

## Assess and manage catchment water quality and quantity.



Source Catchments enables local knowledge, data and models to be combined with industry best practice to generation effective, transparent catchment management scenarios and options.

Source Catchments is a water quality and quantity modelling framework that supports decision making and a whole-of-catchment modelling approach. It is designed to help natural resource managers and consultants develop targets, prioritise improvement programs and measure the effectiveness of a broad range of catchment management activities.

The software provides a framework for modelling the amounts of water and contaminants flowing through a catchment and into major rivers, wetlands, lakes, or estuaries. Source Catchments integrates an array of models, data, and knowledge that can be used to simulate how climate and catchment variables (like rainfall, evaporation, land use, vegetation) affect runoff, sediment and contaminants.

### Using Source Catchments

Source Catchments allows users to answer a range of management questions, such as where to place on-ground works to maximise water quality. It can predict the flow and constituent loads at any location in any catchment over time. Scenarios can include actual or planned changes in land use, land management, climate variability and climate change. For example, Source Catchments can be used to understand issues such as:

- Quantity and quality of rainfall-driven runoff and groundwater reaching streams in the catchment under present conditions
- Alterations made to quantity and quality of runoff by climate variability, different land uses, or riverbank restoration – now, or in the future
- Optimal locations for on-ground work to maximise water quality improvement
- Impacts of bushfire, flood, drought, construction activity or water extractions on the quality of receiving waters
- The effect of land use change on water quality and quantity into receiving waters.

### KEY FEATURES:

- Build tailored models for considering a range of catchment scenarios.
- Explore the volumes and quality of rainfall-driven runoff and groundwater.
- Predict the impact of climate change, land use or management changes on the volume and quality of runoff entering streams.
- Optimise investment and direct management action to improve water quality.

Download a fully functional  
12-month free trial of  
Source Catchments from  
[www.ewater.com.au](http://www.ewater.com.au)

## How Source Catchments works

Source Catchments is highly flexible and is able to create an overall integrated model that is tailored to the problem at hand. Constructing a model for a particular catchment management situation involves selecting appropriate component models and linking them in the software.

The model is based on the following building blocks:

- **Sub-catchments:** The sub-catchment is the basic spatial unit in Source Catchments, which is then divided into hydrological response units (or functional units) based on a common response or behaviour such as land use. Within each functional unit, three models can be assigned: a rainfall-runoff model, a constituent generation model and a filter model.
- **Nodes:** Nodes represent sub-catchment outlet, stream confluences or other places of interest such as stream gauges or dam walls. Nodes are connected by links, forming a representation of the stream network.
- **Links:** Links represent the river reaches. Within each link, a selection of models can be applied to:
  - route or delay the movement of water along the link
  - modify the contaminant loads due to processes occurring within the links, such as decay of a particular constituent over time.

Source Catchments features a wide range of data pre-processing and analysis functions that allows you to create and compare multiple scenarios, assess the consequences, and report on the findings.

The contribution of a particular constituent on areas of the catchment can be viewed, and various visualisation methods used to show uncertainty including bar charts, line graphs, tables and maps such as rasters or polygons.



## Introducing eWater Source

eWater Source will be the first truly integrated water resources modelling package available in the world. The platform will be capable of seamlessly managing water resources across rural and urban catchments, for both human and environmental uses of water, taking into account an unlimited range of future water, land use and climate scenarios.

Source Catchments is the first configuration of eWater Source to be released. Previously known as WaterCAST, Source Catchments builds on the earlier E2 catchment modelling software to provide additional functionality for assessing the effects of :

- Groundcover on erosion and water quality
- Farm dams and groundwater flows on streamflow
- Groundwater – surface water interactions.

Source Catchments is part of eWater's integrated modelling suite, eWater Source.



## Road testing Source Catchments

eWater and our partner organisations have been road testing and refining Source Catchments in trials throughout Australia. The framework is being tested in the following focus catchments:

- Great Barrier Reef
- South-east Queensland
- Sub-catchments of the Hawkesbury-Nepean region
- Australian Capital Territory and region
- Melbourne's Yarra River
- Goulburn-Ovens rivers in northern Victoria
- Mount Lofty Ranges in South Australia.

## Want to know more?

If you would like to receive more information about Source Catchments, please send an email with Source Catchments in the subject line and your contact details to [contact@ewater.com.au](mailto:contact@ewater.com.au)

## Contact us

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