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We are open Monday to Friday
between 8am and 4pm. Your efforts
to deliver the samples to us by 3.30
is always appreciated.



Whangarei District
Laboratory

TECHNICAL NOTE 7 | FARM SURFACE WATER

Whangarei District Laboratory is IANZ Accredited and provides a wide range of testing services, please contact us to discuss and quote on your requirements.

GUIDELINES TO SETTING UP A FARM SURFACE WATER MONITORING PROGRAM

There is increasing interest in the environmental impact of land use activities on water quality. Landowners are managing activities using sustainable farming practices including developing environmental monitoring plans; the main goal is to minimise nutrient losses from their land to waterways.

Measuring water quality over time can help evaluate the effectiveness of any changes to farm management practices. Water runoff is the mechanism for loss of nutrients, sediment and pathogens resulting from the farm activity into waterways.

Some tests that can be included in an environmental monitoring program:

SUSPENDED SOLIDS A measure of sediment loading on a waterway. Farming practices that can increase sediment include earthworks, direct runoff from races etc.

TURBIDITY A measure of water clarity. Includes sediment, dissolved solids and colloidal matter.

TOTAL NITROGEN AND TOTAL PHOSPHORUS (ANALYZED SEPARATELY)

The nitrogen and phosphorus in animal manure and chemical fertilizers are necessary to grow crops. When these nutrients are not fully utilized by plants, they can be lost from the farm fields and negatively impact downstream water quality. Nutrient pollution (eutrophication) fuels the growth of harmful algal blooms which have negative impacts on aquatic ecosystems.

NITRATE Can contaminate groundwaters and potentially affect drinking water quality in bore sources. Contributors to nitrate levels are animal waste runoff from dairy shed runoff, feedlots, excessive use of fertilizers.

pH Most natural waters fall within the slightly alkaline range of pH 6.5 – 8.0. Plants and animals require waters and soils to be in this range to enable them to carry out growth processes. Rapid and extreme changes in pH levels prevent these growth processes occurring and cause plant die-off.

E COLI Bacteria found in the gut of warm-blooded mammals and birds. E coli is an indicator bacteria used for measuring faecal contamination of a waterway.

TAKING SAMPLES

Selecting the sampling site(s) is very important and it is recommended to take advice from an environmental consultant before starting to collect samples. Choose strategic sites which will provide you with the best information on how your farming practices are affecting nearby waterways. The sites which are most susceptible to poor water quality will supply the most useful information. Discharges from farm activities where they enter waterways, such as a tile drain outflow, is a good place to start.

Note site conditions at the time of sample collection and record these to help interpret test results later. Observations such as flow rate, water temperature, recent weather events, bank slumping, stock movements and nearby cultivation should always be recorded at the time of sampling. The time and date of sampling must be recorded on the submission form sent with the samples.

A minimum of two samples per year is advised to obtain an understanding of relative nutrient content. Suggested periods might be autumn when drains begin to flow and late spring or early summer avoiding any extremes of weather. Note that one-off grab sampling yields limited information and can be of little value.

