



Decision Support Systems Directory – an Envirolink Tools Project

A web-based searchable directory of Decision Support Systems (models, tools, frameworks) that:

- provides key metadata for each DSS;
- provides relevant case studies of DSS use; and
- thereby assists Councils to assess opportunities to use DSS's to help meet their management needs.

Why it was created

- Demand for 'library' of models and DSS's was identified at earlier EERNZ (SP2) and Envirolink workshops in 2009 and 2010
- Support from Regional Councils for development and use of a 'tools' directory

Project Team:

Massey University/EERNZ (Research Provider)
Tasman District Council & Waikato RC (Sponsors)
Alchemists Ltd (Project Co-ordination)
markhuser.com (Web design)

Home Page - <http://tools.envirolink.govt.nz>

The screenshot shows the home page of the Envirolink Decision Support Systems Directory. The page features a navigation bar with 'Home', 'About', 'Case studies', and 'DSSs' links, along with a search bar and a 'GO' button. The main heading is 'Decision Support Systems Directory'. Below this, there is a section titled 'Need support for your decision making processes?' followed by a paragraph of introductory text and a 'Read more...' link. A 'Return to Envirolink' button is located in the top right corner. On the right side, there is an 'About' section with links for 'Decision Support Systems - Overview', 'Glossary', and 'Suggestion Box'. Below that is a 'Featured Case Studies' section with a 'See All' button and two featured case studies: 'WISE - Urban Growth' and 'BBN - Rural Land Use and Streams - Bog Burn, Southland', each with a 'Read more' button. The central part of the page is titled 'Find DSSs that may be of interest by:' and is divided into three columns: 'Type of DSS', 'Management Domain', and 'Stage in Planning Cycle'. The 'Type of DSS' column includes 'Frameworks/Analytical techniques', 'COMPUTER MODELS', 'Spatial Models', and 'Non-Spatial Models'. The 'Management Domain' column lists 'Air Quality', 'Land', 'Coastal', 'Urban Systems', 'Natural Hazards', 'Biosecurity', 'Biodiversity', 'Com', 'Was', and 'Fresh'. The 'Stage in Planning Cycle' column shows a circular diagram with 'Review', 'Plan', 'Do', and 'Check' stages. Three black boxes with arrows point to these columns, labeled 'by DSS type', 'by management domain', and 'by use in planning cycle' respectively.

3 easy ways to search

Advanced Search Options

The screenshot shows the 'Advanced Model Search' interface on the EnviroLink website. The search criteria are as follows:

- Search for:** Water Quality (in Title, Abbreviation, Description, Purpose and Keywords fields)
- and if:** Type contains any of:
 - Spatial Computer Model
 - Non-spatial Computer Model
 - Not a Computer Model
- and if:** Use in Policy Processes contains any of:
 - Type
 - State of Development
 - State of Development (for Non Computer Models)
 - Steady State or Dynamic
 - Use in Policy Processes
 - Management Domains
 - Sub Domains
 - Spatial Resolution
 - Spatial Extent
 - Spatial Dimension
 - Temporal Resolution
 - Temporal Extent
 - Level of Integration
 - Key Input Data
 - Input Data Format
 - Key Output Data

Three callout boxes provide additional context:

- Searching by topic of interest:** Points to the search term 'Water Quality'.
- Can then be restricted by a metadata field:** Points to the 'Type' dropdown menu.
- Multiple metadata fields can be selected to refine the search:** Points to the expanded dropdown menu for 'Use in Policy Processes'.

DSSs and Case Study Tabs

- DSS's listed alphabetically
- Links to full metadata page for each DSS
- Same approach used for case studies

The screenshot shows the EnviroLink website's 'DSSs' directory page. The navigation bar includes 'Home', 'About', 'Case studies', and 'DSSs'. A search bar with a 'GO' button and 'Advanced Search' link is also present. The main content area is titled 'DSSs' and contains a list of six models, each with a brief description and a 'Read More...' link. The models are: Agent Based Modelling (ABM), AquiferSim, Auckland Regional Dynamic Ecological-Economic Model (ARDEEM), Bayesian Belief Network (BBN), CALPUFF (CALPUFF), and Catchment Contaminant Annual Loads Model (C-CALM). A sidebar on the left provides instructions on how to use the directory and how to suggest new models.

enviroLink Home About Case studies **DSSs** **GO** Advanced Search

DSSs

Here you will find the complete list of models in the directory

Click on the headings to view more details of each Model.

Use the Search box function to narrow down the Models listed.

Do you know of other DSS's that could be added to this directory?

If so please go to the [Suggestion Box](#) and submit your ideas to the administrator.

Agent Based Modelling (ABM)
An agent-based model (ABM) (also sometimes related to the term multi-agent system or multi-agent simulation) is a class of computational models for simulating the actions and interactions of autonomous agents (both individual or

[Read More...](#)

AquiferSim
AquiferSim is a regional-scale model of nitrate transport in groundwater and is part of the research programme 'Integrated Research for Aquifer Protection (IRAP)'.

