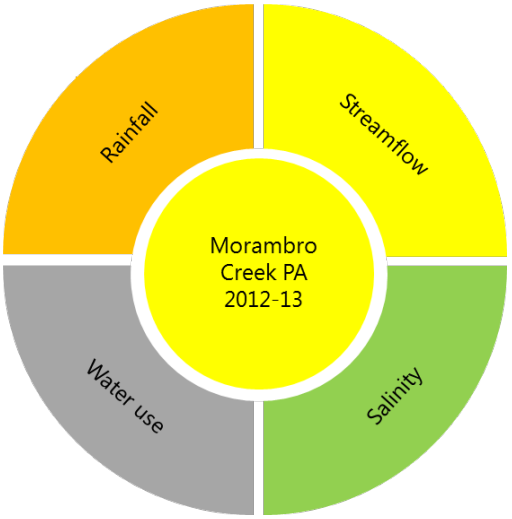
Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA

Surface water status report

2012–13

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

2012–13 Summary



The Morambro Creek and Nyroca Channel Prescribed Watercourses (PWCs) and Morambro Creek Prescribed Surface Water Area (PSWA) has been assigned a yellow status for 2012–13:

Adverse trends indicating low risk to the resource in the short–term

This hydrological status for 2012–13 is supported by:

- below average rainfall at 1 of 1 rainfall analysis site
- below average streamflow at 1 of 1 streamflow analysis site
- freshening salinity at 1 of 1 salinity analysis site
- no assessment of water use compared to annual streamflow

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 2012–13. 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 policy-development and 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)	2012-13 Status (yellow)

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. One long-term meteorological station was selected for analysis of rainfall trends; Frances (M026007) (Figure 1). Rainfall was below average at Frances in 2012–13.

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 below average at Morambro Creek in 2012–13. Salinity was freshening in 2012–13 when compared to the range of salinity for the previous year.

