

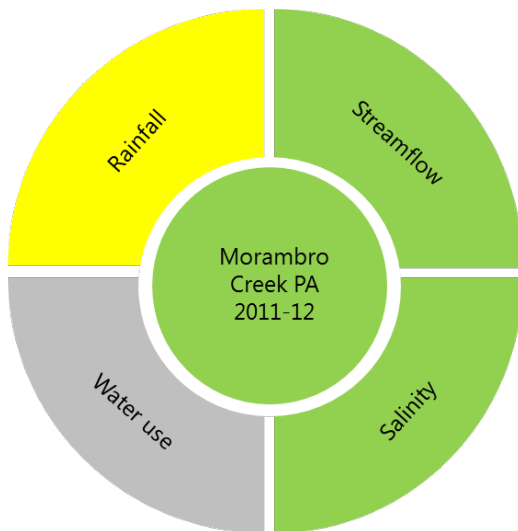
Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA

Surface water status report
2011–12



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

2011–12 Summary



The Morambro Creek and Nyroca Channel Prescribed Watercourses (PWCs) and Morambro Creek Prescribed Surface Water Area (PSWA) has been assigned a green status for 2011–12:

No adverse trends indicating a stable or improving situation

This hydrological status for 2011–12 is supported by:

- Below average rainfall
- above average streamflow
- freshening salinity.


This status report provides a snapshot of the surface water resources in the Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA (hereafter the PA (Prescribed Area)) for the financial year 2011–12. Surface water status reports are limited to reporting on the hydrological status of the PA. Available data on climate, streamflow and salinity is summarised and compared with recent and long-term data to provide an indication of the hydrological status of its water resources. Each element is discussed with reference to recent or more long-term trends where, if at all, they are present in the data. These status reports seek to support informed management decisions by resource managers and those responsible for, or reliant on, the water resources. Status of the prescribed resource for the previous years is shown below.

2010-11 Status (green)	2011-12 Status (green)
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This status report does not seek to evaluate the sustainable limits of the resource, nor does it make any recommendations on management or monitoring of the resource. These actions are important, but occur through separate processes.

The PA is located approximately 280 km south-east of Adelaide (Figure 1). Surface water (including within watercourses) was prescribed under the South Australia *Water Resources Act 1997*. A Water Allocation Plan (WAP) was developed by the South East Natural Resources Management Board in 2006, which seeks to provide for sustainable management of water resources.


Status symbols

 No adverse trends, indicating a stable or improving situation (green)

Trends are either stable (no significant change), or have improved over the reporting period, indicating that there is insignificant risk of impact to the beneficial use of the resource.

 Adverse trends, indicating low risk to the resource in the short-term (1 to 3 years) (yellow)

Observed adverse trends are gradual and if continued, are unlikely to lead to a change in the current beneficial uses of the surface water resource in the short-term.

 Adverse trends, indicating medium risk to the resource eventuating in the short-term (amber)

Observed adverse trends are significant and if continued, moderately likely to lead to a change in the current beneficial uses of the surface water resource in the short-term.

 Adverse trends, indicating high risk to the resource within the short-term (red)

Trends indicate degradation of the resource is occurring. Degradation will very likely result in a change in the beneficial use (e.g. reduced ability to access surface water entitlements and/or decline in the condition of environmental assets).

 Unclear (grey)

Trends are unable to be determined due to a lack of adequate information on which to base a sound judgement of status.

Data from the same stations summarised in previous reports are used in analysis, for comparison of annual trends. Data from one long-term meteorological station was selected for analysis of rainfall trends; Frances (M026007) (Figure 1). Rainfall was below average at Frances in 2011–12.

Data from one long-term gauging station was selected for analysis of streamflow and salinity trends; Morambro Creek at Bordertown–Naracoorte Road Bridge (A2390531) (Figure 1). Streamflow was above average at Morambro Creek in 2011–12. Salinity was freshening in 2011–12 when compared to the range of salinity for the previous year.

Surface water usage data are not sufficient to make an assessment.

