

# Macroinvertebrate Community Index

## What is it

The Macroinvertebrate Community Index (MCI) is a widely used way to measure the health of wadeable streams. Many agencies, including Waikato Regional Council, regularly use MCI to monitor ecosystem health in streams throughout the region.

Macroinvertebrates, such as insects, koura, mussels, snails and worms, don't have backbones and are big enough to see with the naked eye.

## How it works

An MCI measures the occurrence of different types of macroinvertebrates.

They are caught using a net and each species is identified and receives a score based on its known sensitivity to pollution (for example, mayflies are sensitive to pollution and get higher scores, whereas worms are not sensitive and get low scores). All scores are added up and the total is multiplied by 20 to give the site's MCI score (between 0-200). The higher the MCI score, the healthier the ecosystem. Scores of 120 or more are considered as representative of excellent health. Scores less than 80 are considered 'poor health'.

## What affects the MCI score

The type and range of macroinvertebrates in water are influenced by many factors including contaminant levels, depth, shade, temperature, flow speed, instream plants and algae and the streambed type. Many of these factors, such as shade and temperature, are interrelated and changes in one may have complex effects on other factors. It is very difficult to predict MCI levels at individual sites without knowledge of all these factors.

## Using MCI in Healthy Rivers/Wai Ora

The *National Policy Statement for Freshwater Management 2014* directs regional councils to identify measurable characteristics of fresh water ('attributes') that support particular values.

Attributes can be numerical or descriptive. The Collaborative Stakeholders Group has developed a list of numerical attributes, and will set limits for them. Effective numerical attributes must be measurable, and directly influenced by one or more of the project's target contaminants (nitrogen, phosphorus, sediment and bacteria) in a well understood way.

Due to the complicated interactions between multiple factors mentioned above, changes in MCI cannot be linked to changes in concentrations of the four contaminants in a way that allows confidence in its use in limit setting at this time. For this reason, MCI is not a numerical attribute in Healthy Rivers/Wai Ora.

MCI may still be used in Healthy Rivers/Wai Ora in other ways; it will be used as an 'indicator' for State of Environment reporting or may be included as a narrative attribute (used to assess the waterway based on a description).

## More information



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