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

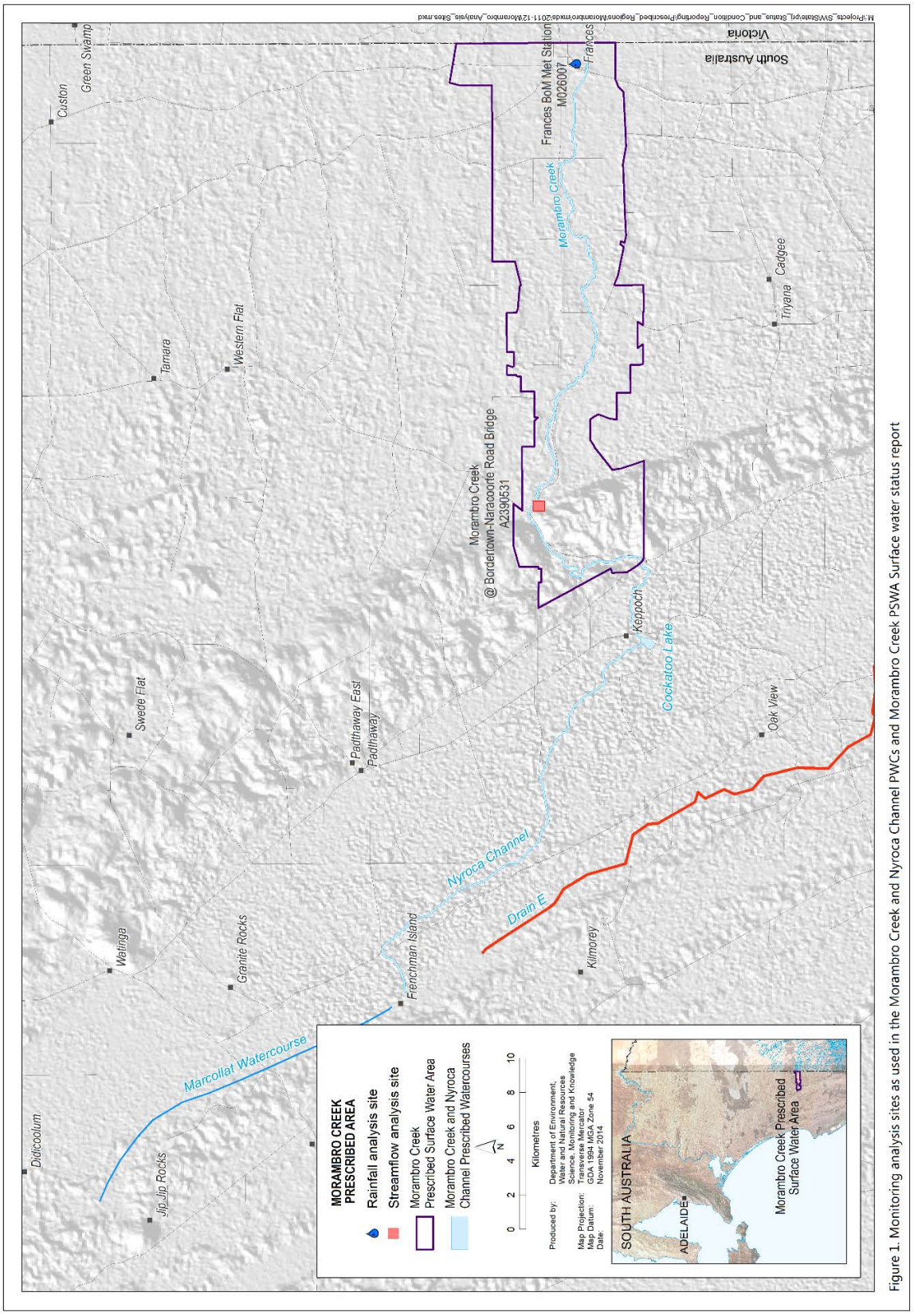


Figure 1. Monitoring analysis sites as used in the Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA Surface water status report

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	Second consecutive year of below average rainfall

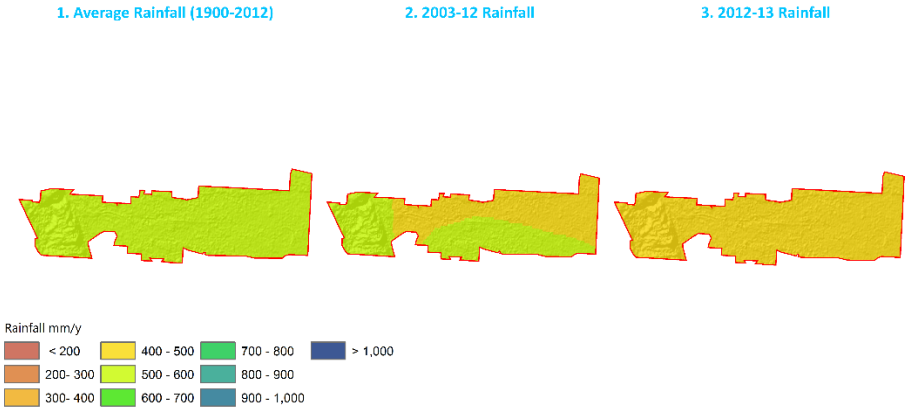


Figure 2. Annual rainfall distributions for the PA

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 the entire PA received below average rainfall for the year 2012–13 (panel 3) in comparison to the long–term and short-term averages (panels 1 and 2).

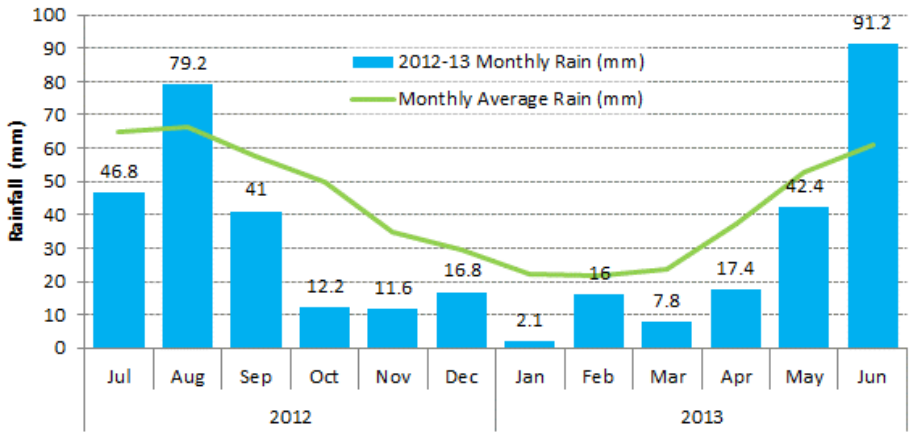


Figure 3. Monthly rainfalls at Frances (M026007)

Frances Bureau of Meteorology (BoM) rainfall station received a below average rainfall of 385 mm in 2012–13 in comparison to its long-term average of 521 mm (Figure 3). Above average rainfall was experienced in the winter months of August and June across 2012–13 with September to May receiving well below average rainfall.

