8 FARM DAIRY EFFLUENT MONITORING

Overview

- During the year, 391 non-consented farms were visually inspected. The majority of these farms received grades of 3 or poorer
- For both the consented and non-consented farm dairy effluent systems, there were **264** instances of **significant non-compliance** identified during the season. 246 of these were re-visited
- During the year 153 resource consents were issued, bringing the total number of farm dairy effluent consents to 585

2002/2003 Annual Plan Performance Targets

To monitor compliance with farm dairy effluent discharge standards, by:

- **Inspecting all farm dairy effluent treatment and discharge systems that received adequate to poor grades (grades 3,4 or 5) and half of those that received good grades (grades 1 and 2), for their last inspection, record inspection details and report these to the farmers responsible and the Council.**
- **Testing effluent and receiving water quality for systems with resource consents to discharge directly to streams.**
- **Follow up on all systems with poor grades or non-complying, requiring maintenance or upgrades when needed.**

8.1 Background

In 2002-2003, there were approximately 1200 farm dairy effluent (FDE) treatment systems in the region. These are by far the most numerous point source discharges to surface waters and land in Northland.

8.1.1 Environmental Impacts

The effluent produced from dairy sheds and treatment ponds can adversely affect the ecosystems of receiving waters in a number of ways, especially if discharges are frequent, or into rivers with low flows. These effects include:

- Increased nutrient loadings, increasing algal growth and potentially causing algal blooms
- A rise in ammonia concentrations, which can be toxic to fish species
- Microbial contamination of waterways rendering them unsuitable for drinking and contact recreation use

- The reduction of water quality and the smothering of benthic (bottom-dwelling) organisms caused by additional suspended solid loads
- Inputs of pathogenic bacteria (such as Campylobacter), which pose a significant threat to human and animal health

The majority of Northland's dairy farms are concentrated in the Whangarei and Kaipara Districts. The most intensively farmed areas within these districts are the Ruawai flats and the Northern Wairoa River catchment. The lower Awanui River, the Waipu River, the Kaikohe/Ohaewai area and the Bay of Islands catchment are also heavily affected by dairy farming.

8.1.2 Treatments

Oxidation ponds can reduce the levels of FDE contaminants in water before it is discharged, but bacterial levels still tend to be elevated. Therefore, even the best maintained pond or long ditch could contribute to downstream ecological degradation. The preferable treatment in Northland is to irrigate farm dairy effluent to pasture rather than natural waterways. This method is advantageous as it restricts the amount of nutrients flowing into streams and rivers, and instead returns the nutrients back to the soil (provided contingency plans are in place to prevent run-off of untreated effluent into nearby waterways).

8.1.3 Consents

Before 1995, only farms within the Bay of Islands catchment required consents to discharge FDE. In 1995, the Northland Regional Council released Section I of its Proposed Regional Water and Soil Plan for Northland. Within the plan were rules for the agricultural discharges, including FDE. It was intended that these rules would encourage farmers to discharge back to the land rather than into waterways. Resource consents are now required for any farmers wishing to discharge their effluent into waterways, either directly or indirectly.

8.2 Monitoring Programme

There are more than 1000 dairy farms throughout Northland, and assessing whether or not each farm requires resource consent is a time consuming and lengthy process. Each year the treatment systems on non-consented farms are visually inspected, and after the inspection given a grade between 1 and 5, as outlined below:

Grade:	1	=	Good
	2	=	Adequate
	3	=	Marginal - Minor or potential problems only
	4	=	Unsatisfactory - Needs work
	5	=	Grossly unsatisfactory - needs urgent or major work

Farms that receive marginal or poor grades (3, 4 or 5) must deal with any identified problems and require a follow-up visit the following year. Of the farms that receive good or adequate grades (1 or 2), only half will be visited for re-assessment the following year.

As well as a grade, farms are distinguished based upon whether the activities are controlled (discharging to water) or permitted (discharging to land). Controlled (or C) activities require farmers to apply for resource consent.

The amount of monitoring required for any consents relating to FDE depends upon further grading. Farms are consented based on whether the discharge to water is the best practicable option (BPO). In some systems, discharging to water may be the only option, or (in rare cases) more benign than discharging onto land. In such cases, the consents are considered Type I and monitoring is limited to visual inspections.

Alternatively, if discharging to water may not be the best practicable option, and discharging to land would be preferable, then a Type II consent will be issued. Type II consents require water quality sampling, in addition to visual inspections.

At present, the Council is currently only issuing Type II consents. Type I consents are not being considered.

8.3 Results for the Year

The Northland Regional Council monitored 585 consents relating to farm dairy effluent in 2002-2003. Of these monitored consents, 153 were added in the past financial year.

