

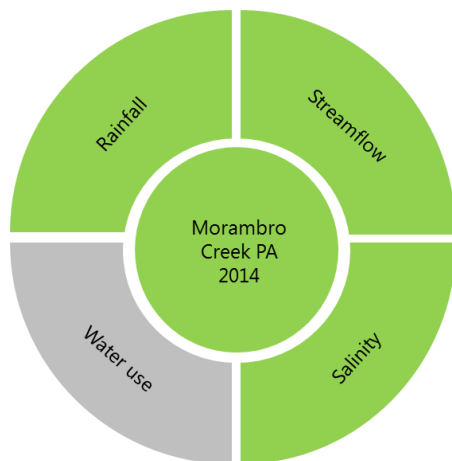
Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA

Surface water status report
2014



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

2014 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 2014:

No adverse trends, indicating a stable or improving situation

This hydrological status for 2014 is supported by:

- above average rainfall at 1 of 1 rainfall analysis site
- above average streamflow at 1 of 1 streamflow analysis site
- steady 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 2013–14. 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)	2014 Status (green)
------------------------	------------------------	-------------------------	---------------------


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 South Australia's *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 above average at Frances in 2013–14.

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 2013–14. Salinity was steady in 2013–14 when compared to the range of salinity for the previous year.

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

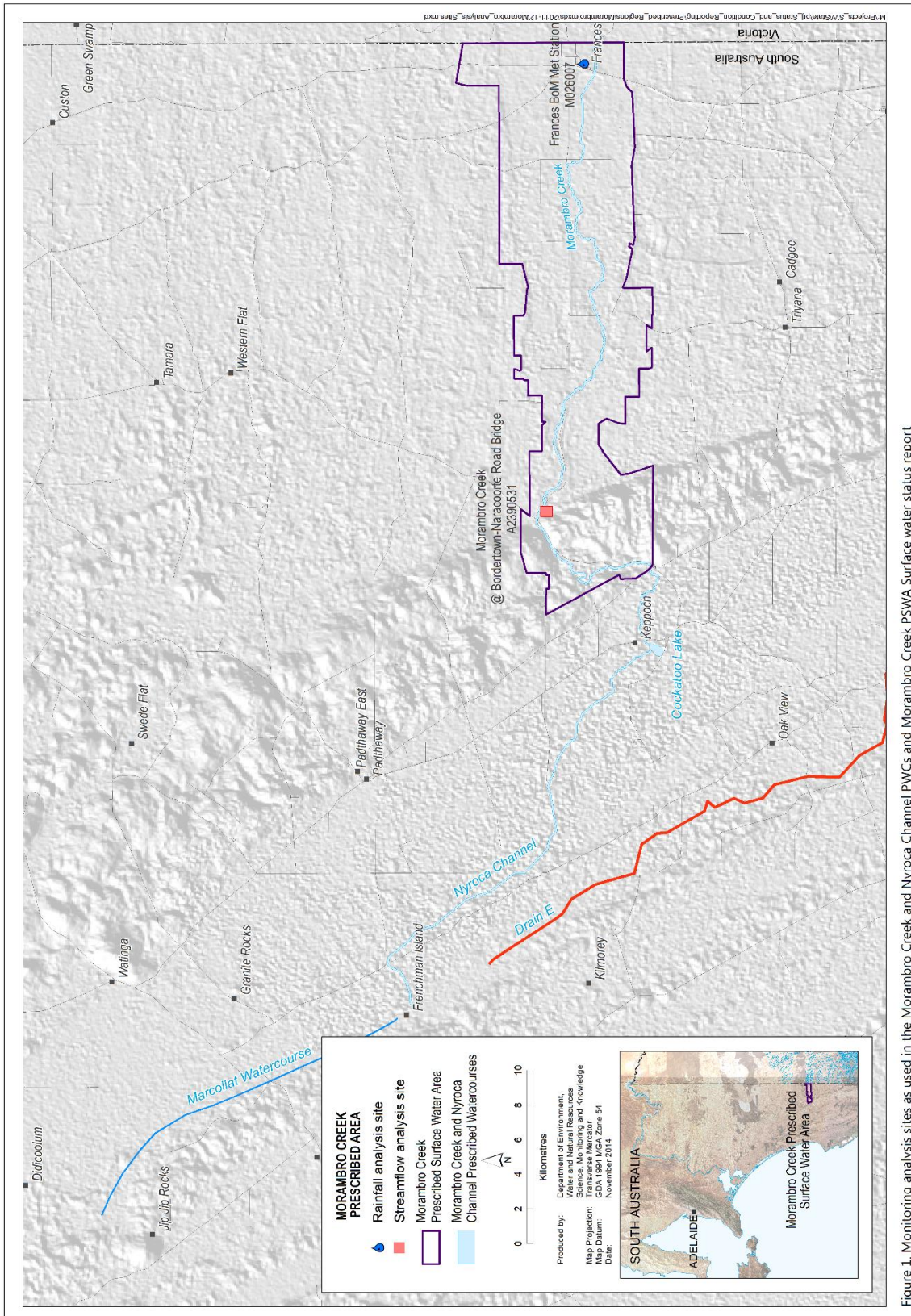
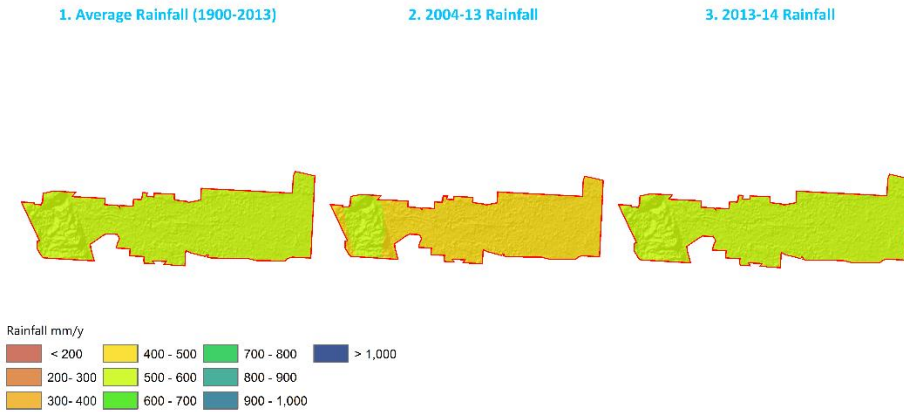