Streamflow

Status	Degree of confidence	Comments on recent historical context
Below average streamflow at Morambro Creek	Fair - Low: only one primary monitoring site representing Morambro Creek	Below average streamflow after two years of above average streamflow

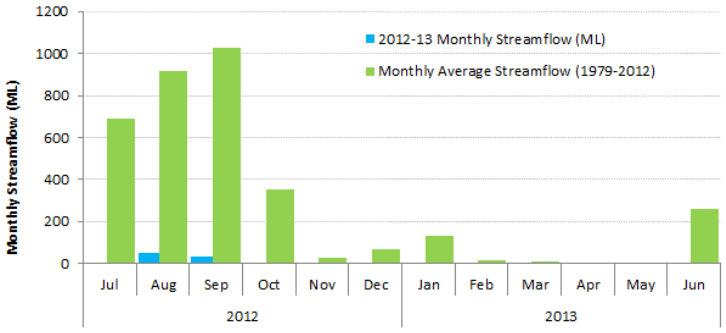


Figure 4. Monthly streamflow at Morambro Creek (A2390531)

Morambro Creek at Bordertown–Naracoorte Road Bridge gauging station (A2390531) experienced a below average annual streamflow of 86 megalitres (ML) for 2012–13 (98% lower than the 3492 ML long-term average). The monthly breakdown of streamflow for 2012–13 (Figure 4) highlights that all months received well below average streamflow with no streamflow recorded in July and from October to June.

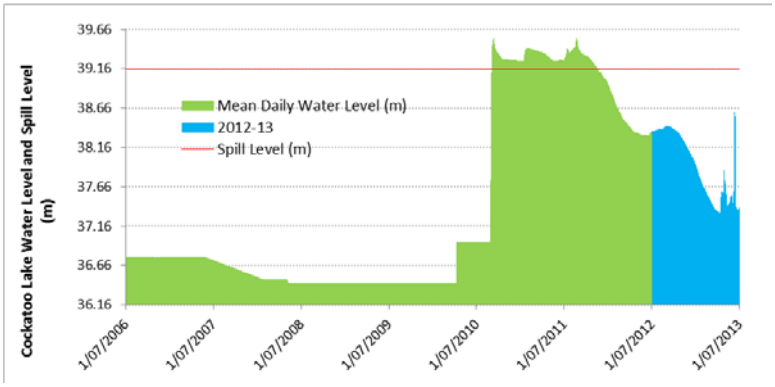


Figure 5. Water level at Cockatoo Lake (A2391074)

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. Water level information was only available for the first 2 months of the year and in that time, water level was approximately 70 cm below capacity.

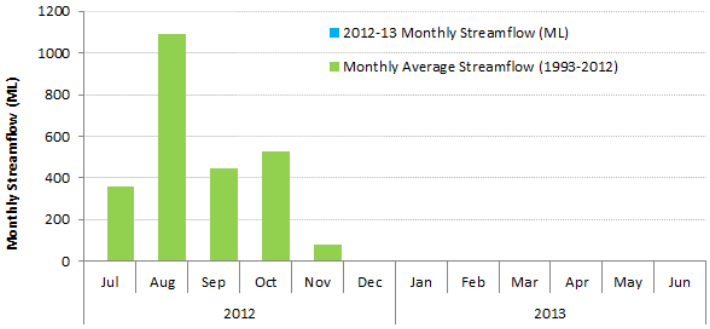


Figure 6. Monthly streamflow at Jip Jip Weir (A2391023)

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 no streamflow in 2012–13 (Figure 6) after receiving 4378 ML the previous year.

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 2012–13 being slightly less than 2011–12

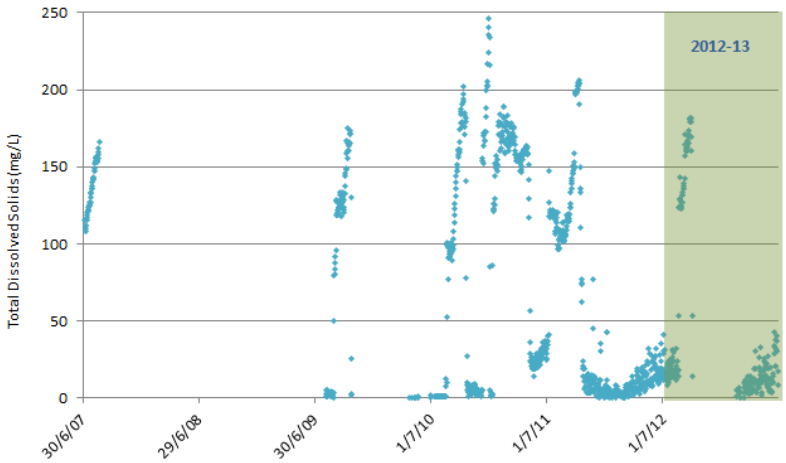


Figure 7. Salinity data at Morambro Creek from 2007–2013

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 2012-13 is less than the previous year with the majority of salinity for the year being less than 50 mg/L.

Surface water use

Status	Degree of confidence	Comments on recent historical context
Surface water usage data are not sufficient to make an assessment.	N/A	N/A

The PA was prescribed in response to an increase in demand for water for aquifer recharge schemes to address the increasing salinity of the adjacent underground water resource in the Padthaway Prescribed Wells Area.

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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.

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.

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.

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