishing and eeling and the \$60,000 investment he has made to improve on-farm effluent management. He has made further investments in fencing, bridges and culverts. Ross noted that the 14, voluntarily undertaken farm plans outline \$1.4M in planned on-farm infrastructure investment over the next few years. The changes are purely to improve water quality and the figures do not recognize the changes that have already taken place on many farms.

### ***Trip to the mussel farms***

Back in March, 16 dairy farmers and two Landcare staff enjoyed a lovely day out at sea, finding out how mussel spat is gathered and grown on, and how the fully grown mussels are harvested.

Some went out to sea on the ‘Stray Cat’ - one of two catamarans custom built for mussel harvesting by the Solly family. And some went to sea on the ‘Jolly Roger’ with skipper Matt Rountree, his dairy farmer crew already onboard.

The day out was Matt’s idea, a way of showing appreciation. He says “as someone whose livelihood depends on water quality I really appreciate the efforts of all those involved in the Aorere catchment project. I think this project is a marvellous example of what can be achieved and is a credit to all those involved. The dairy industry is often painted in bad light on the issue of its effect on the country’s waterways and this project should be highlighted throughout the media and proudly shown off to the public for the fantastic efforts this group has achieved.”

### ***Aorere project celebration day***

Coming soon.....on Friday 26th of June 2009

Farmer Workshop, Lunch, Celebration and Booklet Launch

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## ***Other project highlights***

### *Linking with the Enviro-schools programme at Collingwood Area School*

Year 5 & 6 students planting 200 trees in an hour along an ephemeral drain. Electric fishing a creek (actually F&G and DOC staff came out to the farm and conducted that) –catch included eels, shrimps, red-finned bullies, short-jaw and banded kokopu.

Year 9 & 10 students science class. Gathering local native seeds, potting up and caring for plants in the nursery and then planting on farm, after selecting appropriate species.

And, providing BBQ & cake lunch for a heap of riparian planting done is a great trade for me as I am not physically up to doing much of this myself and John, like most farmers, has little time for these extras.

### *Streamcare Group*

The ‘Streamcare volunteers are the ‘force’ behind the exciting changes taking place along the waterways. They are a bunch of non-farming locals who understand the importance of biodiversity and ecological corridors, and, who wish to assist landowners to restore stream habitats for native fish respecting the natural biodiversity of local native plant species of lowland and estuarine areas.

In Golden Bay we have many willing volunteers of all ages keen to help. Forest & Bird have provided an umbrella group to practically support this initiative and gained some funding for materials and wages for propagation of plants in their two nurseries, but largely this is a volunteer effort. They see it not about blame, but about ‘putting things right,’ now we know that traditional ways of farming can be improved on. Some are retired famers who never had time to do things like this on their own farms!

Gorge Creek, on our farm, restoration has been enabled by TDC’s fencing scheme and the streamcare group. Streamcare group member, John Gilardi, spoke to us about the value of ecological corridors, and asked, since we had put riparian fences up would we mind if the streamcare group planted? All we had to do was grant access! Thousands of plants have now gone in on our farm’s waterways.

Several creeks have now become streamcare revegetation projects. And, we’ve also held advertised community planting days, it’s amazing who turns up and what can be achieved quickly. Streamcare prepare areas about three weeks in advance by spot spraying long grasses to form a weed mat. They return occasionally to weed. These interactions have created new links and positive respectful relationships between the farming and non-farming community which even in a small community like here is divided by lack of understanding. Conversations on planting days, which often include a BBQ lunch, have resulted in insights and reality for both parties. Farmers are learning how important for the restoration of local lowland ecology

and biodiversity the riparian margins we have fenced off are, and non-farmers are learning we do have worms in our soils and genuinely care about the land we farm.

TDC riparian fencing scheme is based on a 50/50 split, they provides materials and farmers build the fences. One council staff person to deal with usually takes only a phone call, a farm visit when he's in your area and minimal paperwork of a letter detailing materials required and where they'll go. Simple and extremely effective –tell your council!

Paul and Sacha Storer only purchased their first farm one year ago. It's in the estuary delta, borders the river and has two other major tidal waterways. Utilising the fencing scheme Storer's have been able to afford to start fencing waterways and swampy whitebait spawning habitat immediately, including fencing off from cows some existing mature lowland native trees. This action is huge towards retaining the ecology and biodiversity of New Zealand lowlands, and, as dairying dominates lowlands nationwide, don't we have a responsibility as caretakers of the land in private ownership to do what we practically can?

The Aorere results are indicating that having compliant effluent systems, and meeting the Fonterra Clean Streams Accord, we have a good chance of sufficiently mitigating the effects of dairying on our waterways that the dairy and shellfish industries can exist happily, side by side. And if we can show our water quality is not compromised by dairying, then there is no justification for increased rules and regulations on our catchments dairy farmers.

