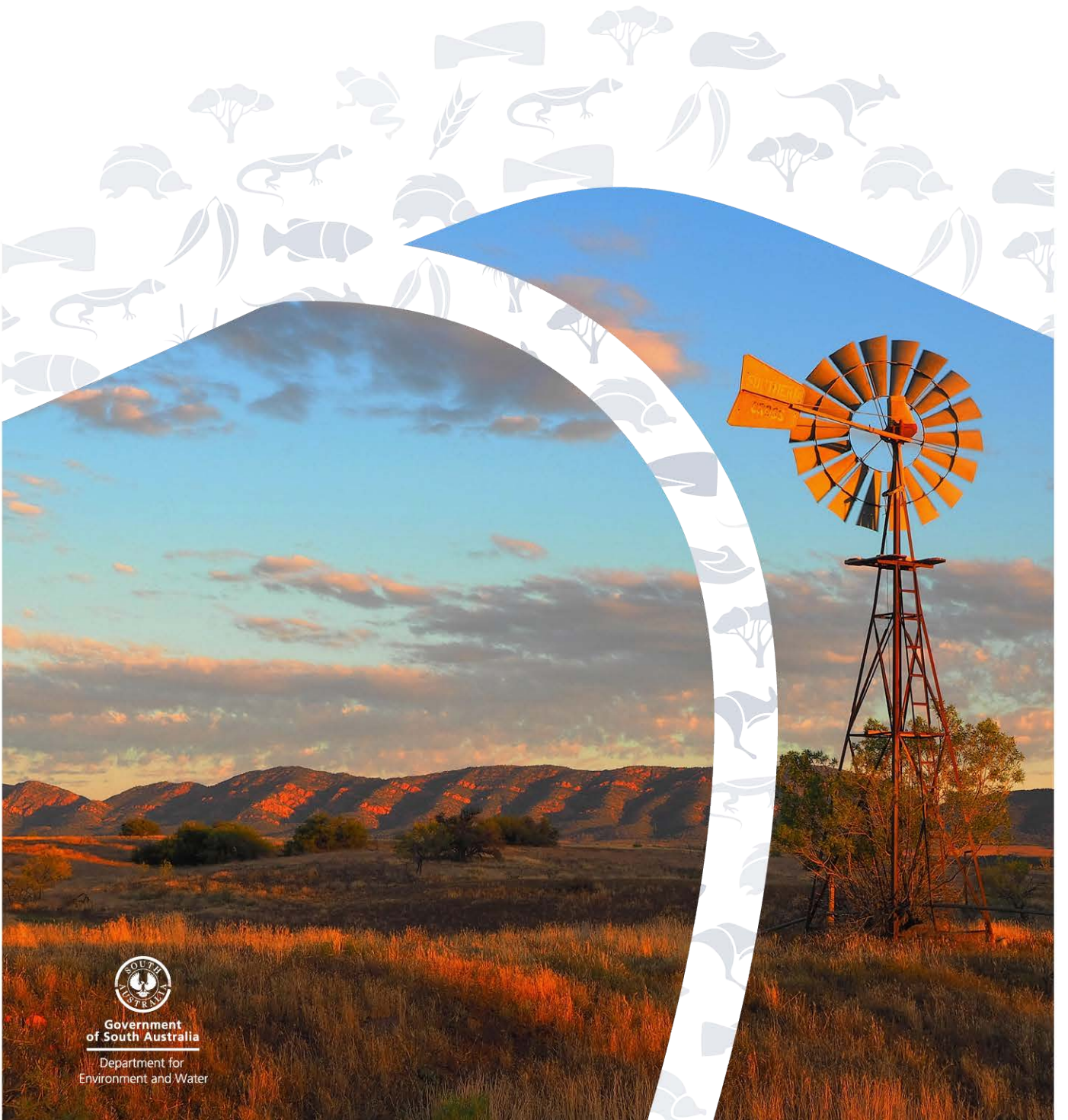


Baroota PWRA

2017 Groundwater level and salinity status report



Government
of South Australia

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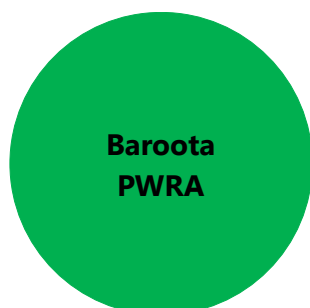
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2017 Status summary

Baroota PWRA



The Baroota Prescribed Water Resources Area (PWRA) has been assigned a **green** status for 2017 because positive trends have been observed over the past five years.

