SWAM – Simplified Water Allocation Model

Where has all the water gone?

As demand increases, it becomes vital that we allocate fresh water wisely. The National Policy Statement for Freshwater Management 2014 (NPS-FM) sets out the policy framework to make this happen. It requires regional councils to:

- set environmental flows and levels within freshwater management units;
- provide for efficient allocation of water;
- identify methods to encourage efficient use of water;
- ensure against future over-allocation and phase out any existing over-allocation;
- enable communities to provide for their economic well-being, while managing within limits; and,
- establish and operate a freshwater quantity accounting system when setting or reviewing freshwater objectives and limits.

Meeting the above requirements can be daunting given the large number of water takes, environmental flow restrictions, prior use rights, and seasonally varying demand. This is especially true because, for most regional councils, water takes are managed using simple 'static' calculators based on the sum of allocated water as shown on resource consents. Clearly, to meet all the NPS-FM requirements, regional councils need simple, robust, and transparent tools for managing and allocating water.

SWAM – a tool for robust water allocation planning

SWAM, developed by Dr Tim Cox (Streamlined Environmental) for the US consulting firm CDM-Smith, is a networked generalized water allocation modeling tool that can be easily and simply applied in planning studies by a wide range of end-users.

SWAM calculates physically and legally available water, diversions, storage, consumption, and return flows at user-defined nodes in a networked river system.

SWAM can depict and analyse a wide range of freshwater systems, from the very simple to the more complex.

Easy to use for modelling and stakeholder engagement

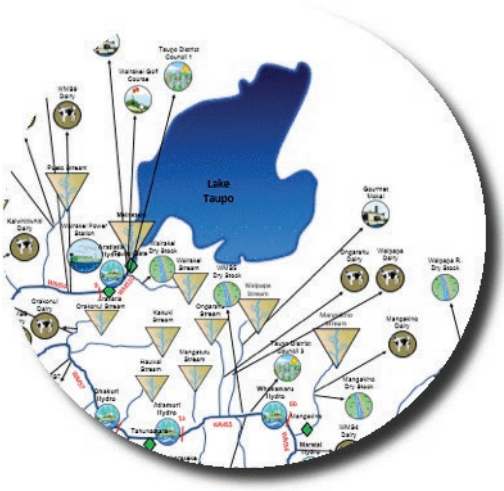
SWAM is a Visual Basic program hosted in an Excel computing environment. The user interface consists of a single worksheet with drop-and-drag graphical features for defining and parameterizing a water supply network.

SWAM:

- is object oriented – objects such as tributaries, reservoirs, water supply users, agricultural users and aquifers are easily constructed and identified on the network;
- is well-suited for stakeholder engagement – the graphical interface allows stakeholders to "see" where they are within a catchment and how changing the water take regime on their property will affect other users;
- fulfils the water quantity accounting requirements of the NPS-FM, but also;
- allows water allocations and trade-offs between users to be explored; and
- provides for long-term planning of basin water supply alternatives and ecological flow targets, as well as short-term water permit allocation decision support.

Clients get a fully operational 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.



A proven effective planning model

SWAM has been used for multiple applications in the USA including for the whole state of South Carolina! It has also been used for pioneering water allocation planning in Tanzania. In New Zealand, we have used SWAM in both the Upper and Lower Waikato catchments.

Contact us

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

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