[Read More...](#)

Auckland Regional Dynamic Ecological-Economic Model (ARDEEM)
ARDEEM is a system dynamics model designed to simulate the combined environmental and economic implications of change in the Auckland Region between 1998 and 2051.

[Read More...](#)

Bayesian Belief Network (BBN)
A BBN is a probabilistic graphical model (a type of statistical model) that represents a set of random variables and their conditional dependencies via a directed acyclic graph.

[Read More...](#)

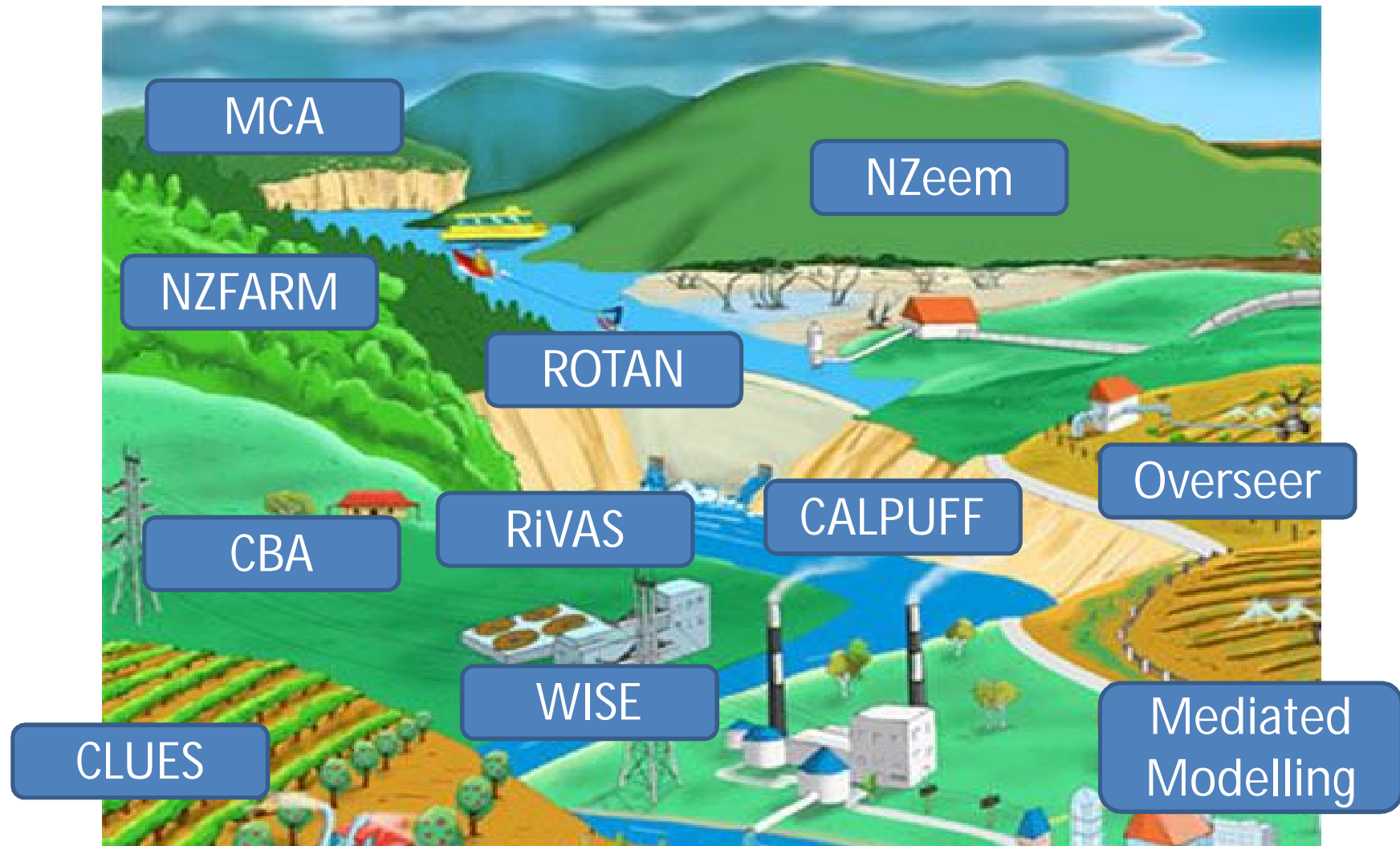
CALPUFF (CALPUFF)
CALPUFF is an advanced non-steady-state meteorological and air quality modeling system.

[Read More...](#)

Catchment Contaminant Annual Loads Model (C-CALM)
The Catchment Contaminant Annual Loads Model (C-CALM) is a GIS-based contaminant load model which operates at the sub-catchment scale.

