

Abstract, New Zealand Freshwater Sciences Society 2017 Annual Conference.

Contaminant load limits and the concept of the “critical point”.

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Collaborative planning processes under the NPSFM are required to limit resource use to achieve agreed values, which may require setting contaminant load limits to achieve objectives. Contaminant load limits will typically derive from some understanding of stressor and response. In that regard, the “maximum allowable load” (or MAL), is the contaminant load that corresponds to any given objective.

Where there is only one objective – for instance, no other objective either downstream or upstream – then we can happily set the contaminant load limit to the MAL. However, the situation is never likely to be that simple. For instance, in the Te-Awarua-o-Porirua collaborative planning process, there are objectives for streams throughout the catchment and in the harbour, and there are multiple objectives at various locations.

The critical point is a receiving environment with an objective that can be achieved only by overachieving one or more upstream objectives, which is accomplished by setting upstream load limits to less than the respective MALs. Conversely, we can think of a critical point as a receiving environment that constrains the choice of upstream load limits.

It is interesting to note how landowners might feel about having a critical point downstream of them, since they will be required to maintain their own waterway to an overly high standard so that values are provided for at some distant downstream receiving environment, where they might not have any personal connection.

A useful exercise during any limit-setting process, which can only be done after objectives have been set and corresponding MALs have been determined, is to identify any critical points in the system. This can be accomplished by analysing the contaminant budget for the catchment. Upstream of each critical point, objectives must be considered collectively to set load limits, but elsewhere in the catchment, objectives can be considered in isolation of each other when setting limits. We need to consider every objective in the catchment collectively when there is a critical point in the estuary, since the entire catchment is upstream of the estuary.

In conclusion, the existence of a critical point or points profoundly changes the way we need to think about setting load limits. A rather simple management tool based on a contaminant budget could be used to help design load limits that will account for critical points and ensure all objectives are achieved.