Updated
27 February 2013

EYRE PENINSULA DEMAND AND SUPPLY STATEMENT ANNUAL REVIEW 2012

Government of South Australia
Department of Environment, Water and Natural Resources

CONTENTS

DEPARTMENT OF ENVIRONMENT, WATER AND NATURAL RESOURCES

Last Updated: 27 February 2013

The document is managed by the Urban Water, Economics and Water Security Unit.

For more information telephone (08) 8463 7042

EXECUTIVE SUMMARY

The 2011–12 review of the demand-supply projections has indicated that based on current population growth and potential climate change impacts, demand for drinking quality water is projected to exceed supply in 2020–21, slightly earlier than the 2010–11 annual review suggested. Given the results from the review, an Independent Planning Process is considered to be required in 2015–16 at the latest.

The *Eyre Peninsula Demand and Supply Statement* (Statement), released in April 2011, indicated that under a worst-case scenario, demand for drinking-quality water was projected to exceed supply in 2017–18. As such, it was anticipated that an Independent Planning Process would be required to be initiated in 2012–13.

Water for Good outlines that Regional Demand and Supply Statements will be annually reviewed. This commitment is further enhanced through the *Water Industry Act 2012*, which states that the Minister for Water and the River Murray will produce an annual report providing information about the demand and supply status of the various regions of the State.

The annual review for the Eyre Peninsula Statement is based on the best available information provided by a range of organisations including, but not limited to, local government, the Resources and Energy Sector Infrastructure Council, the Australian Bureau of Statistics, the Department of Environment, Water and Natural Resources, SA Water, the Department of Planning, Transport and Infrastructure and the Department for Manufacturing, Innovation, Trade, Resources and Energy.

The 2010–11 review of the demand-supply projections indicated that based on current population growth and potential climate change impacts, demand for drinking quality water was not projected to exceed supply until 2023–24. Given the results from the review, an Independent Planning Process was considered to not be required until 2018–19.

The 2011–12 review of the demand-supply projections has indicated that based on current population growth and potential climate change impacts, demand for drinking quality water is projected to exceed supply slightly earlier, in 2020–21. Given the results from the review, an Independent Planning Process is considered to be required in 2015–16 at the latest.

During the 2011–12 annual review period, demand for drinking quality water in the Eyre Peninsula region was lower than the best and worst-case scenarios of low and high population growth outlined in the statement. Mains water consumption for the Eyre Peninsula region was 16.2 GL, compared with projected demands of 19.1 GL in the best-case scenario and 19.2 GL in the worst-case scenario. This is based on metered data from SA Water and licensed water use data from the Department of Environment, Water and Natural Resources.

A 2698 ML surplus of drinking quality water was recorded in the Eyre Peninsula region, compared with projected best-case and worst-case scenario surpluses of 1352 ML and 1259 ML respectively. If the quantities of drinking quality and non-drinking quality water (i.e. including recycled stormwater and wastewater and other non-prescribed water resources such as groundwater) are combined, there was a surplus of 7189 ML compared with projected best-case and worst-case scenario surpluses of 4557 ML and 4453 ML respectively.

The key factor that has led to the updated demand-supply projections for drinking quality water in 2011–12, in comparison to the revised projections in 2010–11, is that SA Water's total licensed allocations from the Southern Basins Prescribed Wells Areas will decrease in 2013–14 based on recharge to the aquifers.

In keeping with the *Water Industry Act 2012*, the assumptions underlying the projections will be reviewed in 12 months' time. Should anything change, such as less water being available from the prescribed wells areas or increased demand from population growth or mining, the timing for the demand-supply projections and associated Independent Planning Process will be adjusted accordingly.

Table 1: Revised demand-supply projections

Scenario	**Projection 1: Drinking-quality water demand and supply only**	**Projection 2: All water sources and all human demands**
Actual population growth	Demand is projected to exceed supply in 2020-21	Demand is not projected to exceed supply prior to 2050

INTRODUCTION

A key priority for the South Australian Government is ensuring that all South Australians have sufficient water supplies for a sustainable lifestyle, economy and environment.

Under **Water for Good**, the State Government is required to ensure Regional Demand and Supply Statements are in place across the State in consultation with regional communities, building on existing plans and incorporating local knowledge. Developing such statements is one tool to enable the State Government to secure the State's water resources by taking stock of the resources available, the current and projected future demands on them, and the likely timing of any potential demand-supply imbalance.

