

Groundwater dependent ecosystem pictorial conceptual model overview

Version 1.5

Groundwater dependent ecosystem pictorial conceptual models

Pictorial conceptual models are representations of observed objects, phenomena and processes in a logical and objective way with the aim of constructing a formal system whose theoretical consequences are not contrary to what is observed in the real world (Department of Science, Information Technology, Innovation and the Arts 2012). GDE pictorial conceptual models capture the collective knowledge available on the key conditions, drivers and processes occurring in a landscape that control groundwater and ecosystem interaction.

Applicability of groundwater dependent ecosystem pictorial conceptual models by region

Comet, Dawson and Mackenzie catchments

Conceptual model	Drainage sub-basin		
	Comet River	Dawson River	Mackenzie River
Alluvia	X	X	X
Exclusion zones	X	X	X
Fractured rocks	X	X	X
Permeable rocks	X	X	X
Sedimentary rocks (Great Artesian Basin)	X	X	X

Eastern Murray-Darling Basin

Conceptual model	Drainage sub-basin						
	Balonne River	Condamine River	Dumaresq River	Macintyre Brook	Macintyre and Weir Rivers	Maranoa River	Moonie River
Alluvia	X	X	X	X	X	X	X
Alluvia – catchment constrictions		X					
Alluvia – closed drainage systems							X
Exclusion zones	X	X	X	X	X	X	X
Fractured rocks	X	X	X	X			
Goondoola Basin							X
Inland sand ridges	X	X			X	X	X
Permeable rock	X	X		X	X	X	X
Sandy plains	X	X	X	X	X	X	X
Sedimentary rocks (Great Artesian Basin)	X	X		X	X	X	X

Lake Eyre Basin and surrounding catchments

Conceptual model	Drainage sub-basin												
	Barcoo River	Bulloo River	Cooper Creek	Diamantina River	Flinders River	Lake Frome	Nogoa River	Paroo River	Saxby River	Suttor River	Thomson River	Wallam Creeks	Warrego River
Alluvia	X	X	X	X	X	X	X	X	X	X	X	X	X
Catchment constrictions				X				X					
Coastal sand masses (beach ridges)					X								
Exclusion zones	X	X	X	X	X		X	X	X	X	X	X	X
Fractured rocks							X			X			
Permeable rocks	X	X	X	X	X		X	X	X	X	X	X	X
Recharge zones		X	X			X							
Sedimentary rocks (Great Artesian Basin)	X							X		X	X		
Wind-blown inland sand dunefields	X	X	X	X				X			X	X	X

Mackay-Whitsunday

Conceptual model	Drainage sub-basin				
	O'Connell River	Plane Creek	Pioneer River	Proserpine River	Whitsunday Island ¹
Alluvia	X	X	X	X	X
Catchment constrictions	X				
Coastal sand masses (beach ridges)	X	X	X	X	X
Low-lying coastal swamps	X	X	X	X	X
Permeable rocks	X	X	X	X	X

Pumicestone Passage

- Alluvia
- Coastal sand masses (beach ridges)
- Low-lying coastal swamps
- Permeable rocks
- Sedimentary rocks (Clarence-Moreton Basin)

¹ Whitsunday Island includes other miscellaneous islands along the Mackay-Whitsunday coastline.

South East Queensland

Conceptual model	Catchment														
	Albert River	Bremer River	Brisbane River ²	Caboolture River	Coomera and Nerang Rivers ³	Lockyer Creek	Logan River	Maroochy River	Mooloolah River	Moreton Island	Oxley Creek	Pine River	Redlands	Stanley River	Stradbroke Islands ⁴
Alluvia	X	X	X	X	X	X	X	X	X		X	X	X	X	
Canal estate (brackish)					X			X	X						
Canal estate (estuarine)					X			X	X			X	X		X
Catchment constrictions	X	X	X	X		X	X								
Coastal sand masses (beach ridges)			X	X	X		X	X	X			X			X
Coastal sand masses (high dunes)										X					X
Exclusion zones	X	X	X	X	X	X	X	X			X	X	X	X	X
Fractured rocks	X		X	X	X		X	X			X	X	X	X	
Low-lying coastal swamps			X	X	X		X	X	X			X	X		X
Permeable rocks	X	X	X	X	X	X	X	X	X		X	X	X	X	
Petrie Formation along the shoreline of Moreton Bay			X										X		X
Recharge zones			X			X	X			X	X				X
Sedimentary rocks (Clarence-Moreton Basin)	X	X	X	X	X	X	X	X	X		X	X	X	X	
Silkstone Formation		X	X												

² Brisbane River includes the following catchments: Upper Brisbane, Mid Brisbane, and Lower Brisbane.

³ Coomera and Nerang Rivers including the following catchments: Coomera River, Currumbin, Nerang River, Pimpama, and Tallebudgera.

⁴ Stradbroke Islands includes other islands in Moreton Bay.

Wide Bay-Burnett

Conceptual model	Drainage sub-basin											
	Baffle Creek	Barker and Barambah Creeks	Boyne and Auburn Rivers	Burnett River ⁵	Burrum River	Elliott River	Fraser Island ⁶	Gregory River	Isis River	Kolan River	Mary River ⁷	Noosa River
Alluvia	X	X	X	X	X	X		X	X	X	X	X
Catchment constrictions											X	
Coastal sand masses (beach ridges)	X			X	X	X	X	X	X	X		X
Permeable rocks	X	X	X	X	X	X		X	X	X	X	X
Sedimentary rocks (Great Artesian Basin)		X	X	X								

Citation

Queensland Government (2017) *Groundwater dependent ecosystem pictorial conceptual model overview: version 1.5*, Queensland Government, Brisbane.

⁵ Burnett River includes the Upper Burnett River and Lower Burnett River sub-basins.

⁶ Fraser Island includes other islands.

⁷ Mary River includes the Upper Mary River and Lower Mary River sub-basins.