Figure 1. Monitoring analysis sites as used in the Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA Surface water status report

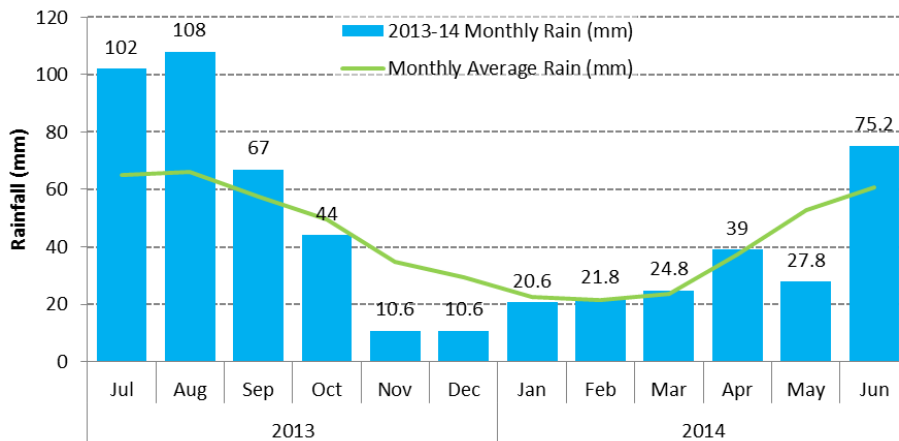
Rainfall

Status	Degree of confidence	Comments on recent historical context
Above average rainfall at Frances	Fair: only one rainfall station within the PA, limiting regional variance	Above average rainfall after 2 consecutive years of below average rainfall



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 average or above average rainfall for the year 2013–14 (panel 3) in comparison to the long-term and short-term averages (panels 1 and 2).

Figure 2. Annual rainfall distributions for the PA



Frances Bureau of Meteorology (BoM) rainfall station received an above average rainfall of 551 mm in 2013–14 in comparison to its long-term average of 521 mm (Figure 3). Above average rainfall was experienced in 7 months, predominantly the winter months of June, July and August across 2013–14. The months of October to January all received below average rainfall.

Figure 3. Monthly rainfalls at Frances (M026007)

Streamflow

Status	Degree of confidence	Comments on recent historical context
Above average streamflow at Morambro Creek	Fair to low: only one primary monitoring site representing Morambro Creek	Above average streamflow after below average streamflow the previous year

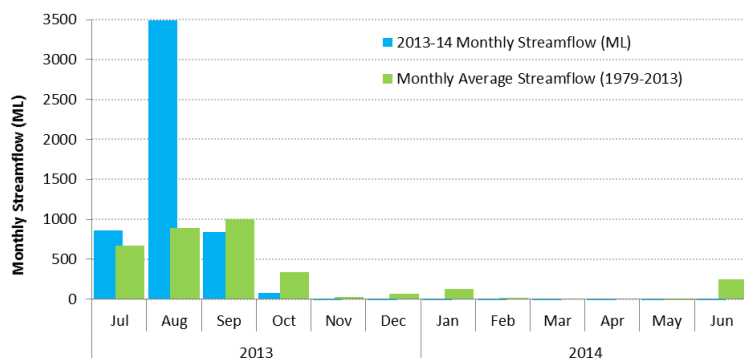


Figure 4. Monthly streamflow at Morambro Creek (A2390531)

Morambro Creek at Bordertown–Naracoorte Road Bridge gauging station (A2390531) experienced an above-average annual streamflow of 5271 megalitres (ML) for 2013–14 (55% higher than the 3392 ML long-term average). The monthly breakdown of streamflow for 2013–14 (Figure 4) highlights that the months of July and August received well above average streamflow, with August alone receiving 66% of the annual total. No streamflow was recorded from November to June.

