MARLBOROUGH DISTRICT COUNCIL

SEPTEMBER 2023

Freshwater Farm Plans and Water Quality FAQs

How does my farm contribute to water quality?

All farms in a catchment area contribute to stream health and ground water, however it can be difficult to source specific areas of contamination. Knowing where water is moving across a farm and into waterways is an important start in creating a plan for reducing any direct contamination sources.

Why is water quality measured?

Marlborough District Council collects water samples in fresh and coastal environments to guide decisions on public health, ecological health and as a general indication of the state of our environment. Most water samples are taken monthly from the lower reaches of streams. The monitoring data is used to determine water quality trends and allow reporting using water quality categories, ranging from excellent to poor. Monitoring can help form a baseline of data today, identify where mitigation work needs doing and to ensure that impacts from on farm actions can be measured in the future. A more in-depth analysis of river water quality can be found in the state of the environment report available on Council's website.

Monthly water samples across 34 waterways within Marlborough have been collected over several years. The water quality indices can then indicate excellent to poor water quality using several attributes - temperature, dissolved oxygen, pH, E. coli, nitrogen, nitrate, phosphorus, and turbidity.

How will freshwater farm plans support healthy waterways?

- farm plans aim to remedy some of the risks to freshwater and will guide a landowner towards positive sustained action
- when developing a farm plan consider the factors set out in the table (right) to ensure the farm plan actions are fit for purpose and achievable within the timeframes stipulated

Need support on farm for better water outcomes?

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Attribute and effect on life	Influencing factors	Potential Mitigation
Water temperature (high levels effect survival of aquatic species)	-shading -water depth -rainfall -season	-riparian planting to provide shade
Dissolved Oxygen (low levels effect survival of aquatic species)	-time of day -algal cover -organic matter (animal faeces)	-reduce input of organic matter (limit stock access to waterways) -reduce nutrient input
pH (should be within range of natural pH for that waterway)	-photosynthetic activity of aquatic plants -presence of limestone -organic matter (animal faeces)	-reduce input of organic matter (limit stock access to waterways) -reduce nutrient input
E. coli concentration (indicates high faecal contamination, can have negative health impacts)	-faecal contamination (influenced by stocking intensity, grazing duration, type of livestock, land slope and soil type)	-limit stock access to waterways -plant dense riparian vegetation buffer -identify critical source areas (run off zones that deliver sediment and contaminants to waterways)
Dissolved nitrogen, nitrate and ammoniacal nitrogen (high levels can cause algal growth and can be toxic to aquatic life)	-leaching (from animal waste and fertilizer not taken up by plants). -cattle urine -fertilizer and wastewater application	- limit stock access to waterways (including swales and wetlands) -decrease fertiliser application of high N fertiliser. -decrease spraying of bank and in stream vegetation.
Dissolved reactive phosphorus (high levels cause algal growth and can be toxic to aquatic life)	-geology -sediment including from stream bank erosion.	-waterways (including swales and wetlands) -riparian planting to filter sediment and decrease bank erosion. -decrease fertiliser application of high P fertiliser.
Turbidity (high levels of sediment can smother streams and aquatic life)	-flood flows -surface runoff of fine sediment from surrounding slips or bare land -removal of vegetation along the edges of waterways -geology	-riparian planting -maintaining vegetation on the edges of waterways