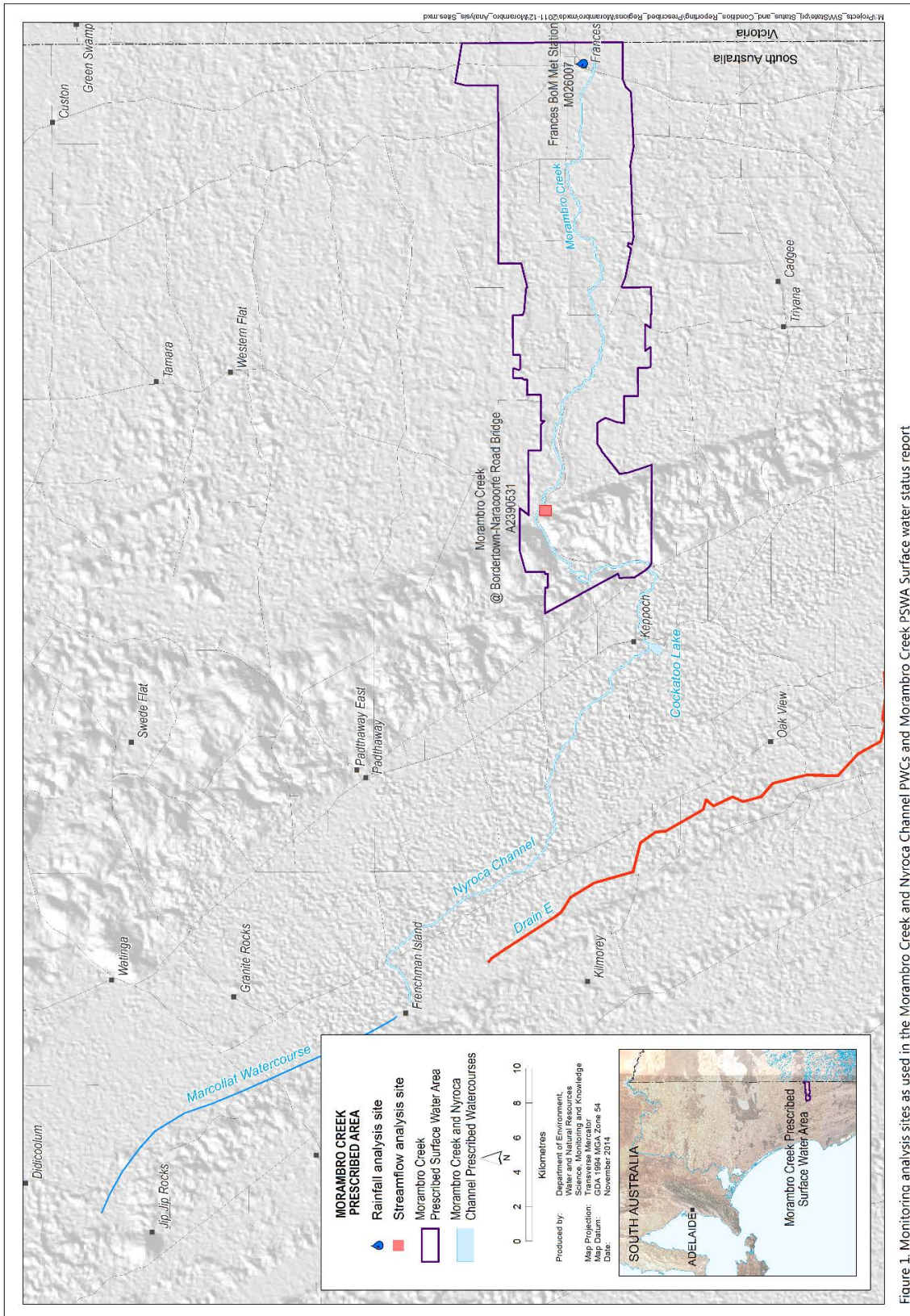


Figure 1. Monitoring analysis sites as used in the Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA Surface water status report

Rainfall

Status	Degree of confidence	Comments on recent historical context
Below average rainfall at Frances	Fair: only one rainfall station within the PA, limiting regional variance	Below average rainfall at Frances meteorological station after consecutive years of above average rainfall

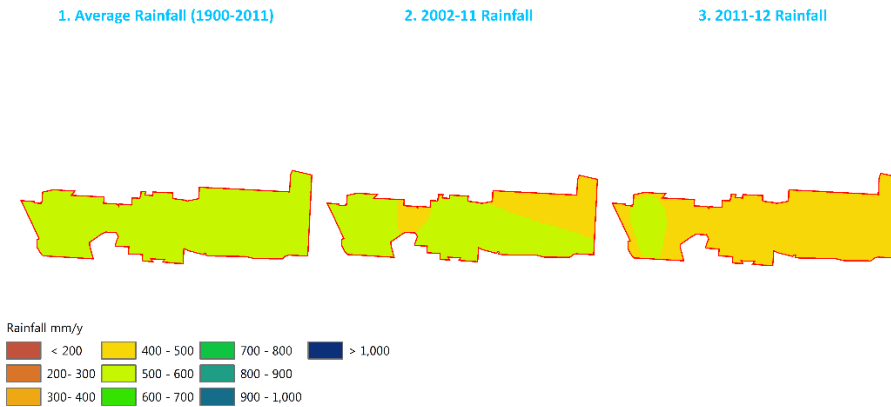


Figure 2. Annual rainfall distributions for the PA

Rainfall in the PA is typical of the South East, with hot, dry summers and cool, wet winters. The three panels of Figure 2 indicate that a part from a portion on the western side of the PA, rainfall was below average for the year 2011–12 (panel 3) in comparison to the long-term and short-term averages (panels 1 and 2).