The status is based on five-year trends: over the period 2013–17, 86% of wells show rising or stable groundwater levels and all wells show stable salinities.

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 such as prescription and water allocation planning.

Rainfall

See Figures 1 and 2

Rainfall station	Port Germein Bureau of Meteorology (BoM) rainfall station 19037, located in the western side of the PWRA
Annual total ¹	412 mm 65 mm (19%) greater than the five-year average of 347 mm 81 mm (25%) greater than the long-term average of 331 mm
Monthly summary	Well-above average rainfall recorded in August, September, December, January and April Well-below average rainfall recorded in November, March, May and June
Spatial distribution	Rainfall in 2016–17 was above average across the entire PWRA

Water use

Licensed groundwater extractions	No extraction volumes available
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¹ For the water-use year 1 July 2016 to 30 June 2017

Groundwater level

See Figure 3

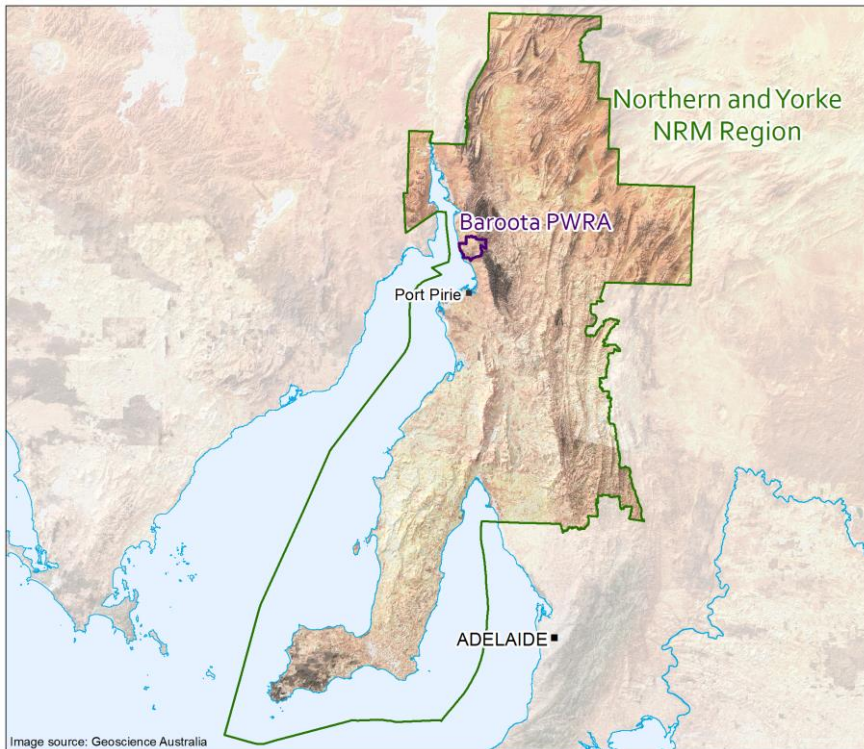
Five-year trend: 2013–17	11 out of 14 wells (79%) show a rising trend, at rates of 0.03–1.60 m/y (median of 0.14 m/y) 1 well (7%) is stable 2 wells (14%) show a declining trend, at the rate of 0.06 m/y
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Groundwater salinity

See Figures 4 and 5

2017 salinity	790–4066 mg/L 3 out of 4 wells (75%) show salinities less than 1500 mg/L, which is the salinity threshold for most crop types Remaining well is partly screened across the deeper Tertiary aquifer and shows salinity more than 3000 mg/L
Five-year trend: 2013–17	3 wells show a stable trend

Regional setting



The Baroota PWRA is located within the Northern and Yorke Natural Resources Management Region and lies on the western side of the Flinders Ranges in the Mid North region of South Australia, approximately 25 km north of Port Pirie. It is a local-scale resource for which groundwater, surface water and watercourse water are prescribed under South Australia's *Natural Resources Management Act 2004*.

Groundwater extractions in the Baroota PWRA occur from the Quaternary aquifer, which is comprised of clay and gravel sediments that were deposited as outwash from the Flinders Ranges, and can be up to 100 m thick. These shallow sediments are underlain by a deeper Tertiary sand aquifer.

Variations in rainfall and rates of groundwater extraction are important factors in groundwater level and salinity changes in the Baroota PWRA. Below-average rainfall may result in a reduction in recharge to the aquifers. Below-average summer rainfall can also result in increasing irrigation extractions, and both elements can cause the groundwater levels to decline and salinities to increase. Conversely, increases in rainfall may result in increases in recharge, decreases in irrigation extractions and groundwater levels may rise and salinities may stabilise or decrease.

