

FILAMENTOUS ALGAE NUTRIENT SCRUBBERS FOR TREATMENT AND NUTRIENT RECOVERY FROM AGRICULTURAL DRAINAGE

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Filamentous Algae Nutrient Scrubbers (FANS) are a novel agricultural drainage treatment system that grow filamentous algae to recover nutrients for beneficial reuse.

Filamentous algal systems have been used to treat agricultural drainage in the USA, where they have also been used to treat various agricultural effluents and wastewaters.

FANS are gently sloping flowways that are covered with attached filamentous algae. The water flows down the flowway and over/between the filamentous algae. The water is treated through a combination of algal photosynthesis and growth (nutrient assimilation, oxygenation) and physical filtration (settling, adsorption and precipitation).

This talk will discuss the potential to use FANS systems for agricultural drainage water treatment in New Zealand and ongoing MBIE funded research in this area.

NIWA is currently conducting research on FANS as part of a 5-year MBIE funded programme on agricultural drainage water treatment in which we will develop FANS for NZ conditions using high nutrient affinity NZ species for nutrient recovery.

The programme will also investigate beneficial algae use options that are culturally acceptable to Māori (e.g., fertilizer, animal fodder).

The project is being conducted in consultation with iwi partners who will host field-scale demonstrations in the last two years of the project.

During these field-trials the habitat benefits, particularly for wading birdlife will be also assessed.

Editor's note: An extended manuscript has not been submitted for this presentation.
