

Dairyshed Effluent and Stream Crossing Surveys 2009/10

Summary Report

Technical publication No 11-003

February 2011



MARLBOROUGH
DISTRICT COUNCIL



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MDC Technical Report No: 11-003

ISBN 978-0-9864664-3-4

File Reference 13/1/1 & E225-S06/1111018

February 2011

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Executive Summary

This report summarises the findings of the dairy farm inspections in 2009/10. Council inspected the dairy effluent management systems on the 60 dairy farms in Marlborough to check compliance with the Plan Rules or resource consents. Further, Council checked the sites where cows walk through waterways on each farm to monitor the progress that farmers have made towards installing bridges and culverts, removing dairy herds from crossing waterways.

There were some changes to the way that Marlborough carries out the dairy effluent survey during the 2009/2010 dairy season. The changes are due to how dairy effluent is being managed nationally by all the regional councils. Dairy farms are now checked by councils using a three tier compliance checking system. The move towards national consistency has been industry driven so that different regions can be compared to see how the industry is performing overall. The site inspections found some recurring themes in the survey. The dairy effluent issues that were noted from the survey were:

- that the wastewater collection, containment and application system on some farms were too close to waterways;
- lack of back up for adverse weather conditions; and
- the storage of solid wastes directly to land.

The Stream Crossing Survey has shown good gains for the elimination of places where cows walk through creeks since the initial survey which began in 2002, however the momentum to remove stream crossing sites has slowed in the last few years.

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1. Introduction

This report summarises the findings of the dairy farm inspections in 2009/10 dairy season. Council inspects the dairy farms to check compliance with Plan Rules or resource consents. The purpose of the inspections is also to check the sites where dairy cows walk through waterways on the farm and to monitor the progress that farmers have made towards installing bridges and culverts removing the need for dairy herds to cross waterways.

There have been some changes to the way that Marlborough has carried out the survey this year. The changes are due to how dairy effluent is being managed nationally by all the regional councils. Dairy farms are now checked by councils using a three tier compliance checking system. The move towards national consistency has been industry driven so that people can compare different regions and how the industry as a whole is performing.

1.1. Dairy Effluent Management Nationally

Reporting rates of dairy effluent compliance have varied dramatically around New Zealand. In 2007, the majority of the regional councils undertook a review of dairy effluent compliance reporting. The review proposed a new set of criteria for categorising dairy effluent compliance for national reporting purposes. It is expected that all regional councils should now be using the new criteria for national reporting of dairy effluent statistics.

In order to assist councils with the new reporting compliance criteria, dairy files are audited to provide independent feedback to each council on its dairy effluent compliance assessment. The intention of the changes to dairy effluent monitoring is to have national consistency on how compliance grades are assigned to dairy farm effluent systems across regional councils in New Zealand.

The three categories that may be assigned are:

1. Compliance (C)
2. Non-compliance (NC)
3. Significant non-compliance (SNC)

The criteria for assessing a category 1 (C) classification is that an inspector did not observe any non-compliance at the time of the inspection. This makes allowance for conditions that were not audited at the time of inspection.

The criteria for assigning a category 3 (SNC) classification are described as follows:

- Unauthorised discharges that have entered water (ground or surface water).
- Unauthorised discharges that may enter water (ground or surface water).
- Breach of abatement notice.
- Objectionable effects of odour.
- System shortcomings.
- Multiple non-compliances on site with cumulative effects.

The criteria for assessing a category 2 (NC) classification is all issues that did not fit either category 1 or category 3.

1.2. Dairy Effluent Management in Marlborough

For Marlborough being nationally consistent means that Council checks compliance with all of the Plan Rules or resource consent conditions. For farms under the Marlborough Sounds Resource Management Plan dairy effluent management is compared against every applicable rule in the Marlborough Sounds Resource Management Plan, Rural Rules 36.1.7.3 Dairy Effluent Disposal (the plan rules are listed in Table 1 below). For farms in the Wairau/Awatere Resource Management Plan area dairy effluent management is checked against the resource consent (conditions and application). Full compliance means complying with every rule in the Plan or every condition of resource consent.

1.2.1. Dairy Effluent 2009/2010

In the 2009/10 dairy effluent survey Council staff inspected all of Marlborough's 60 dairy farms during the summer period. Forty one dairy farms in the Marlborough Sounds Resource Management Plan area were checked against the Plan Rules and 19 farms in the Wairau/Awatere Resource Management Plan area were checked against their respective resource consents for dairy effluent discharge. Below is a table which shows how the Plan Rules were assessed. The method of assessment is in blue italics. Resource consents were assessed in the same manner; however, every condition of the resource consent is assessed. Each resource consent has different conditions.