As well as consent monitoring, 391 non-consented farms were visually inspected. As shown in Figure 8-1, the vast majority of the farms inspected between July 1, 2002 and June 30, 2003 were discharging to water, and received a "controlled" classification. Most of the "C" class farms were of marginal to grossly unsatisfactory standard, 205 of the 271 "C" class farms will automatically require re-inspection in the following year. While discharge to land is the preferred disposal option for FDE treatment, about ⅓ of "P" class farms were not discharging adequately, receiving grades between 3 and 5. Effluent treatment at 14 farms was so poor that they were considered to contravene the NRC's **Regional Water and Soil Plan for Northland** to the extent that their activities were prohibited.

The recommended treatment of FDE is for it to be discharged back to land, as shown in the photo on the left. Advanced pond systems, such as the one in the right hand photo, are also effective in mitigating the potential effects of FDE.

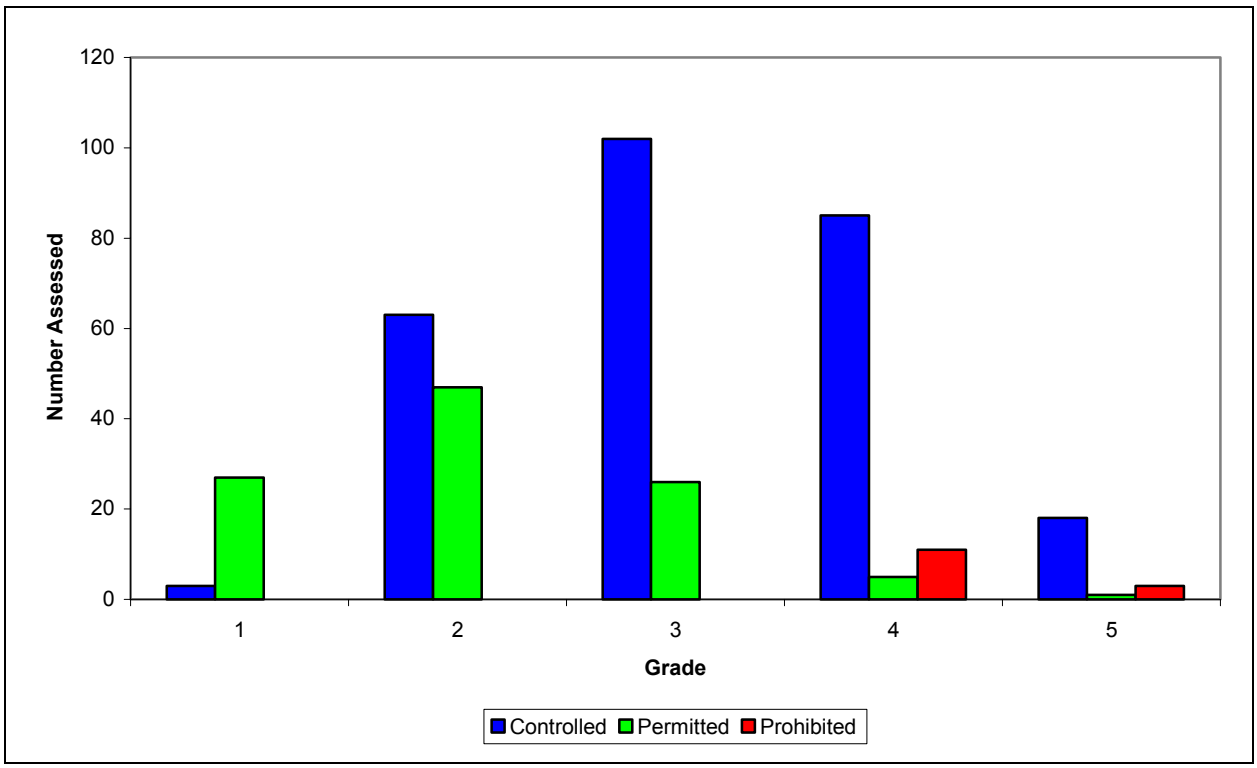

Figure 8-1 Visual assessment results for dairy farm effluent systems during 2002/03

8.4 Follow-Up Visits

For both the consented and non-consented farm dairy effluent systems, there were **264** instances of **significant non-compliance** identified during the season that required follow up action. This means about one in every four Northland farms is failing to treat and/or dispose of their effluent in the correct manner. 247 of those received follow-up inspections, with the remaining 17 still to be visited (as at the end of the 2002-2003 season).

Photos taken of a farm with poor effluent disposal. Effluent drains from the ditches shown in the photo on the left and travels several 100 meters before reaching the stream shown in the right hand photo. As may be obvious, the effluent has a major impact upon the receiving waterway's health.