

EKETAHUNA WASTEWATER TREATMENT PLANT WETLAND: SUMMARY OF EVIDENCE OF OLIVIER AUSSEIL (FRESHWATER QUALITY) FOR TARARUA DISTRICT COUNCIL

1. The proposed wetland location has been confirmed; appropriate water quality and biological monitoring sites will be able to be determined.
2. Data gathered at these monitoring sites will enable a robust assessment of the effects of the EWWTP discharge in isolation from other influences (as opposed to the effects of the EWWTP discharge plus inputs from the Ngatahaka Creek as is currently the case).
3. The EWWTP is currently a very minor contributor to in-stream nitrate-nitrogen concentrations and loads. The level of nitrate-nitrogen removal performance in the wetland makes a very small, and not measurable, difference to in-stream nitrate-nitrogen concentrations.
4. Whilst there is an increase in periphyton growth downstream of the Ngatahaka confluence/EWWTP discharge, it does not generally exceed the One Plan targets.
5. There is no clear evidence that ammoniacal-nitrogen from the EWWTP discharge plays a significant role in the moderate increase in periphyton currently measured downstream of the Ngatahaka confluence/EWWTP discharge. Other factors such as nitrogen inputs from the Ngatahaka Creek and phosphorus inputs from the EWWTP discharge are much more likely to dominate and drive the periphyton response.
6. Uncertainties relating to the EWWTP discharge's effects on water quality and freshwater ecology remain and must be acknowledged; however, there is little that can be done to address these uncertainties in the current situation where the effects of the discharge cannot be separated from those of the Ngatahaka Creek. The only way to address these uncertainties is via robust monitoring following relocation of the discharge point to the proposed new location.
7. In response to the evidence of Mr Phillip Percy:
 - (a) The table in paragraph 17 of Mr Percy's evidence incorrectly identifies the "Sites of Significance - Aquatic" value as being a Zone-wide value.

Schedule B of the One Plan clearly identifies the “Sites of Significance - Aquatic” value as a “site specific” value.

- (b) In the Makakahi Water Management sub-Zone (Mana_8d), the “Sites of Significance - Aquatic” value only applies to parts of the Mt Bruce Stream and the headwaters of the Makakahi River. These are located well upstream (>10 km) of Eketahuna. Map 1 of Mr Logan Brown’s March 2017 S42A report shows the location of these reaches.
8. In response to the supplementary report of Mr Brown (dated 26 November 2018), the table on the third page of Mr Brown’s supplementary report shows a degrading trend (i.e. a concentration increase over time) in the concentration of SIN and ammoniacal nitrogen at the Eketahuna WWTP and an improving trend (i.e. a reduction in concentration over time) in the ammoniacal-N concentrations in the Makakahi River downstream of the discharge. These trends have been detected over the 2007-2017 period. I have not repeated the analysis, so cannot comment on its accuracy, however the following comments are relevant:
- (a) With regards to characterising the risk of effects from a point source discharge, the most relevant factor is the load of contaminants discharged to the river (which drives the resulting concentration in the river). Whilst relevant, the concentration of a given contaminant in a discharge only provides part of the picture. A small discharge with high contaminant concentrations may have less of an effect than a larger discharge with lower contaminant concentrations. Put another way, a concentration increase in the discharge does not necessarily translate into a higher risk of effects in the river if the discharge volume reduces during the same time. In the Eketahuna WWTP situation, I understand that significant replacement of the pipe network has occurred since 2013. This may have resulted in higher concentrations in the discharge without affecting the discharge loads. Unfortunately, the length of discharge volume data record is insufficient to enable temporal trend analysis, so this hypothesis cannot be tested.
 - (b) It is relevant to note that that an improving trend (i.e. a reduction in concentration over time) in the ammoniacal-N concentrations in the Makakahi River downstream of the discharge was detected over the

same period of time. This indicates that the increase in concentration in the final discharge from the EWWTP has not resulted in an increase in the in-stream concentration of ammonia. In fact, in-stream ammoniacal-nitrogen concentrations, and associated risk of effects on the river's ecology, appear to have decreased over the last 10 years.