Table 1

36.1.7.3 Dairy Effluent Disposal
a) The discharge shall not be within 20 metres of a surface water body or over any unconfined aquifer; <i>Visual observation on site and Council mapping system.</i>
b) There shall be no run-off of contaminants into surface water resulting from the discharge of the contaminant onto or into land; <i>Visual observation on site.</i>
c) The total nitrogen loading on the area to be used for discharging shall not exceed 200 kg N/ha/yr; <i>3 hectares of disposal area is required for every 100 cows this is checked with the farmer and by Council mapping. Minimum receiving land area per 100 cows for effluent applied fresh from the farm dairy (Dairying for the Environment 2006).</i>
d) When discharging effluent a buffer zone of a minimum 10 metres in width is to be maintained between the area of discharge and any property boundary; <i>Visual observation on site.</i>
e) The wash water collection, containment and application system shall not be within 20 metres of the boundary of any neighbouring property without that person's prior written consent, a copy of which shall be forwarded to the Marlborough District Council; <i>Visual observation and check of Council records.</i>
f) The wash water collection and containment system shall not be within 20 metres of any surface water body; <i>Visual observation and Council mapping system.</i>
g) The wash water collection, containment and application system shall not be within 20 metres of any area identified by Tangata Whenua as being of special value, or any filed archaeological site; <i>The farmer was asked if there were any tangata whenua or archaeological sites on the farm.</i>
h) There shall be no spray drift beyond the boundary of the land to which the effluent is discharged; <i>Visual Observation on site.</i>
i) No objectionable odours shall be able to be detected at or beyond the legal boundary of the land to which the effluent is discharged; <i>Odour check at the boundary on site.</i>

- | |
|--|
| j) There shall be contingency measures in place to ensure that there is no contravention of the above conditions in the event of system failure or adverse climatic conditions;
<i>Visual Observation on site and Council mapping system.</i> |
| k) The system will be monitored by the Marlborough District Council to ensure there is compliance with the above conditions.
<i>All dairy farms in Marlborough are inspected.</i> |
| l) The discharge, after reasonable mixing shall not breach the water quality standard set for the waterbody in Appendix H.
<i>There are no direct discharges to water.</i> |

Note: that compliance is only what was noted on the site inspection, Council can only say that the farm complied or did not comply at the time and date that the inspection was undertaken. Council staff are also relying on information the farmer provides.

1.2.2. Stream Crossings 2009/2010

The places where cows walk through waterways on dairy farms were also checked on the farm visits. The findings of the original stream crossing survey and the progress that the farmers have made to install culverts or bridges is included in the discussion of this report.

2. Discussion

2.1. Dairy Effluent

As the dairy effluent survey has been conducted differently this season to be nationally consistent, rather than focusing on compliance ratings Council is reporting on the issues that were found on the farms in order to aid farmers in moving forward for positive environmental outcomes.

2.1.1. Issue One - Washdown Collection, Containment and Application Systems

The Marlborough Sounds Resource Management Plan provides that these systems cannot be within 20 metres of a surface water body or the boundary of a neighbouring property. 16 out of 41 Marlborough Sounds farms had their wash water collection, containment and application systems too close to a surface water body. Council will be following up with the 16 farms. Some farmers may decide to apply for a resource consent so that they can retain the system where it is. Alternatively, the farmer may decide to move the wash water collection, containment or application system..

2.1.2. Issue Two - Ponds and Storage

Effluent application can be problematic when soils are seasonally wet due to a regular period of excessive rainfall, or after rainfall in sites where there is mole or tile drainage (Dairying for the Environment, 2006). In order to avoid discharge of contaminants to groundwater or surface water the Marlborough Sounds Rules require contingency measures to be in place in the event of system failure or adverse climatic conditions. Under the Wairau Awatere Resource Management Plan all new consents will require the installation of storage ponds. 11 out of 60 farms had no contingency measures in place. The Plan Rules in both regions do not outline how much storage is required. Dairying for the Environment (2006) recommends 340m³ per 100 cows for Marlborough. Ponds need to be sealed to ensure that there is no leakage. Ponds need to be managed so that there is a free board. Free board in the pond will allow for storage of effluent in unforeseen circumstances.

