Habitat wetland wastewater treatment

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This project aims to showcase a more culturally appropriate treatment of wastewater through the use of habitat wetlands.

This collaborative project between Ngāti Koroki Kahukura, Ngati Haua, Raukawa, Waikato Tainui, Waipa District Council and NIWA seeks to raise iwi and community awareness of a culturally appropriate and scientifically beneficial final wastewater treatment stage (Habitat Wetland) before discharge of effluent to receiving waters.

Whānau have a strong cultural belief that human wastes should be cleansed through contact with land before returning to water bodies. Typical methods of land contact include disposal by slow rate irrigation or through a Rapid Infiltration Basin or, discharge via a wetland. However, there are three major issues with the implementation of land disposal of wastewater: Year-round irrigation or infiltration is not always possible due to soil water saturation varying with rainfall; where land disposal is technically feasible there may not be sufficient land available, and; where land is available, high land costs may make land disposal uneconomic.

Several WWTPs that still have a direct discharge to the Waikato and Waipa Rivers have added rock lined trenches which are intended to bring the effluent into “cleansing contact with the land” prior to discharge. However, there is no clear design specification for such rock lined trenches, and both the acceptability to whānau in terms of providing cultural cleansing through contact with the land, and scientific value in terms of beneficial treatment are questionable.

The ultimate aim of the Habitat Wetland project is to change iwi, community group, District and Regional Council, and engineer understanding of culturally appropriate wastewater treatment before discharge, which if successful, could change behaviours and result in Habitat Wetlands being applied to many wastewater discharges in the Waikato River catchment. Future widespread application of Habitat Wetlands would cumulatively make a large contribution to improving the health of the Waikato River and the communities it supports by reducing pollutant loads into the River and providing more wetland habitat in the catchment. The Habitat Wetland will have the co-benefit of providing wetland habitat for beneficial native plants, fish and invertebrates with ecological and potential economic value.

This Habitat Wetland project will leverage off the existing large-scale demonstration of NIWA’s state of the art Enhanced Pond System (EPS) at Cambridge wastewater treatment plant. The EPS trial will demonstrate to District and Regional Councils and engineers the benefits of low-cost and low energy natural wastewater treatment. Establishing a demonstration Habitat Wetland as a final stage of the EPS system will further improve the health of the Waikato River by providing culturally appropriate treatment, further reducing pollutant loads and providing additional wetland habitat for culturally important species.
Participatory approaches used during the WRISS to incorporate the Maatauranga Maaori of Waikato River iwi about the site specific pressures impacting their values and uses in the catchment, will be applied all stages of the Habitat Wetland education and demonstration project.
This is a Waikato River Authority funded project (WRA 14-017).

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