Water supply to all South Australian regions is a key priority for the State Government. The Eyre Peninsula Statement aims to provide a 40-year overview of water supply and demand in the Eyre Peninsula region by outlining the state of all water resources for drinking and non-drinking water, the major demands on these resources and likely timeframes for any possible future demand-supply imbalance.

The statement will be used to plan for the timing and nature of future demand management or supply options. It will help ensure that long-term solutions are based on a thorough understanding of the state of local resources, the demand for them, and likely future pressures.

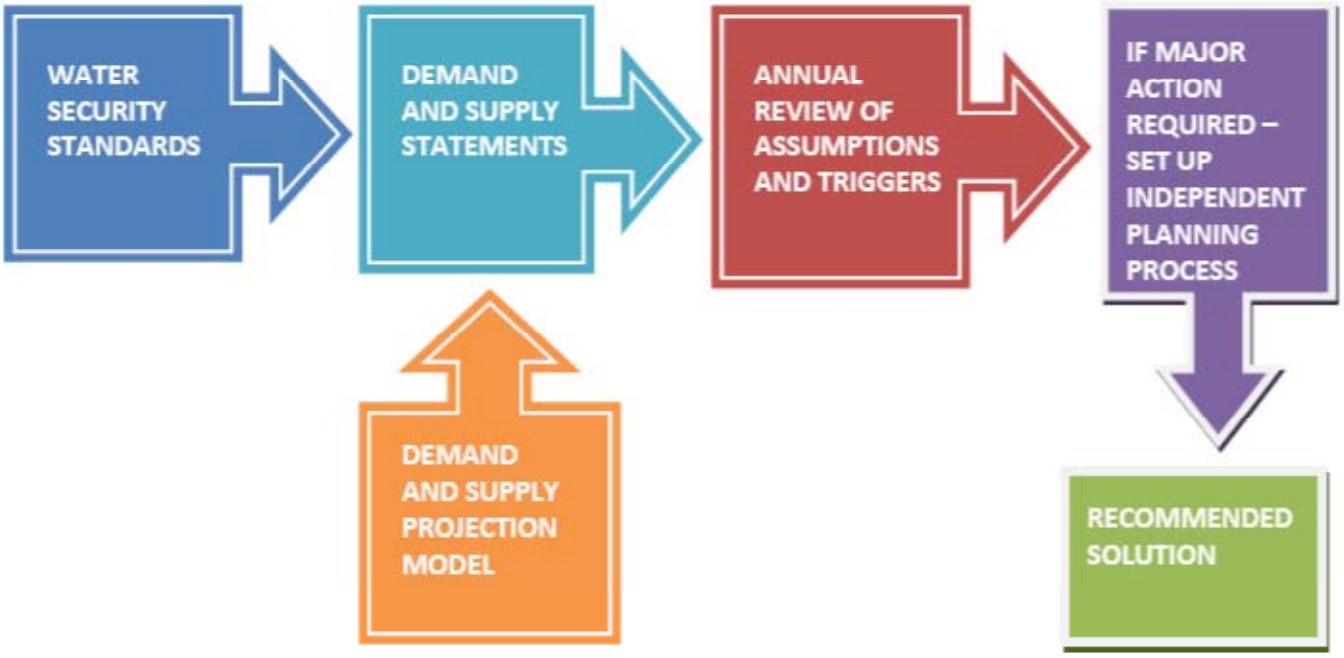
In the event that a Regional Demand and Supply Statement indicates a shortfall in supply it will trigger the State Government to initiate an Independent Planning Process five years prior to when demand for water is projected to exceed supply. This process will assess demand management or supply options to address the shortfall, and will include local community engagement.

The Independent Planning Process will include a cost-benefit analysis and recommendations will be made on how to address the shortfall in supply, including the possible role of Government, funding options and opportunities to engage the private sector in the delivery of the recommended approach.

The statement, released in April 2011, indicated that under a worst-case scenario, demand for drinking-quality water was projected to exceed supply in 2017–18. As such, it was anticipated that an Independent Planning Process would need to be initiated in 2012–13.

Water for Good indicates that Regional Demand and Supply Statements will be analysed and reviewed annually as an integral part of an adaptive management framework (see figure 1).