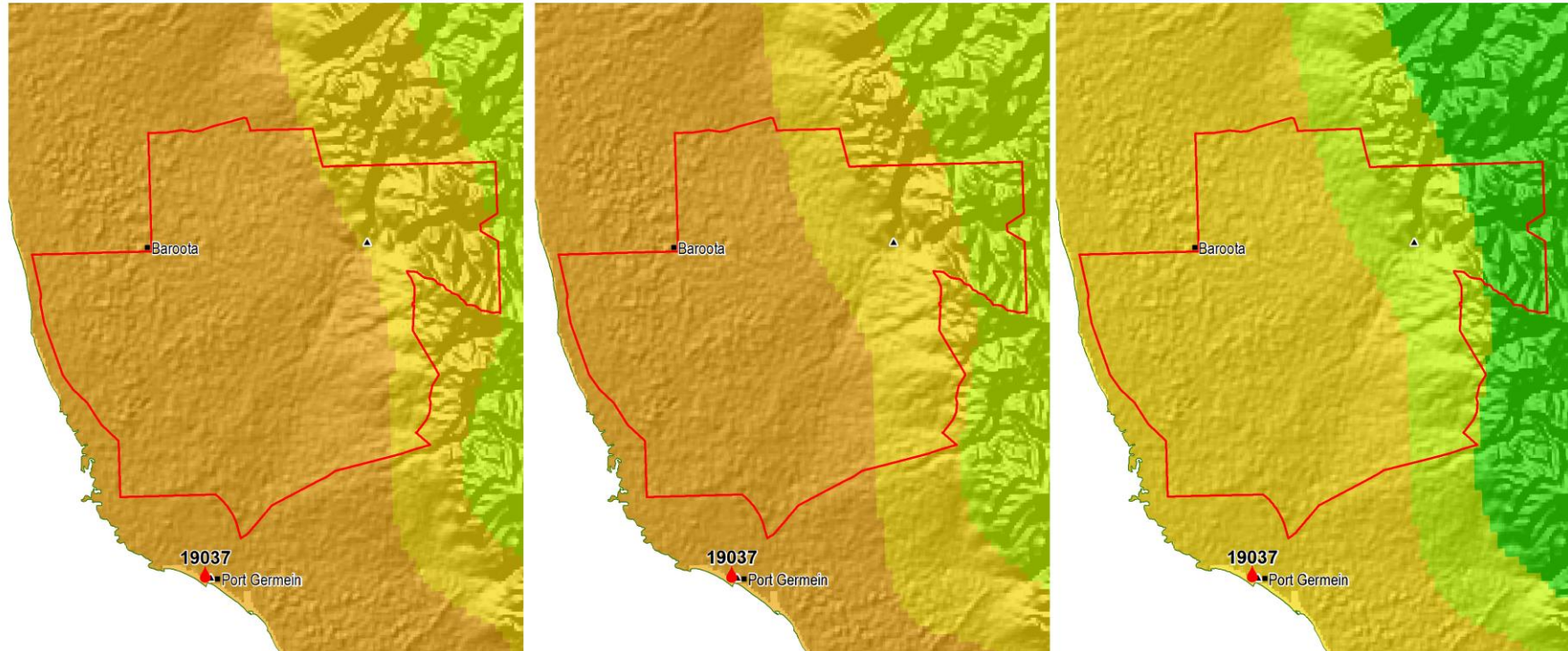
Connections between surface water bodies and groundwater may also affect groundwater levels and salinities in the Baroota PWRA. Leakage from the Baroota Reservoir manifests as streamflow along Baroota Creek and may contribute recharge to the groundwater system, especially when the reservoir is full and overflow occurs.