2.1.3. Issue Three - Solid Waste Management

An issue noted on 12 out of 60 farms was the management of solid waste from stone traps and ponds. Current practises are to clean out stone traps, sumps and ponds and deposit this material in a stockpile to dry. The concentration of solid waste in one area can cause problems such as direct leaching to groundwater or stormwater runoff from uncovered areas of solid waste running into waterways. Solid waste should be stored on an impervious surface where contaminated stormwater cannot run off to land or water. Storing solid waste directly on the ground will be rated as Non-compliance in 2010/2011.

2.2. Dairying and Clean Streams Accord - Regional Action Plan

The Dairying and the Clean Streams Accord is an agreement between Fonterra Co-operative Group Regional Councils (including Marlborough District Council), the Ministry of Agriculture and Forestry and the Ministry for the Environment. To improve the environmental performance of dairying, the Accord establishes a goal of achieving "clean healthy water in dairying areas". The Regional Action Plan sets National and Local Targets (refer to appendix C for a full copy of the Dairying and Clean Streams Accord Regional Action Plan).

2.3. Stream Crossings

Table 2 below shows the stream crossing sites in Marlborough from the first survey till the 2009/2010 dairy season. On the initial survey Council categorised the crossings into high and low priorities. The crossings sites were prioritised by frequency of use, number of cows, size and type of waterway and whether the waterway was permanent or ephemeral.

Table 2 Stream Crossings in Marlborough

Stream Crossings (SC) at First Stream Crossings Survey 2002 to 2007				
	Number of Farms with SC	Number of High Priority SC	Number of Low Priority SC	Total Crossings
Rai Valley	27	43	69	112
Pelorus	12	12	25	37
Tuamarina	9	15	29	44
Linkwater	7	12	5	17
Havelock	7	9	5	14
Wider Marlborough	9	2	3	5
Total	71	93	136	229
Stream Crossings (SC) at 2008/09 Dairy Season				
	Farms with SC	High Priority SC	Low Priority SC	Total
Rai Valley	9	9	27	36
Pelorus	7	2	13	15
Tuamarina	8	10	22	32
Linkwater	6	10	4	15
Havelock	6	7	6	13
Wider Marlborough	1	2	3	5
Total	37	40	75	115
Stream Crossings (SC) at 2009/10 Dairy Season				
	Farms with SC	High Priority SC	Low Priority SC	Total
Rai Valley	9	9	30*	39
Pelorus	5	0	9	9
Tuamarina	8	9	22	31
Linkwater	5	6	2	8
Havelock	6	6	6	12
Wider Marlborough	1	1	3	4
Total	34	31	72	103

The results in the table show that Rai Valley has made no change from the 2008/2009 dairy season (*with the exception of additional information received). Pelorus area has now eliminated all the high priority stream crossings. One low priority crossing has been eliminated in Tuamarina in the last year. Linkwater has reduced the number of both high priority and low priority stream crossings in the area.

Havelock has eliminated one high priority stream crossing. Wider Marlborough only has one farm with stream crossings and that farm has eliminated one of the high priority stream crossings. Overall the total number of stream crossings have reduced from 115 crossing sites in the 2008/2009 dairy season to 103 as of June 2010. From the initial survey to the 2008/2009 survey; half of the stream crossings were eliminated. From the 2008/2009 to the 2009/2010 season, there have been only 12 stream crossings eliminated.

The Council determined timeframes for all the high priority stream crossings to be eliminated. The timeframes for all the regions has now past. Council will be considering what action to take (such as issuing abatement notices) now that the time frame for the elimination of high priority stream crossings has past.

Council is still processing free of charge resource consent applications for the installation of culverts or bridges which remove the need for dairy herds to walk through waterways. The purpose of the stream crossing survey was to improve water quality in Marlborough's waterways. Figure 1 below show how the E.coli numbers in the Rai River have changed over time. The E.coli numbers from 1999 to 2009 have trended downwards over the time period. The Stream Crossing Survey has shown good gains for the elimination of places where cows walk through creeks since the initial survey, however the momentum to remove stream crossing sites has slowed in the last few years.

2.4. Water Quality in the Rai River

Figure 1 shows that the median *E. coli* number for the Rai shows an overall decline from 1999 to 2009.

