Healthy Rivers PLAN FOR CHANGE | Wai ora HE RAUTAKI WHAKAPAIPAI

Memo

Date:	23 June 2015
To:	Chairman, Healthy Rivers Collaborative Stakeholder Group
From:	Interim-chair Healthy Rivers Technical Leaders Group
Subject:	**TLG recommendation on the use of Macroinvertbrate Community Index (MCI) as an Attribute for Waikato-Waipa catchment under WRC Plan Change 1**

In a recent report to the Ministry for the Environment, Clapcott & Goodwin (2014) assessed the relationships between MCI values and catchment land use, nutrients and habitat. This report has been provided to the CSG. Results showed that "multiple drivers were associated with variation in MCI and that the drivers were not independent of each other". Furthermore, the "intercorrelation between catchment and segment scale, natural and impact variables make the relationship between MCI and specific variables hard to quantify." Overall, the authors concluded "site MCI scores are related to land use through a complex chain of causality, which makes isolating the role of specific variables difficult". In plain English the authors are saying that changes in contaminant loads may not achieve the desired changes in MCI, because of other inter-related factors (e.g. local habitat conditions). What this means for limit-setting processes in the Waikato-Waipa catchment is that if we cannot link the four contaminants (N, P, sediment & *E. coli*) to MCI in robust cause-effect relationships, then its value as an Attribute is questionable.

The TLG has invested heavily in determining cause-effect relationships between nutrients and phytoplankton biomass along the Waikato River and in the hydro-lakes. As a result, we have a body of scientific evidence that can be used to support the CSG in setting limits around N & P levels in the catchment, including assessing the impacts of any limits on environmental social, cultural and economic factors. Similarly, we are developing the body of evidence linking the clarity attribute back to the four contaminants.

The TLG's recommendation is that MCI (and other metrics based on river invertebrate community characteristics, such as EPT richness and density) is a valuable overall indicator of Ecosystem Health, but it is not appropriate as an Attribute at this time, because of the lack of robust cause-effect relationships that preclude modelling of the wider implications of limits on contaminants to achieve

different MCI levels. These reasons were outlined in the TLG Attributes paper to CSG #12. We have received no alternative scientific views that would cause us to change this recommendation.

Yours sincerely

Dr Mike Scarsbrook

Interim Chair Healthy Rivers TLG