[Read More...](#)

Some of the DSS's in the Directory

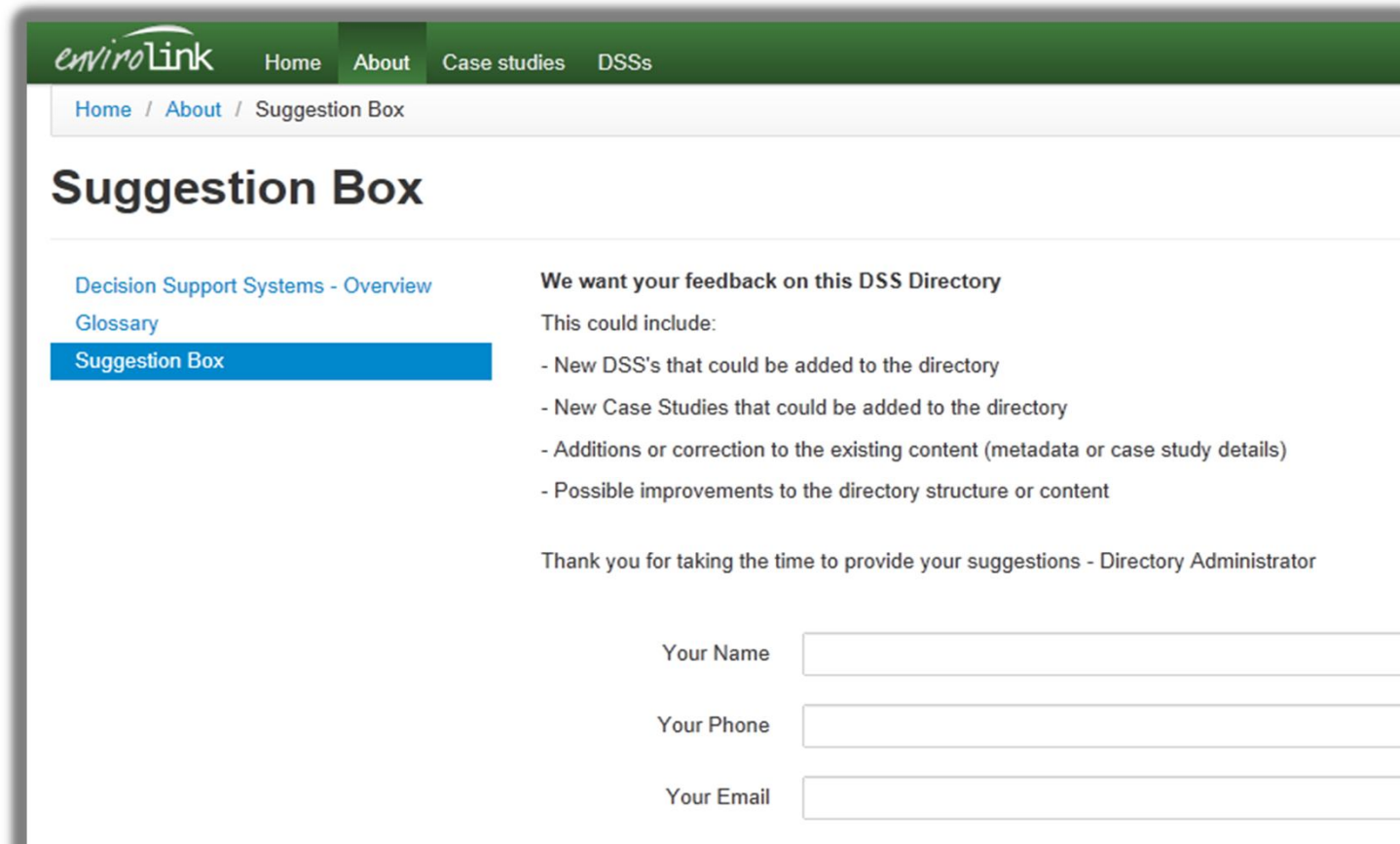


Future Development

- Strategies being put in place to maintain currency of content
- Promotion to encourage uptake
- Aim to broaden the range of DSS's
- Needs on-going support to develop content and get uptake

<http://tools.envirolink.govt.nz>

- have a look and were open to suggestion for more DSS's and improvements



The screenshot shows the 'Suggestion Box' page on the Envirolink Tools website. The page has a green header with the 'envirolink' logo and navigation links for 'Home', 'About', 'Case studies', and 'DSSs'. Below the header is a breadcrumb trail: 'Home / About / Suggestion Box'. The main heading is 'Suggestion Box'. On the left, there is a sidebar with links: 'Decision Support Systems - Overview', 'Glossary', and 'Suggestion Box' (which is highlighted in blue). The main content area contains the following text:

We want your feedback on this DSS Directory

This could include:

- New DSS's that could be added to the directory
- New Case Studies that could be added to the directory
- Additions or correction to the existing content (metadata or case study details)
- Possible improvements to the directory structure or content

Thank you for taking the time to provide your suggestions - Directory Administrator

Below the text are three input fields for 'Your Name', 'Your Phone', and 'Your Email'.