Figure 1: Adaptive Management Framework



The aim of this report is to review the assumptions behind the demand-supply projections in the statement. This review will identify how we are tracking as per the projections, and indicate if the timing for the Independent Planning Process requires adjusting.

ASSESSMENT OF DEMAND-SUPPLY PROJECTIONS

The Eyre Peninsula Statement developed demand-supply projections out to 2050 based on four prudently chosen scenarios – high and low population growth and climate change impact. They are intended to illustrate the possible water demand and supply levels in any given year, depending on a range of assumptions including population, climate change, the available supply from the Southern Basins and Musgrave Basin Prescribed Wells Areas, River Murray supply, and the impacts of mitigation measures. When released, the statement projected that under a worst-case scenario of high population growth and climate change impact, demand for drinking quality water was projected to exceed supply in 2017–18. The 2010–11 annual review revised this projection out to 2023–24.

2011–12 SUPPLY AND DEMAND

South Australia had its fifth-wettest year on record in 2011, with the state-wide area averaging, in total, more than one and a half times the long-term annual average rainfall [Bureau of Meteorology (BoM), 2012]. During the second half of 2011, however, most months tended to be below average (BOM, 2012). Rainfall for South Australia as a whole in 2012 was 77 per cent of the long-term annual average (i.e. 23 per cent below normal) – the lowest since 2006. The start of 2012, however, saw cooler and wetter-than-usual conditions for South Australia (BOM, 2013a).

The wetter-than-usual start of 2012 in South Australia was consistent with the rest of the Murray-Darling Basin. For the Murray-Darling Basin as a whole, 27 February 2012 to 4 March 2012 was the wettest seven-day period on record for any month since at least 1900 (BOM, 2013b).

After long periods of declining groundwater levels in the Southern Basin Prescribed Wells Area (PWA), above-average rainfall since 2009 has increased recharge and led to watertable rises of up to 0.4 m in some areas. During 2011, despite small localised declines in some areas, there has been an overall general increase in groundwater levels across the majority of the PWA when compared to water levels at the same time the previous year (Department for Water (DFW), 2012a).

After a long period of declining groundwater levels and below-average rainfall in the Musgrave PWA, good winter and spring rainfall in both 2009 and 2010 had increased recharge and led to watertable rises of up to 1.7 m in Polda lens and up to 2.1 m in other minor lenses. In some areas the water levels were the highest recorded for the past 10 years. During 2011, due to slightly above-average rainfall, water levels increased marginally in Polda lens up to 0.7 m. In other lenses water levels declined slightly when compared to water levels recorded at the same time during the previous year (Department of Environment, Water and Natural Resources (DEWNR), 2012).

During 2011–12, demand for drinking quality water in the Eyre Peninsula region was lower than the best and worst-case scenarios of low and high population growth in the statement. Mains water consumption for the Eyre Peninsula region was 16.2 GL, compared with projected demands of 19.1 GL in the best-case scenario and 19.2 GL in the worst-case scenario.