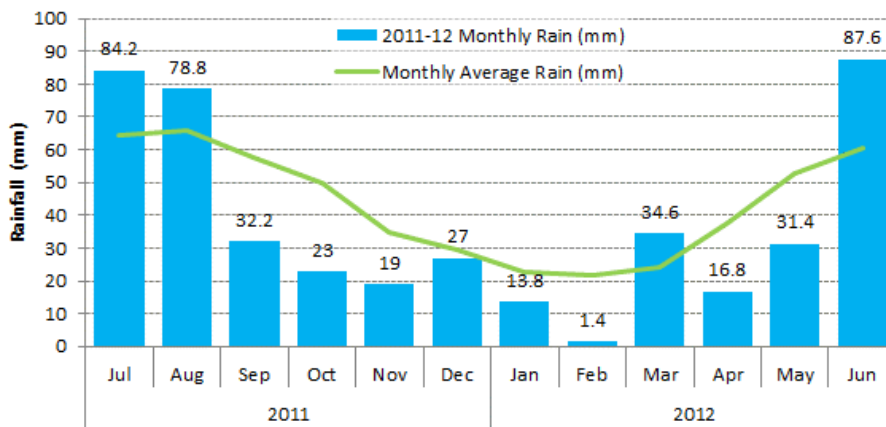


Figure 3. Monthly rainfalls at Frances (M026007)

The Frances Bureau of Meteorology (BoM) rainfall station received a below average rainfall of 450 mm in 2011–12 in comparison to its long-term average of 521 mm (Figure 3). Above average rainfall was received predominantly in the winter months across 2011–12 with September to February and April and May receiving well below average rainfall. October, February and April received less than half the monthly average rainfall.

Streamflow

Status	Degree of confidence	Comments on recent historical context
Above average streamflow at Morambro Creek	Fair - Low: only one primary monitoring site representing Morambro Creek	Second consecutive year of above average streamflow

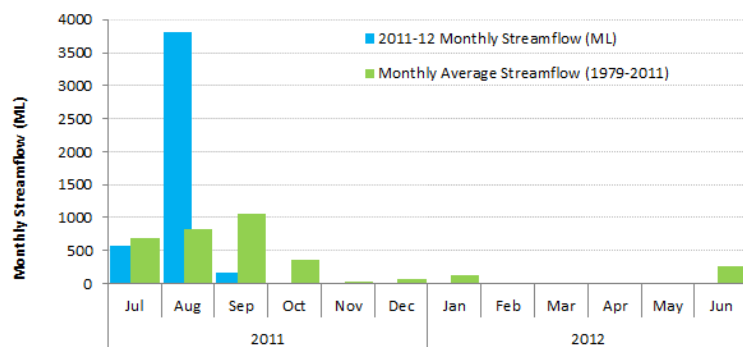


Figure 4. Monthly streamflow at Morambro Creek (A2390531)

Morambro Creek at Bordertown–Naracoorte Road Bridge gauging station (A2390531) experienced an above average annual streamflow of 4550 megalitres (ML) for 2011–12 (32% higher than the 3459 ML long-term average). The monthly breakdown of streamflow for 2011–12 (Figure 4) highlights that August was the only month to receive well above average streamflow. August alone received 84% of the annual total with all other months receiving below average streamflow. No streamflow was recorded from November to June.

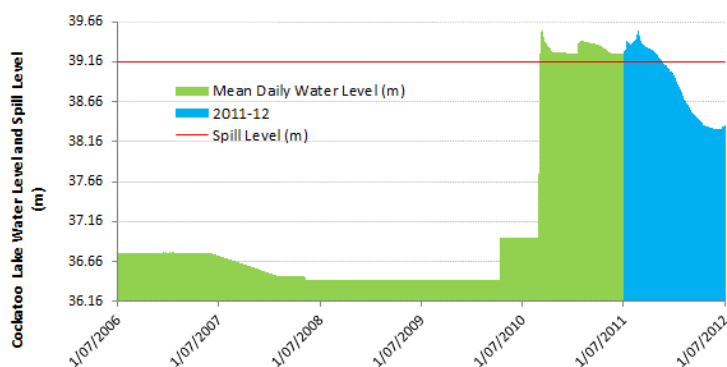


Figure 5. Water level at Cockatoo Lake (A2391074)

The Cockatoo Lake monitoring station (A2391074) is approximately 15 km downstream of the Morambro Creek gauging station and monitors water level only. The estimated base level of the lake is 36.16 m AHD with a spill level of 39.15 m AHD. Spill from Cockatoo Lake flows along Nyroca Channel for approximately 30 km and ultimately discharges into the Marcollat Watercourse. Cockatoo Lake exceeded capacity for 140 days (38% of total days) during 2011–12 (Figure 5) but failed to exceed capacity in the second half of the year due to reduced streamflow in Morambro Creek.

