

Mapping the water availability of the Murray-Darling Basin

Water for a Healthy Country Flagship

National Research
FLAGSHIPS
Water for a Healthy Country



The CSIRO Murray-Darling Basin Sustainable Yields (MDBSY) project resulted from the Summit on the Southern Murray-Darling Basin (MDB) and is the most comprehensive Basin-wide assessment of water availability undertaken to-date.

The project is providing governments with a robust estimate of current and future water availability for the entire MDB on a regional basis.

Led by CSIRO's Water for a Healthy Country Flagship, the project provides the science to underpin the sustainable planning and management of the Basin's water resources, which currently supplies at least 40 percent of the nation's agricultural production and covers a seventh of the area of the continent.

The project

The MDBSY project is the first water resource assessment at this scale in the world taking into account climate change and surface and groundwater interactions. The assessment of current and future water availability takes into account future climate and development, and informs stakeholders of the overall impact on the Basin's water.

The predicted water availability and water use is assessed, synthesised and accounted under current water sharing arrangements, with regional reports being progressively released by the Australian Government over 2007 and 2008.



> Lachlan River at Hillston, NSW (CSIRO)

The modelling

The MDBSY project is unique in that for the first time:

- Rainfall and runoff modelling has been undertaken at a high spatial resolution in a consistent manner

- The modelling has considered interactions between surface water and groundwater and the downstream implications of upstream changes
- Monthly water balances for the last 10 to 20 years have been analysed against current water use to provide an independent cross-check on the performance of river models.

To enable this feat, the assessments have employed almost 70 existing and newly developed surface and groundwater models, linked together to generate computer-based data of the Basin's water resources. By considering the hydrological implications of an integrated modelling system, water management agencies can assess the potential consequences of their management policies and decisions at a regional or Basin scale.



> Cotton pre-planting irrigation, Border Rivers, NSW (CSIRO)

The team

Technical staff from over a dozen organisations have contributed to the project, supported by an internal and external review process to deliver robust assessments of water availability across the Basin.

CSIRO has drawn on the scientific leadership and technical expertise of national and state government agencies in Queensland, New South Wales, Victoria, the Australian Capital Territory and South Australia, as well as the Murray Darling Basin Commission and leading Australian industry consultants.

The Flagship

The Water for a Healthy Country Flagship is a CSIRO-led research initiative set up to deliver the science required for sustainable management of water resources in Australia.

The Flagship's goal is to achieve a tenfold increase in the social, economic and environmental benefits from water by 2025.

More information about the project and copies of all reports can be downloaded from the CSIRO website <http://www.csiro.au/partnerships/MDBSY.html>



> Dead gum trees in the Murray River near Blanchetown, SA (CSIRO)

Fast facts

- The project has created 20,480 gigabytes (GB) of new data alone (which would take more than 25,000 CD-ROMs to store)
- Total storage size of the archive is 61,440 GB (approximately the size of the US Congress Library's online data)
- Almost 70 different surface and groundwater models run together on one system
- All predictions are generated by scientific computer models, using data from State Departments and the Murray-Darling Basin Commission
- Daily climate data from 1895 to 2006 for 5km x 5km grids across the basin is considered.
- More than 100 people are contributing to this project from CSIRO and more than 15 government and private sector organisations.



> Callandoon Creek, Qld (CSIRO)



> Barmah forest wetland, VIC (CSIRO)

For further information:

More information about CSIRO's water research at <http://www.csiro.au/org/HealthyCountry.html>

Web: www.csiro.au/healthycountry/

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