

## PALMERSTON NORTH CITY COUNCIL BEST PRACTICABLE OPTIONS REVIEW

### UNDERSTANDING THE EFFECTS ON THE MANAWATŪ RIVER

#### CURRENT DISCHARGE TO THE MANAWATŪ RIVER

The current discharge permit authorises the discharge of up to 42,000 cubic metres per day (dry weather flow) of treated wastewater from the Palmerston North Wastewater Treatment Plant to the Manawatū River.

In 2013 the Manawatū-Wanganui Regional Council (Horizons) raised concerns about the level of periphyton growth downstream of the treated wastewater discharge into the Manawatū River.

To address these concerns, the Palmerston North City Council undertook to bring forward the BPO Review and the lodgement of new resource consents for the option selected as a result of the BPO Review.

#### WHAT IS PERIPHYTON?

Periphyton is the name given to the slime and algae found on the beds of streams and rivers. The Ministry for the Environment has identified periphyton as a key indicator of ecosystem health for inclusion in the National Objectives Framework (NOF) for freshwater.

Periphyton is a relevant indicator because healthy river ecosystems are characterised by the presence of relatively low levels of periphyton. However, when thick growths occur they usually reduce the diversity and productivity of invertebrates and fish, and erode recreational values such as swimming and fishing.

#### WHAT ENVIRONMENTAL MONITORING HAS BEEN UNDERTAKEN?

During the earlier review of the existing resource consent conditions, Council undertook a variety of environmental and technical investigations to understand the effect of the existing discharge on periphyton growth and the life-supporting capacity of the Manawatū River. Those investigations included:

- Measuring periphyton growth
- Cyanobacteria considerations
- Considering the effects on Macroinvertebrates
- Quantitative Macroinvertebrate Community Index (QMCI) as a measure of adverse effects on aquatic life
- Ecosystem metabolism measurements
- Considering estuary and coastal effects
- Understanding relative loads to the Manawatū River
- Considering significant adverse effects and life supporting capacity assessment
- Wastewater nutrient treatment effectiveness.



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## TREATED WASTEWATER MONITORING

What type of monitoring of the treated wastewater discharge does Council currently undertake?

Council spends \$120,000 to \$140,000 each year, sampling the Tōtara Road Wastewater Treatment Plant's treated wastewater discharge. Depending on weather, Council usually undertakes more intensive monitoring during the Manawatū River's summertime low flow conditions.

More than 1,250 samples are taken every year from about 20 sampling points and more than 6,400 tests/observations/measurements are run on these samples to ensure that the treated wastewater meets all the regulatory requirements.

Additionally, laboratory tests are regularly conducted to test compliance with resource consent conditions.

## ONGOING MONITORING AND FURTHER INVESTIGATIONS FOR THE NATURE CALLS BPO REVIEW

The following ongoing and new studies are either under way or soon to take place. These will happen as part of the overall project, and then for options that include a treated wastewater discharge to the Manawatū River:

- Ongoing monitoring in accordance with the Manawatū River Monitoring Plan (which was initiated in 2016 to meet a condition in the discharge permit.)
- Fish community surveys and associated investigations.
- Nutrients (nitrogen and phosphorous) dosing trials investigating periphyton growth responses.
- Effects investigations on the river from any land application options.
- Other studies that may be deemed appropriate as options for the project are worked through.