

# How will climate change affect the amount of water flowing into our reservoirs?

## Impact of climate change on surface water resources in the Onkaparinga Catchment

This project was undertaken using the SA Climate Ready data, which is helping to improve planning and decision making and make South Australia the most climate ready State in the nation.

Project partners:



Project Case Study: C.1.1.3/2015

***Less rainfall in the future will reduce the amount of water flowing into SA reservoirs. Understanding this means we are better able to plan for the best use of available water for public water supplies.***

### Why undertake the project?

The Onkaparinga Catchment is located in the Adelaide Hills. It is the source of runoff for South Australia's largest reservoir, Mt Bold, supplying water to residents and businesses in Adelaide.

Seasonal changes in the amount of runoff from the Onkaparinga Catchment affect the amount of water stored in Mt Bold reservoir and subsequently the availability of water for Adelaide.

### What was done?

The project developed hydrological models, which convert data on rainfall and potential evaporation demand into measures of flow for the Onkaparinga Catchment. Using SA Climate Ready data for intermediate and high emissions scenarios, projected changes in flow for three sub-catchments were produced (Scott Creek, Echunga Creek and Houlgrave Weir) across four future time periods (2016 to 2045, 2036 to 2065, 2056 to 2085 and 2071 to 2100).

### What did we learn?

Overall, 88% of model simulations indicated a decrease in flow for the 2016-2045 period, and 98% showed a decrease by 2071-2100.

The project found that the most likely change in average annual flows is a decline of 14% for the period 2016-2045 and 37% for 2071-2100. However, there is also a greater than 20% chance that by 2071-2100 average annual flows will decline to half of their current volume. The most likely change in the volume of low annual flows (important during drought conditions) is for a decline of 20% in low flow rates by as early as 2016-2045.

This research suggests that water resource planners need to account for the likelihood of a significantly lower flows in the future. Notably, the low annual flows associated with droughts appear to be more sensitive to changes in rainfall compared to the other aspects of flow.

Land managers will also need to consider the effects of changes to the availability of water to native plants and animals in the catchment.

For further information: [Goyder Institute for Water Research](#)

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The Goyder Institute for Water Research is a partnership between the South Australian Government through the Department of Environment, Water and Natural Resources, CSIRO, Flinders University, University of Adelaide and the University of South Australia.

