

PEAKE MODEL 2008

Purpose

The purpose of this model, as described in Barnett and Yan (2008), is to assist with water allocation planning for the Peake-Roby-Sherlock Prescribed Wells Area.

Background

From Barnett and Yan (2008), the Peake-Roby-Sherlock prescribed Wells Area (PRS PWA) was prescribed under the Natural Resources Management Act (2004) in late 2005 in response to a sudden increase in groundwater extractions in the area. This model was developed to assist with determining the amount of groundwater that can be allocated under the Water Allocation Plan.

The model was developed using Visual MODFLOW version 4.0.

Location

The location of the model domain is shown in Figure 1.

Model structure

Model domain and grid size

The model domain simulates an area 60 km (east to west) by 61 km (north to south). The bounding coordinates of the model domain are 370000E, 6049000N (south-west) and 430000E, 6110000N (north-east) (GDA 1994, MGA Zone 54).

The model has a uniform grid size of 250 m × 250 m.

Model layers

The regional aquifer system is conceptualised as six layers, including three aquifer layers and three aquitard layers, as shown in Table 1 and Figure 2.



Figure 1. Peake Model domain

Table 1. Model layers

Layer	Hydrogeological unit	Aquifer/Aquitard
1	Coomandook Formation: Unconfined Quaternary limestone aquifer	Aquifer
2	Etrick Formation: Tertiary clay aquitard	Aquitard
3	Buccleuch Group: Tertiary confined coral aquifer. Most extractions are from this layer	Aquifer
4	Tertiary clay aquitard	Aquitard
5	Renmark Group: Tertiary confined sand aquifer	Aquifer
6	Tertiary clay aquitard overlying basement	Aquitard

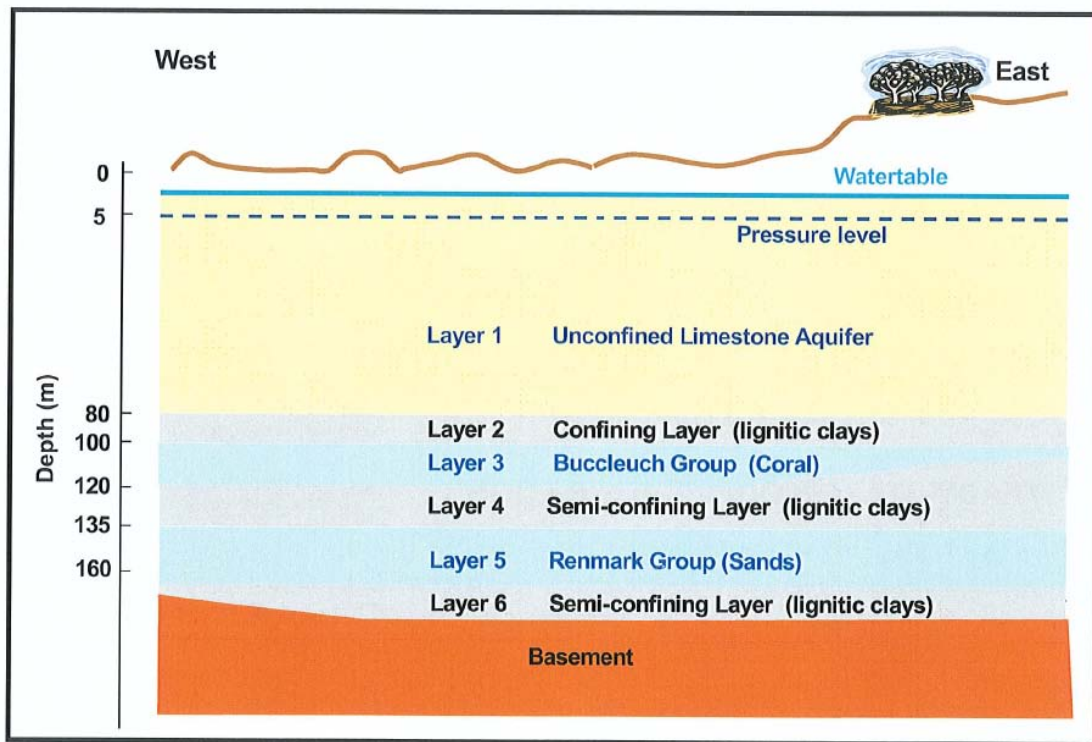


Figure 2. Cross-section

Report

Barnett S and Yan W, 2008, *Assessment of the groundwater resource capacity of the Peake-Roby-Sherlock Prescribed Wells Area*, Report DWLBC 2008/16, Department of Water, Land and Biodiversity Conservation, Adelaide