### ***The personal journey – Sue Brown***

The Aorere project has had huge impact above and beyond the changes to our own farming practice. The knowledge I have gained has evolved to a personal vision that dairying in New Zealand can become a win/win scenario for dairy farming and the environment of the lowland waterways. The confidence I have gained has seen me take on roles beyond the project. I have attended NIWA, Landcare Trust, Environmental Defence Society and Building Dairy Farm Environment Leaders Conferences. I am the chairperson for DairyNZ Top of the South DATS (Dairy Action Team).

I am able to continue to enjoy my roles due to the support of my partner, John Nalder. As owner operators of a coastal dairy farm with several waterways crossing it the whole environmental issues of dairy farming have been a rather steep learning curve. We have been supported in change and wish to help others as we see the environmental performance of all dairy farmers pivotal to the dairy industry's future.

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If we don't manage to learn to farm balancing our needs for productive pastures with maintaining pristine waterways we risk strangulation by regulation.

To summarise the Aorere project I am using the 'voice' of another Aorere farmer, Michelle Riley. Here is a summary of a presentation she gave to the Federated Farmers Dairy Council.

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**GOLDEN BAY**

#### **Aorere Catchment Group**

Some of the main points presented to Federated Farmers Dairy Council in February 2009:

- A group approach takes the pressure off individuals. It allows learning to happen in a non threatening way. It means there is always someone with energy when other's energy levels are low.
- Use the farmers in your group as experts, they are! They have been key speakers at all the field days we have had.
- Move past emotion, engage in high quality discussion.
- It allows time - our council have realised that everything can't be done at once and we have to explore ideas or technologies that may just be coming on stream. For example the weeping wall. It is best to improve a system well, over time, than just do a quick fix.
- Bring in other experts to interact with your group, they learn a lot in addition to you gaining specific information in their specialty. ('*Experts on tap not on top*' - Gretchen Robertson, Landcare Trust). Farmers need to be supported with science, as we discussed with DairyNZ and Fonterra at our meeting.

- Keep the process open - people can join in or pull back according to their life challenges and time availability. It is never too late to come on board and there will be changes in farm ownership and staff along the way.
- Communicate well with your members.
- We really need to understand the land/water interface a lot better than we have done and realise the impacts land management has on our waterways. It was interesting to hear Mike Scarsbrook say that sedimentation is the biggest threat to our waterways, and we saw another example of this on a farm tour that had peat lake depths decreasing because of this. The sediment traps the farmers built are very effective at mitigating this.
- Acknowledge the problem/s and learn how this affects other land or water based businesses. In our case the aquaculture group; we have learnt a lot about their compliance constraints - testing regimes, quality control; effects of sediment, nutrient and bacteria on the shellfish; costs and returns; effects of floods on water quality...
- And we have met these people and visited mussel farms. (see link below to our mussel chowder lunch.)
- Liaise with and utilise outside agencies - Landcare Trust - a cross boundary organisation - has been fantastic at supporting our group with ideas, administration, dialogue, telling us we are doing well! They have been excellent to work with and we are now involving other top of the south groups, building collaborative networks of landowners.
- In the case of other conservation groups we have found them also to be great at coming on board, however, it has been on our terms. This is a landowner group, we drive it. Build meaningful relationships. We had Forest and Bird and a Streamcare group represented with displays at our FARMDAY, Fish & Game were unable to attend the day, but are keen to do so in the future.
- Let's earn back the respect we seem to have lost, this ties back into point two. Farmers are experts at land management.
- Emergent leadership strategies draw in and develop leaders for the future, including our younger members.
- Tell your story in a positive way. Manage media releases, wait until you have a good story to tell, you have to be able to substantiate it. Good stories build traction.
- Celebrate success! Make it social and fun.
- Evaluate outcomes and plan the group's future.
- And finally - *start where you are at, do what you can, use the gifts you have.*

For your reference you can view further details of the Aorere Catchment Group at:  
<http://www.maf.govt.nz/sff/about-projects/search/06-005/index.htm>  
<http://www.landcare.org.nz/regional-focus/upper-south-island/aorere-catchment/>

And a report of our mussel chowder lunch at  
<http://www.landcare.org.nz/news-features/celebration-goldenbay/>

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This photo shows a mussel barge working in Ruataniwha Inlet.

### **Useful contacts**

- NZ Landcare Trust, [www.landcare.org.nz](http://www.landcare.org.nz)
- DATS (Dairy Action Teams) Network, contact Gwyn Morgan, DairyNZ, Hamilton.  
Gwyn can put you in touch with the farmer chairperson for your region. The forum brings farmers and rural professionals together.
- Fonterra Sustainable Dairying Specialists, [www.Fonterra.com](http://www.Fonterra.com)