# CASM fills a gap in catchment water quality modelling

## Response to an identified need

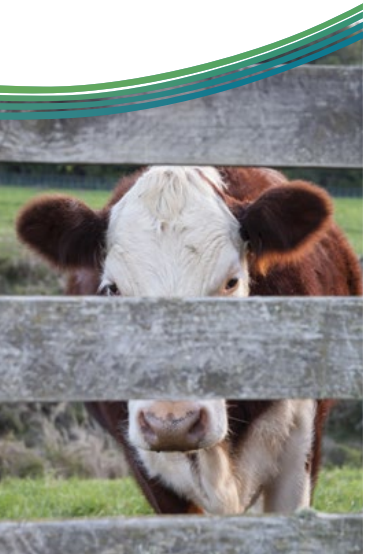
The NPS for Freshwater Management 2014 (NPS-FM) sets out the policy framework for the management of NZ's freshwater into the future. The NPSFM equires that Regional Councils manage contaminants entering freshwater by : (i) establishing a freshwater quality accounting system when setting or reviewing objectives and limits, and (ii) setting enforceable load limits for contaminants entering water bodies. Limits need to be set using the best available scientific and socio-economic information.

To meet the above requirements, Regional Councils and other stakeholders need effective modelling tools. Existing tools are generally either highly simplistic, customized spreadsheet applications, lacking in predictive power or transferability; or overly complex mechanistic catchment water quality models, lacking in spatial resolution, and usability.

## CASM – a modelling solution

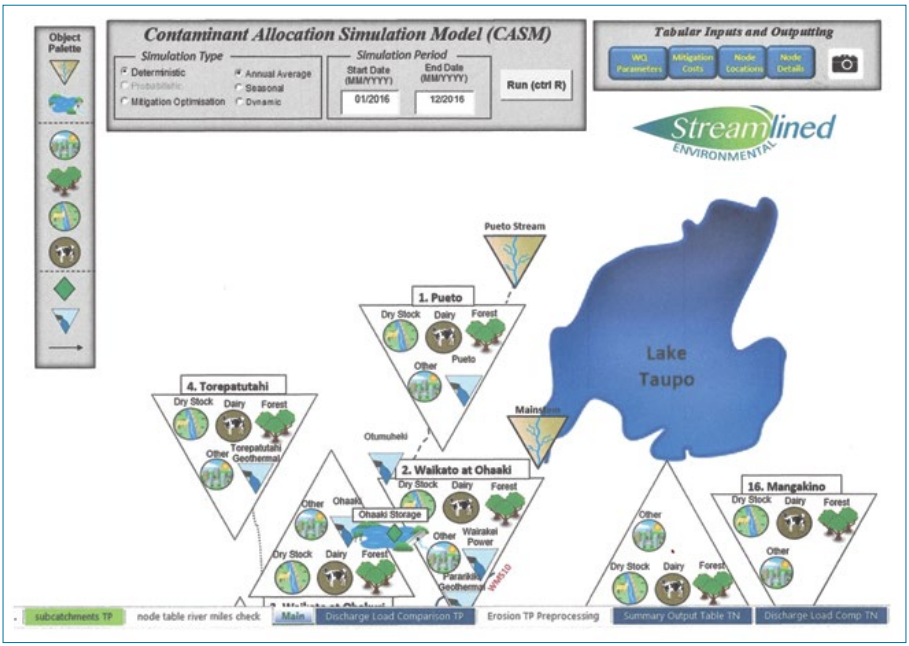
Streamlined Environmental's Contaminant Allocation Simulation Model (CASM) is designed to overcome the above limitations. CASM is a catchment modelling tool for simulating both diffuse and point-source pollution at a catchment scale. CASM:

- can simulate a wide range of contaminants;
- can be implemented at multiple scales from large catchments to individual properties;
- is spatially and temporally variable at differing levels of resolution (e.g. lumped vs. node-based; annual average vs. seasonal), as required;
- allows for easy mitigation investigations (see below);
- is highly portable and requires only standard MS Office installation, with an easy-to-navigate graphical interface is easy to navigate (and the Excel platform is familiar to most end users);
- is great for stakeholder engagement – the graphical interface allows stakeholders to "see" where they are within a catchment and how reducing contaminant loads from their property will contribute to meeting catchment objectives;
- fulfils the contaminant accounting requirements of the NPS-FM, but also;
- allows contaminant allocations and trade-offs between users to be explored.



## Clients get an operating model

We don't just provide a report: we also provide the implemented model as fully functioning software and a user's manual. Training can also be provided. This enables clients to run their own scenarios without needing to pay additional consulting fees.




## Mitigation and optimisation

An objective of any limit-setting process usually involves reducing contaminant loads to meet water quality objectives at some point(s) in the catchment. CASM can estimate optimal methods and placements of mitigations and extent to which objectives will be achieved.

CASM translates estimates of on-farm, edge-of-field, or instream load reductions associated with specific mitigation options into cumulative impacts at key downstream locations. This includes both total load and average contaminant concentrations at locations of interest in the catchment. Model simulations can be performed for various mitigation strategies to investigate the effectiveness of mitigation on water quality at any point in the catchment. In addition, CASM's optimisation module can identify the best way (types and placements of mitigations) to achieve receiving-environment objectives while minimising mitigation costs.

## Contact us

*For more information, or set up a CASM demonstration see contact details below.*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