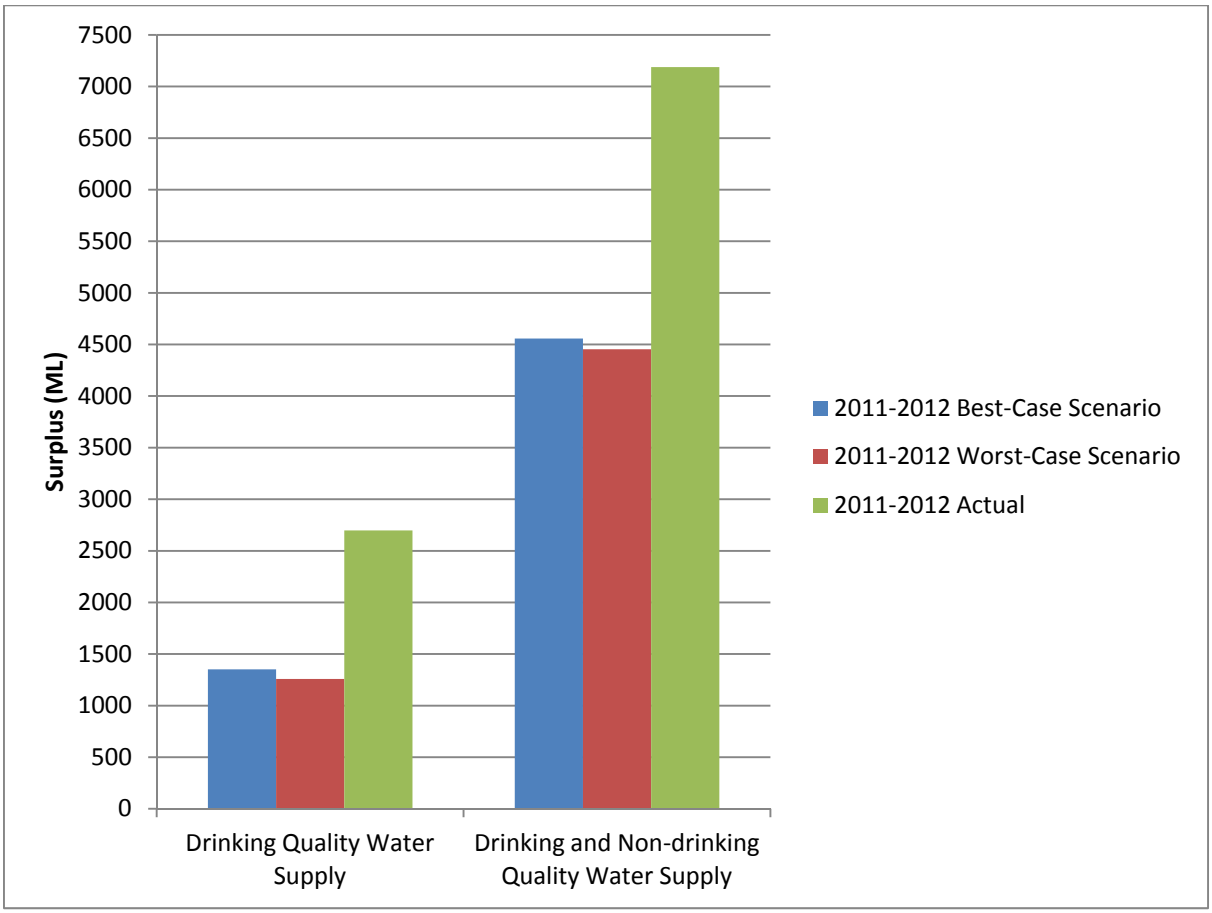
Although water restrictions were removed across the Eyre Peninsula in April 2011, and replaced with Water Wise Measures, the demand-supply projections in the statement were developed assuming there were no restrictions. As such, as was expected, there was no significant change in demand as a result of lifting the restrictions in 2011–12.

2011–12 ACTUAL AND PROJECTED AVAILABLE SUPPLY

Significantly lower actual demand from the mains water supply compared to projections in the statement resulted in a surplus in available supply for the Eyre Peninsula region over 2011–12. There was also less water supplied from the River Murray than projected; however, this reduction in supply was outweighed by the decrease in demand.

A 2698 ML surplus of drinking quality water was recorded in the Eyre Peninsula region, compared with projected best-case and worst-case scenario surplus of 1352 ML and 1259 ML respectively (see Figure 2). If the quantities of drinking quality and non-drinking quality water (i.e. including recycled stormwater and wastewater and other prescribed water resources such as groundwater) were combined, there was a surplus of 7189 ML (see Figure 2). The projections for the best-case and worst-case scenarios were for surpluses of 4557 ML and 4453 ML respectively.

Figure 2: Eyre Peninsula 2011–12 available supply compared to projections



REVIEW OF ASSUMPTIONS

During development of the statement a number of factors were identified that could affect the demand-supply balance for the Eyre Peninsula region and lead to a surplus or deficit. To better understand the future water supply and the demands it will face, it is important to recognise the influences. The table below illustrates the key drivers for the demand and supply projections.

Table 2: Drivers for the Eyre Peninsula region demand-supply projections

KEY SUPPLY DRIVERS	KEY DEMAND DRIVERS
River Murray supply	Total demand for water
Southern Basins Prescribed Wells Area supply	Population growth
Musgrave Prescribed Wells Area supply	Mining
Alternative supplies	Stock
Climate change	
Mining supply	

Supply drivers

River Murray supply

Under normal flow and operating conditions, , South Australia has a minimum entitlement of 1850 GL per year, of which SA Water has a licence for 50 GL per year for country town water supply purposes. In extreme circumstances, i.e. drought or periods of low flow conditions, special water-sharing arrangements are triggered to ensure South Australia has access to water for Critical Human Needs.