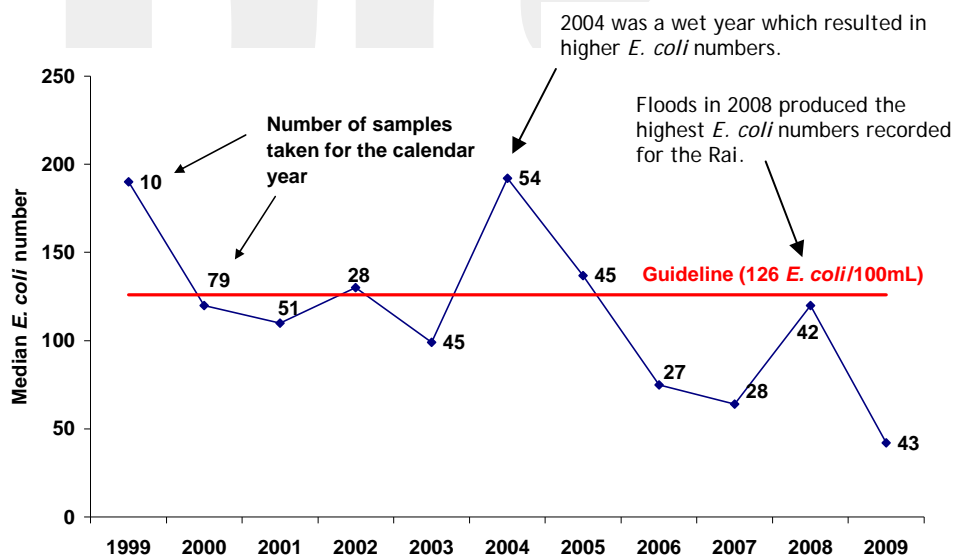


Figure 1: Median *E. coli* numbers at Rai Falls from 1999 to 2009. The number of samples from which the median is derived varies from year to year is shown beside the median result for each year e.g. 10 samples in 1999, 79 samples in 2000 etc, MDC (2010).

MDC (2010) *State of the Environment Surface Water Quality Monitoring Report, 2010*. Marlborough District Council. 2010.

3. Conclusion

In 2009-10 Council undertook site inspections to the 60 dairy farms in Marlborough. The purpose of the inspections is to check compliance with the permitted activity standards of the Plan or the dairy effluent discharge consents. The dairy effluent issues that were noted from the survey were:

- that the wastewater collection, containment and application system on some farms were too close to waterways;
- the lack of back up for adverse weather conditions; and
- the storage of solid wastes directly to land.

The previously surveyed sites where cows walk through creeks were also inspected. Good gains for the elimination of places where cows walk through creeks have been made since the initial survey, however the momentum to remove stream crossing sites has slowed in the 2009/2010 season.

4. References

Phillip Heatley, Dairying and the Environment Committee, Fonterra and Dairy InSight: *Dairying And The Environment* 2006.

MDC (2010) *State of the Environment Surface Water Quality Monitoring Report, 2010*. Marlborough District Council. 2010.

Draft

Appendix A



Background Information

Dairying and Clean Streams Accord

Dairying is a significant land use in New Zealand. However, there have been increasing concerns regarding the effects of this intensive land use on the quality of water within our streams, rivers, lakes and wetlands.

The Dairying and Clean Streams Accord is an agreement between Fonterra Co-operative Group, regional councils, unitary authorities (such as the Marlborough District Council), the Ministry of Agriculture and Forestry and the Ministry for the Environment to improve the environmental performance of dairying. It establishes a goal of achieving "clean healthy water in dairying areas".

Five priorities for action are identified in the Accord to reduce the impact of dairying on streams, rivers, lakes and wetlands: cattle access to water bodies, dairy herd stream crossings, dairy shed effluent discharges, nutrient management and wetlands. Each of these priorities has a national performance target, as follows:

- Dairy cattle are excluded from 50% of streams, rivers and lakes by 2007, 90% by 2012
- 50% of regular crossing points have bridges or culverts by 2007, 90% by 2012
- 100% of farm dairy effluent discharges comply with resource consents and regional plans immediately
- 100% of dairy farms have in place systems to manage nutrient inputs and outputs by 2007
- 50% of regionally significant wetlands to be fenced to prevent stock access by 2007, 90% by 2012

The Marlborough Regional Action Plan adapts these national targets to local conditions. See inside for Marlborough targets.

Regional Action Plan

The Dairying and Clean Streams Accord represents an industry taking responsibility for improving its environmental management. This initiative therefore presents an opportunity for the Marlborough District Council to assist efforts to improve the sustainability of dairying in Marlborough while exercising its statutory responsibilities under the Resource Management Act 1991.

Regional Action Plans have been developed by Fonterra and each of the regional councils and unitary authorities to assist the implementation of the Accord.

