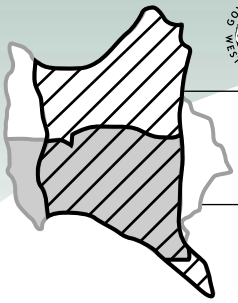


South West Yarragadee
Blackwood Groundwater Area

FactSheet 1

July 2003

Current investigations into groundwater in the South West

It is vital that we use and manage Western Australia's groundwater resources wisely for the contribution they make to our water supplies and the natural environment. We need to be able to protect these resources for the benefit of future generations. Understanding our groundwater resources is an essential first requirement in establishing wise use and sound management.

Groundwater in the South West of Western Australia

The South West has large stores of fresh groundwater, with the Leederville and South West Yarragadee aquifers being important resources. Water from these aquifers is already used to supply domestic, industrial and agricultural needs. With careful investigation, planning and management, more use can be made of these water resources by a wider range of communities and industries.

Past and current investigations

We are fortunate in that we already have a lot of existing knowledge about the water resources from past investigations – extending back over 100 years. This provides a sound basis for designing new studies that will fill gaps in our knowledge, and extend our understanding in critical areas. For example, current investigations will give a better understanding about how recharge to the South West Yarragadee aquifer occurs, and how the Blackwood River interacts with groundwater bodies.

There are two types of information from the investigations.

- Basic physical information – including the structure of the South West Yarragadee Formation, its size, shape and physical properties; the location of recharge and discharge areas.
- Process information – including the rate of recharge; the nature of groundwater flows; the rate of discharge to the Blackwood River, and the response to pumping from the aquifer.

Modelling the South West Yarragadee aquifer

The information from the current investigations will provide the basis to answer questions related to use and management of the South West Yarragadee aquifer. The information is being used to build a computerised groundwater flow model of the aquifers in the southern Perth Basin. Having an accurate model of the aquifer is central to our ability to manage the water resources effectively.

The model, based on an industry-standard software package called MODFLOW, will incorporate information from all the past and current investigations. It will show how the aquifer 'works', and how the aquifers respond to a range of different abstraction (i.e. pumping) scenarios.

Water use scenarios

The groundwater model will be used to test the aquifer system response to:

- different climatic regimes (similar, wetter and drier climates than we have now);
- different rates of recharge; and
- different rates of groundwater use in a range of locations across the Blackwood Groundwater Area.

The outputs from modelling these scenarios will help determine the amount of water can be allocated from the Yarragadee without causing undesirable impacts on the environment or other users.

The investigation flow diagram over the page shows the investigations underway, with references to FactSheets that provide additional information about the separate studies.

Guide to other FactSheets referred to in the Investigations Flow Diagram

2 Investigations into groundwater in the South West – a history

3 The South West Yarragadee aquifer

4 The Leederville aquifer

5 The hydrology of the Blackwood River

6 The 2003 drilling program on the Blackwood Plateau

7 Geophysics investigations

8 Aquifer water quality and salinity

9 Recharge investigations

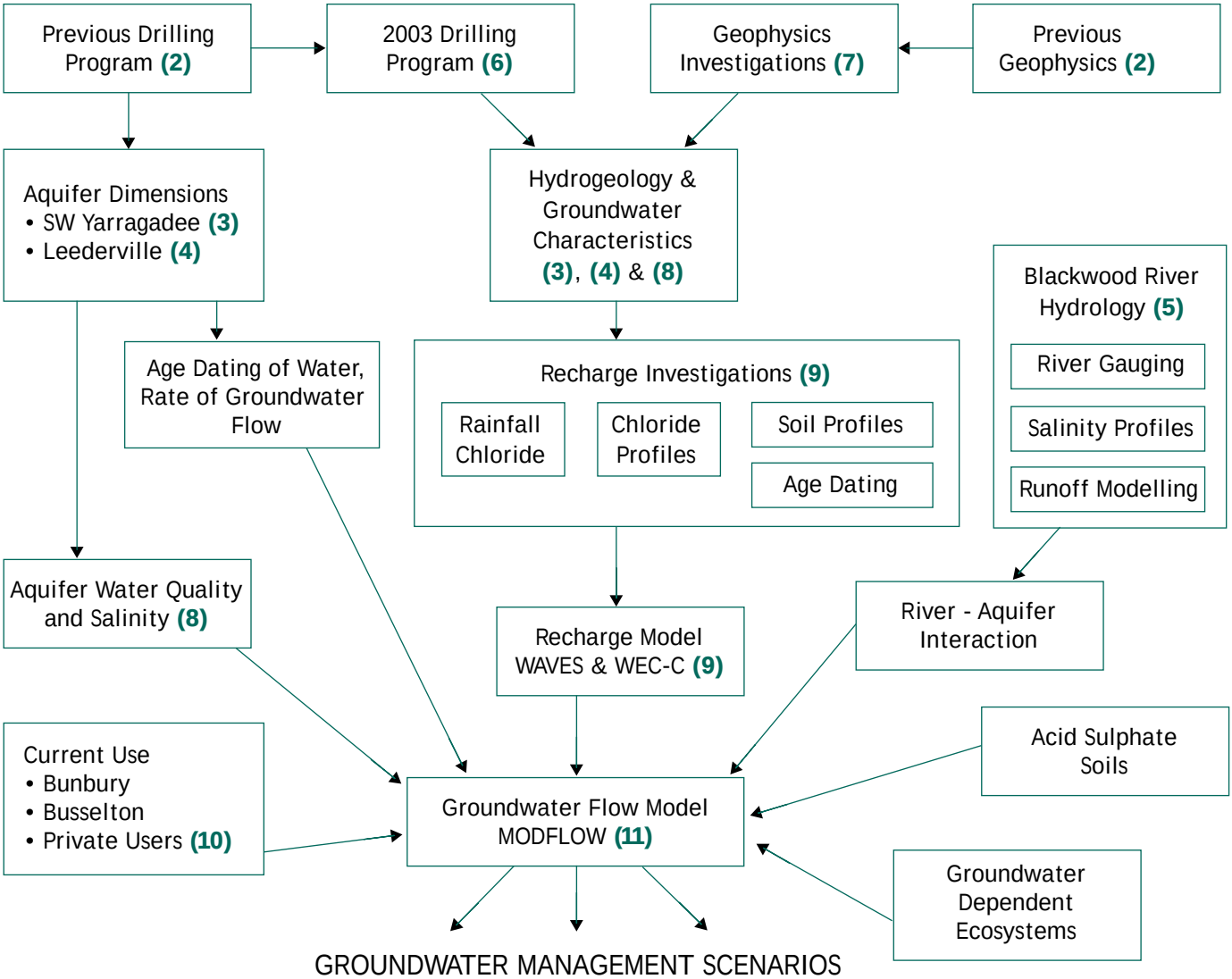
10 Groundwater level trends in the South West

11 Groundwater flow modelling

Current Investigations

South West Yarragadee - Blackwood Groundwater Area

(FactSheet number for further information)



For more information contact

Department of Environment
South West Region
35-39 McCombe Rd, Bunbury Western Australia 6230
Telephone (08) 9726 4111 Email: blackwoodproject@wrc.wa.gov.au
Website: www.wrc.wa.gov.au/whicher