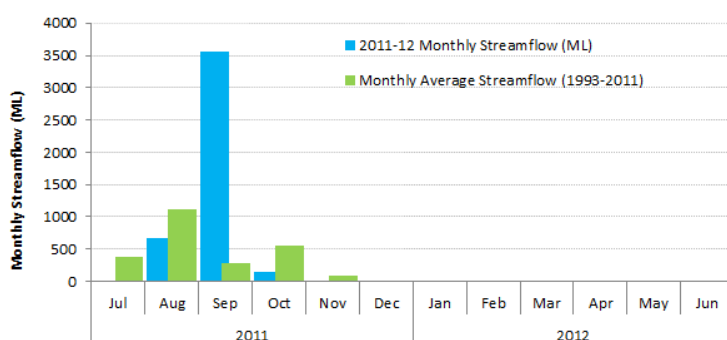
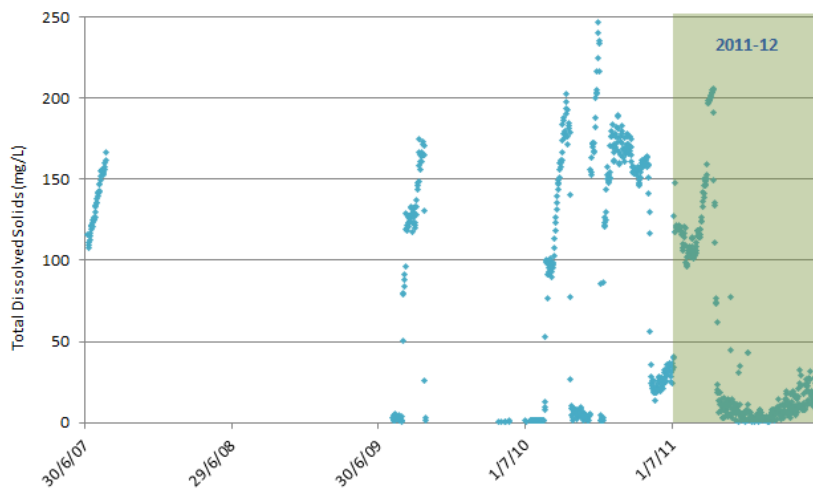


Figure 6. Monthly streamflow at Jip Jip Weir (A2391074)

Jip Jip Weir (A2391023) is located at the downstream end of the Marcollat Watercourse, downstream of a regulator for the Marcollat system. This surface water monitoring site is located outside of the PA and is not used to determine the surface water status, however, flows recorded at Jip Jip Weir affect the taking of water from the PA. Jip Jip Weir received 4378 ML of streamflow in 2011–12 (Figure 6), the first year of recorded streamflow since its 24 ML in 2003–04. The last significant streamflow recorded at Jip Jip was 16 526 ML in 1996–07.

Salinity

Status	Degree of confidence	Comments on recent historical context
Freshening	Fair - Low: only one primary monitoring site representing Morambro Creek	Salinity trends show the high range of salinity in 2011–12 being less than 2010–11



Due to the ephemeral nature of Morambro Creek, streamflow is generated in response to heavy rainfall and is short lived, resulting in large data gaps when the stream is dry. Salinity data suggests that streamflow is consistently very fresh, with all data less than 250 mg/L Total Dissolved Solids (Figure 7). The range of salinity for 2011-12 is less than the previous year with the majority of salinity for the year being less than 50 mg/L.

Figure 7. Salinity data at Morambro Creek from 2007–2012

Department of Environment, Water and Natural Resources

25 Grenfell Street, Adelaide

GPO Box 1047, Adelaide SA 5001

Telephone National (08) 8463 6946
 International +61 8 8463 6946

Fax National (08) 8463 6999
 International +61 8 8463 6999

Website www.environment.sa.gov.au

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This Surface water status report is available online at <http://www.waterconnect.sa.gov.au>

To view the Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA *Surface water status report 2010–11*, which includes background information on location, rainfall, streamflow, salinity and relevant water dependent ecosystems, please visit the Water Resource Assessments page on [WaterConnect](http://www.waterconnect.sa.gov.au).

For further details about the Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA please see the *Water Allocation Plan for the Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA* on the Natural Resources South East [website](http://www.nrsoutheast.sa.gov.au).

Gridded rainfall data was sourced from the Bureau of Meteorology (BoM). Station rainfall data was sourced from SILO and is Patched Point Data. Further information on SILO climate data is available at: <http://www.longpaddock.qld.gov.au/silo/index.html>.

Streamflow and salinity data are available via WaterConnect: <http://www.waterconnect.sa.gov.au>.