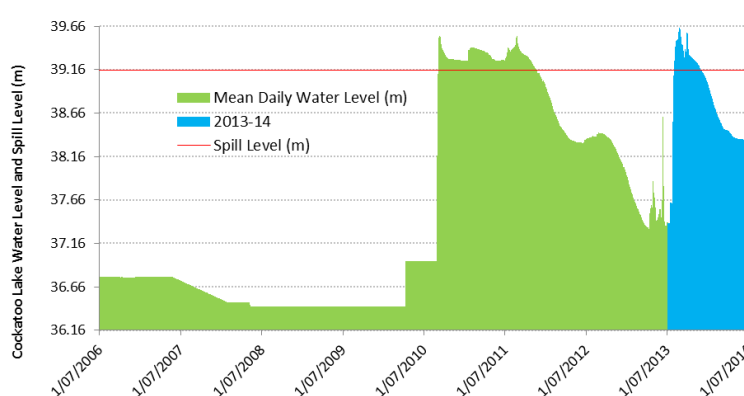


Figure 5. Water level at Cockatoo Lake (A2391074)

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 122 days (33% of total days) from late July to late November during 2013–14 (Figure 5) but then started to drawdown in the second half of the year due to reduced streamflow in Morambro Creek.

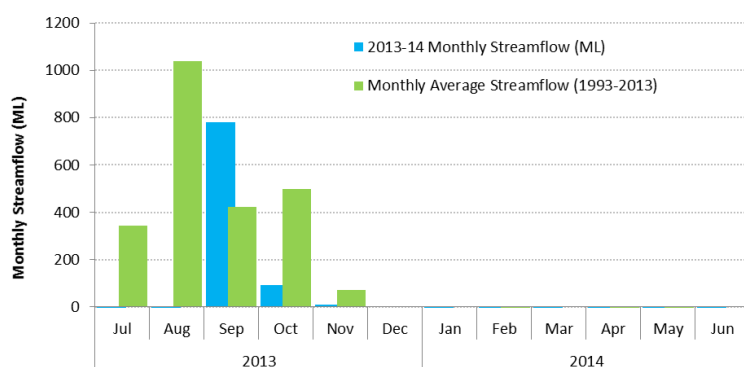
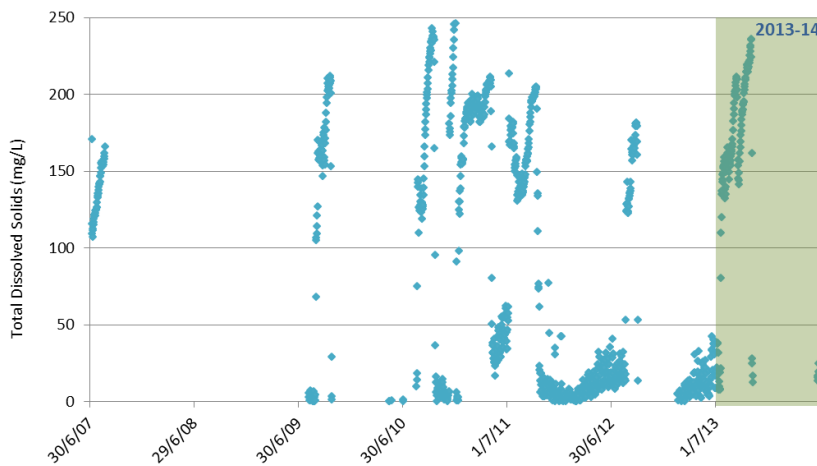


Figure 6. Monthly streamflow at Jip Jip Weir (A2391023)

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 884 ML of streamflow in 2013–14 (Figure 6) after receiving no streamflow the previous year.

Salinity

Status	Degree of confidence	Comments on recent historical context
Steady	Fair to low: only one primary monitoring site representing Morambro Creek	Salinity trends show the high range of salinity in 2013–14 being slightly higher than 2012–13 but still very fresh



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 2013–14 is slightly higher than the previous year but still very fresh.

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

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.

The low reliability of streamflow in Morambro Creek has meant that there has been no systematic development of the surface water resource. Currently there are only four licenses within the PA, and only one with the ability to divert water.

Due to the low reliability of the streamflow there is insufficient information available to make any further assessment.

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

Disclaimer

The Department of Environment, Water and Natural Resources and its employees do not warrant or make any representation regarding the use, or results of the use, of the information contained herein as regards to its correctness, accuracy, reliability, currency or otherwise. The Department of Environment, Water and Natural Resources and its employees expressly disclaims all liability or responsibility to any person using the information or advice. Information contained in this document is correct at the time of writing.



This work is licensed under the Creative Commons Attribution 4.0 International License.

To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

© Crown in right of the State of South Australia, through the Department of Environment, Water and Natural Resources 2015.

ISBN 978-1-925369-25-0

Preferred way to cite this publication

DEWNR 2015, Morambro Creek and Nyroca Channel PWCs and Morambro Creek PSWA *Surface water status report 2014*, Government of South Australia, through Department of Environment, Water and Natural Resources, Adelaide.

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.nrsouth-east.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>.



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