In 2011–12 SA Water supplied approximately 9.5 GL of River Murray water to the Eyre Peninsula Region (the statement assumed a maximum supply capacity of 11.2 GL), the majority of which is used in Whyalla. Demand for water in the region in 2011–12 did not require that SA Water utilise the full system capacity.

Southern Basins Prescribed Wells Area supply

After long periods of declining groundwater levels in the Southern Basins PWA, above-average rainfall since 2009 has increased recharge and led to watertable rises of up to 0.4 m in some areas. During 2011, despite small localised declines in some areas, there has been an overall general increase in groundwater levels across the majority of the PWA when compared to water levels at the same time the previous year (DFW, 2012).

As a result of the overall general increase in groundwater levels across the majority of the Southern Basins Prescribed Wells Area during 2011, the total available licensed allocation in 2012–13 will remain consistent with the 2011–12 volume of approximately 8.6 GL.

Musgrave Prescribed Wells Area supply

After a long period of declining groundwater levels and below-average rainfall in the Musgrave PWA, good winter and spring rainfall in both 2009 and 2010 had increased recharge and led to watertable rises of up to 1.7 m in Polda lens and up to 2.1 m in other minor lenses. In some areas the water levels were the highest recorded for the past 10 years. During 2011, due to slightly above-average rainfall, water levels increased marginally in Polda lens up to 0.7 m. In other lenses water levels declined slightly when compared to water levels recorded at the same time during the previous year (DEWNR, 2012).

Given that the water level declined in some of the aquifers in the Musgrave PWA, the total available licensed allocation in 2011–12 of approximately 2.3 GL has decreased slightly to approximately 2.2 GL in 2012–13.

Alternative supplies

Local government throughout the Eyre Peninsula region have well developed capacities for capturing and reusing stormwater and reusing treated wastewater for non-drinking purposes. The annual review showed that less stormwater was being captured and reused than had been projected, and that less treated wastewater from community wastewater management schemes was being reused than had been projected. However, this is likely to be due to difficulties in obtaining data rather than actual reductions in stormwater and wastewater capture and reuse.

Climate change

New information is now available on the impacts of climate change on recharge to the Southern Basins and Musgrave Basin Prescribed Wells Areas and run-off into the Tod Reservoir catchment since the statement was developed.

This new science indicates that the impact of climate change on recharge to the Southern Basins and Musgrave Basin Prescribed Wells Areas will not be as severe as first projected. Based on the most current science, climate change impacts on the Southern Basins Prescribed Wells Area will reduce by 24 per cent by 2050 (i.e. a gradual reduction of 0.4 per cent per annum) and by 26 per cent by 2050 to the Musgrave Basin Prescribed Wells Area (i.e. a gradual reduction of 0.43 per cent per annum) (Green et al., 2012). Run-off into the Tod Reservoir catchment is projected to decrease by 45 per cent by 2050 (i.e. a gradual reduction of 0.75 percent per annum).

While recharge and run-off remained steady during the reporting period compared to the previous year, year-to-year natural variability is not unusual and is expected, even in an environment of long-term climate change.

Mining supply

As outlined in **Water for Good**, it is State Government policy that securing water for mining activities is the responsibility of the company.

The information regarding supply of water for mining purposes in the demand-supply projections in the Eyre Peninsula Demand and Supply Statement is sourced from the Resources and Energy Sector Infrastructure Council's (RESIC) Infrastructure Demand Study 2009. The annual review has revised the supply of water for mining purposes based on the RESIC Infrastructure Demand Study 2011.

Based on the updated information, there is currently a greater volume of water being supplied for mining purposes, from the 2011-2012 projected volume of approximately 2.3 GL to approximately 4 GL from private desalinated seawater.

Demand drivers

Total demand for water

During the reporting period, demand for drinking quality water in the Eyre Peninsula region was approximately 3 GL lower than the statement projections. Demand for drinking and non-drinking quality water combined was approximately 2 GL lower than the statement projections.

Population growth

Advice from the Department of Planning, Transport and Infrastructure (DPTI) suggests that actual population growth was above the low population growth rate used in the projections but lower than the high population growth rate used.

DPTI data suggests that the most likely future population growth rates, when averaged out to 2050, are tracking in line with the low population growth rate scenario used in the Statement.