The purpose of the Marlborough Regional Action Plan is to detail local commitments toward achieving the Accord's goal, while taking into account local circumstances. The Regional Action Plan records commitments made by Fonterra and the Marlborough District Council to reduce the adverse effects of dairying activities on water and habitat quality in Marlborough. These commitments focus on the priorities for action already established by the Accord. Some of the local targets differ to the national targets, reflecting the relative adverse effects of dairying operations in the local context.

The Regional Action Plan also sets out the respective roles of the Council and Fonterra in achieving the local targets.

The Marlborough Regional Action Plan has been developed with input and support from local Federated Farmer representatives.

To get further information about the Regional Action Plan, or to receive a free copy, please contact either Pere Hawes at the Council on (03) 578 5249 or Fonterra Shareholder Services Contact Centre on 0800 65 65 68



Dairying and Clean Streams Accord



Regional Action Plan for Marlborough

2008



Stock access to waterbodies

- ☀ Dairy cattle are excluded from 50% of streams, rivers and lakes by 2007, 90% by 2012

The Council will continue to encourage dairy farmers to prevent stock access to water bodies. This will include working with individual farmers to protect particular rivers and streams from the adverse effects of stock access and general advocacy with groups representing dairy farmer interests.

In most cases, fencing will be the only practical method of excluding stock.

Dairy herd stream crossings

- ☀ 90% of category 1 and 2 dairy herd stream crossings in the Rai River catchment are eliminated by the commencement of milking season (August) in 2006.
- ☀ 90% of category 1 and 2 dairy herd stream crossings in the Pelorus River and Tuamarina River catchments are eliminated by the commencement of milking season (August) in 2007.*
- ☀ Except for those stream crossings in the above catchments, 50% of all other crossing points have bridges or culverts by 2007, 90% by 2012.

The Council will continue with the implementation of the existing management strategy for the Rai River catchment.

The adverse effects of dairy herd stream crossings in other areas will be progressively investigated from 2004. The management strategies that are subsequently developed will depend upon the results of monitoring and consultation with the dairy farming community. The investigations will focus on the following areas:

- Canvastown
- Linkwater
- Koromiko/Tuamarina

Management of dairy shed effluent

- ☀ There is no "major" non-compliance with relevant resource consents or permitted activity rules.
- ☀ The rate of "minor" non-compliance with relevant resource consents or permitted activity rules shall not exceed 15% in any one milking season and any instance of "minor" non-compliance shall be rectified to the satisfaction of the Council within 2 weeks.
- ☀ All dairy farmers that require a discharge permit to discharge dairy shed effluent onto land are operating with the necessary consents.

The Council will continue to annually inspect dairy shed effluent discharges and assess the discharge as either in compliance, in "minor" non-compliance or in "major" non-compliance.¹

Currently 26 out of 30 farmers who require resource consents for their effluent discharges have the necessary consents.

Nutrient Management

- ☀ 100% of dairy farms to have in place systems to manage nutrient inputs and outputs by 2007

Fonterra will promote nutrient budgeting systems for all dairy farms, in consultation with the dairy farming community and fertiliser industry.

¹ Major non-compliance is categorised as non-compliance likely to result in significant adverse effects on the surrounding environment and includes unlawful discharges of effluent to water or the excessive application of effluent to land. Minor non-compliance, on the other hand, represents non-compliance that is not likely to result in significant adverse effects on the surrounding environment.

Wetlands

- ☀ 50% of regionally significant wetlands to be fenced to prevent stock access by 2007, 90% by 2012

The Council is currently identifying significant natural areas throughout Marlborough. Where significant wetlands are identified on or adjacent to dairy farms, the Council will work with the dairy farmer to protect the wetland from the adverse effects of stock access.

Monitoring and reporting on targets

Fonterra will monitor progress toward achieving these targets. However, the Council has a statutory responsibility to monitor the state of Marlborough's environment, compliance with the permitted activity standards of the Marlborough Sounds Resource Management Plan and Proposed Wairau/Awatere Resource Management Plan, and conditions of resource consents. Where this monitoring information is relevant to ascertain progress toward achieving the targets, the Council will provide this information to Fonterra. Examples include the Council's strategy for eliminating stream crossings in the Rai River catchment and the annual inspections of dairy shed effluent discharges. This will avoid any duplication in monitoring effort.

There is also a need to evaluate the effectiveness of the Regional Action Plan in achieving the overall objective of the Accord (i.e., "clean healthy water in dairying areas") and to ensure that it reflects community expectations. Monitoring of the targets may identify that the targets or implementation actions need to be modified or replaced. For this reason, representatives of the Council and Fonterra will meet on at least an annual basis to evaluate and review the content of the Regional Action Plan.



