



# SPATIAL INFORMATION DAY 2010

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## Spatial Information Day 2010 Abstract

**Title:** The Use of GIS within Water Allocation Planning

**Session:** 6 – Securing Water Resources

**Presenter:** Ben Plush – Department for Water

### Abstract:

The rapid development of farm dams in many regions of South Australia over the past two decades has raised concerns regarding the sustainability of water resources and impacts to local ecosystems. In some areas, these concerns were sufficient to require the implementation of formal management controls, which are administered through a Water Allocation Plan (WAP).

In recent experiences, GIS has proven to be an integral tool in the WAP development process. Baseline spatial data collected to support WAP development has included farm dams, reach types, swamps and wetlands, as well as the creation of WAP specific data such as Surfacewater Management Zones and Groundwater Management Areas. This data has then been used in a variety of projects of varying complexity, including:

- Developing an ArcHydro model based on a 10m pixel resolution DEM for two of the Prescribed Water Resource Areas. This model has been used to develop a tool which can help assess licensed dams individually, enabling the identification of surface water areas that have been over allocated, relative to available runoff and ecosystem requirements.
- Determining the location of on-stream farm dams with potentially large storage and large contributing catchments. There is a higher probability that these dams are taking more than the landholder is licensed to capture.
- Locating high intensity groundwater extraction zones using a square kilometre grid over specified Groundwater Management Areas. The total extraction for each cell was then compared to a sustainable extraction limit for each area. This gives an indication of where the ground water resources are under stress.

GIS projects completed as part of the WAP development process can provide a better understanding of where water resources are being over utilised. The spatial component of the projects is critical, with many business decisions relying on the accuracy and currency of the data. As a result, it is anticipated that there will be an increasingly important role for GIS and spatial data in the WAP development and review process.

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