Mining demand

As discussed in the supply drivers, it is State Government policy that securing water for mining activities is the responsibility of the company.

The information regarding demand of water for mining purposes in the demand-supply projections in the Eyre Peninsula Demand and Supply Statement is sourced from the RESIC Infrastructure Demand Study 2009 as well as advice from the then-Primary Industries and Resources South Australia. The annual review has revised the demand of water for mining purposes based on the RESIC Infrastructure Demand Study 2011.

Based on the updated information, there is currently a greater demand for water for mining purposes, from the 2011–12 projected volume of approximately 2.9 GL to the actual volume of approximately 4 GL. The 4 GL is provided from private desalinated seawater.

It is anticipated that there will be significant growth in the demand for water for mining purposes. The majority of this water is expected to be sourced from private seawater desalination plants, with a smaller portion sourced from non-prescribed groundwater resources.

Essentially the growth in demand from the mining sector is not expected to have a detrimental impact on the current mains water supply in the region as mining companies suggest they will supply the water for their operations from desalinated seawater or non-prescribed groundwater resources.

Stock

Based on advice from the then-Primary Industries and Resources South Australia, the statement projections assume that stock demand will increase by 1.5 per cent on the 2009–10 level for 10 years and then remain constant. Current advice from Primary Industries and Regions South Australia is that the statement projections remain valid.

CONCLUSION

The annual review of the assumptions underlying the statement's demand-supply projections provides for the opportunity to revise the timing of when an Independent Planning Process is required.

The key factor that has led to the updated demand-supply projections for drinking quality water in 2011–12, in comparison to the revised projections in 2010–11, is that SA Water's total licensed allocations from the Southern Basins PWA will decrease in 2013–14 based on recharge to the aquifers.

In light of this, the demand-supply projections have been revised. As in the statement, two different demand-supply projections are considered:

- Projection 1: Drinking-quality water demand and supply only
- Projection 2: All water sources and all human demands

The first projection refers to water supply and demand of high-quality, treated water from the SA Water mains distribution network. The second refers to drinking quality water and non-drinking quality water supplies; and demand for water for all human purposes such as domestic use, stock use, irrigation, industrial, commercial and mining.

Table 3 outlines the impact on demand-supply for both projections based on current population growth and the new information described previously. The impacts of climate change have been incorporated into the new demand-supply projections. However, there is no difference between the projected high and low climate change impact out to 2050.

Table 3: Revised demand-supply projections

Scenario	**Projection 1: Drinking-quality water demand and supply only**	**Projection 2: All water sources and all human demands**
Actual population growth	Demand is projected to exceed supply in 2020-2021	Demand is not projected to exceed supply prior to 2050

Upon review of the demand-supply projections, based on current population growth, demand for drinking quality water is not projected to exceed supply until 2020–21. Therefore an Independent Planning Process will not be required until 2015–16.

This annual review indicates that, due mainly to the reduction to SA Water's total licensed allocations from the Southern Basins PWA in 2013–14, the timeframe to initiate an Independent Planning Process is three years sooner than the 2010–11 annual review suggested.

However, in keeping with the *Water Industry Act 2012*, the assumptions underlying the projections will be reviewed in 12 months' time. Should anything change, such as less water available from the prescribed wells areas or increased demand from population growth or mining, the timing for the demand-supply projections and associated Independent Planning Process will be adjusted accordingly.

BIBLIOGRAPHY

Bureau of Meteorology 2012, *Annual Climate Summary for South Australia*, Product Code IDCKGC13R0, Australian Government, Canberra.

Bureau of Meteorology 2013a, *Annual Climate Summary for South Australia*, Product Code IDCKGC23R0, Australian Government, Canberra.

Bureau of Meteorology 2013b, *Annual Australian Climate Statement 2012*, Australian Government, Canberra.

Department of Environment, Water and Natural Resources 2012, *Musgrave PWA Groundwater Level and Salinity Status Report 2011*, Government of South Australia, Adelaide.

Department for Water 2012, *Southern Basins PWA Groundwater Level and Salinity Status Report 2011*, Government of South Australia, Adelaide.

Green, G, Gibbs, M, Alcoe, D, and Wood, C, 2012, *Impacts of Climate Change on Water Resources, Phase 3 Volume 2: Eyre Peninsula Natural Resources Management Region,* DFW Technical Report 2011/04, Government of South Australia, through Department for Water, Adelaide.