BAROOKA PRESCRIBED WATER RESOURCES AREA

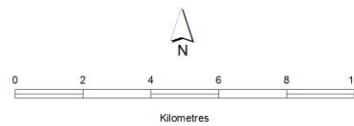
**1. Long-term average annual rainfall
(1900 to 2017)**

**2. Five-year average annual rainfall
(2012-13 to 2016-17)**

**3. Annual rainfall
(2016-17)**



Rainfall (mm/year)



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 Map Projection: Transverse Mercator Zone 54
 Map Datum: Geocentric Datum of Australia 1994
 Date: May 2018



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Figure 1. Spatial distribution of (1) Long-term and (2) five-year average annual rainfall, and (3) annual rainfall²

² Data sources: SILO Patched Point Dataset <https://silo.longpaddock.qld.gov.au/> and BoM Australian Water Availability Project (<http://www.bom.gov.au/jsp/awap/>) – see [More information](#)

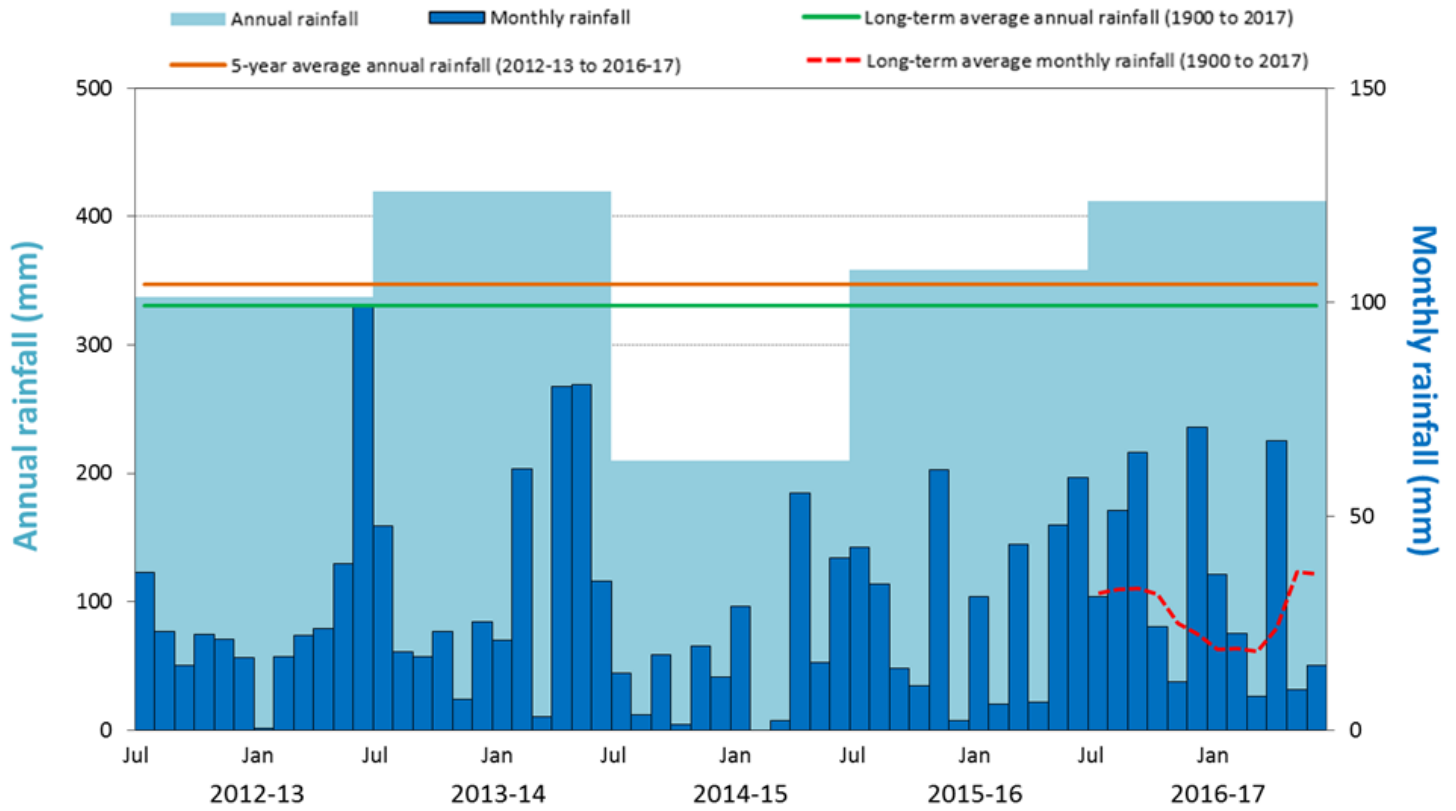
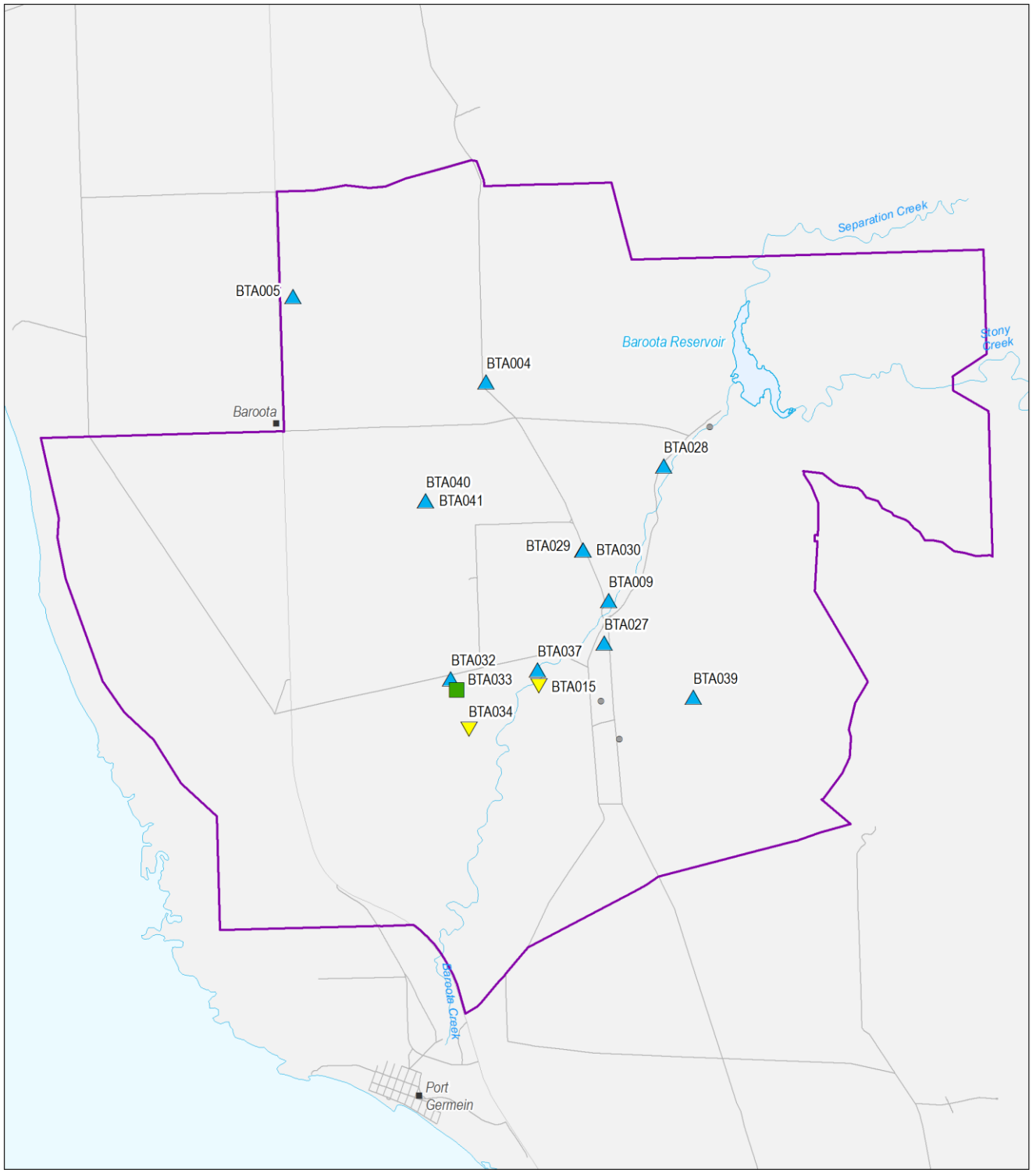


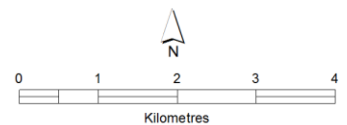
Figure 2. Annual and monthly rainfall for the past five water-use years recorded at Port Germein (BoM Station 19037)³

³ Data source: SILO Patched Point Dataset, available <https://silo.longpaddock.qld.gov.au/> – see [More information](#)



2017 water level status

- ▲ Groundwater level is above the historical minimum and has a rising trend
- Groundwater level is above the historical minimum and is stable
- ▼ Groundwater level is above the historical minimum but has a declining trend
- ▲ Groundwater level is the lowest on record but has a rising trend
- Groundwater level is the lowest on record but is stable
- ▼ Groundwater level is the lowest on record and has a declining trend
- Current monitoring well, insufficient data available
- Localities
- Watercourse
- Road
- Reservoir
- Baroota Prescribed Water Resources Area

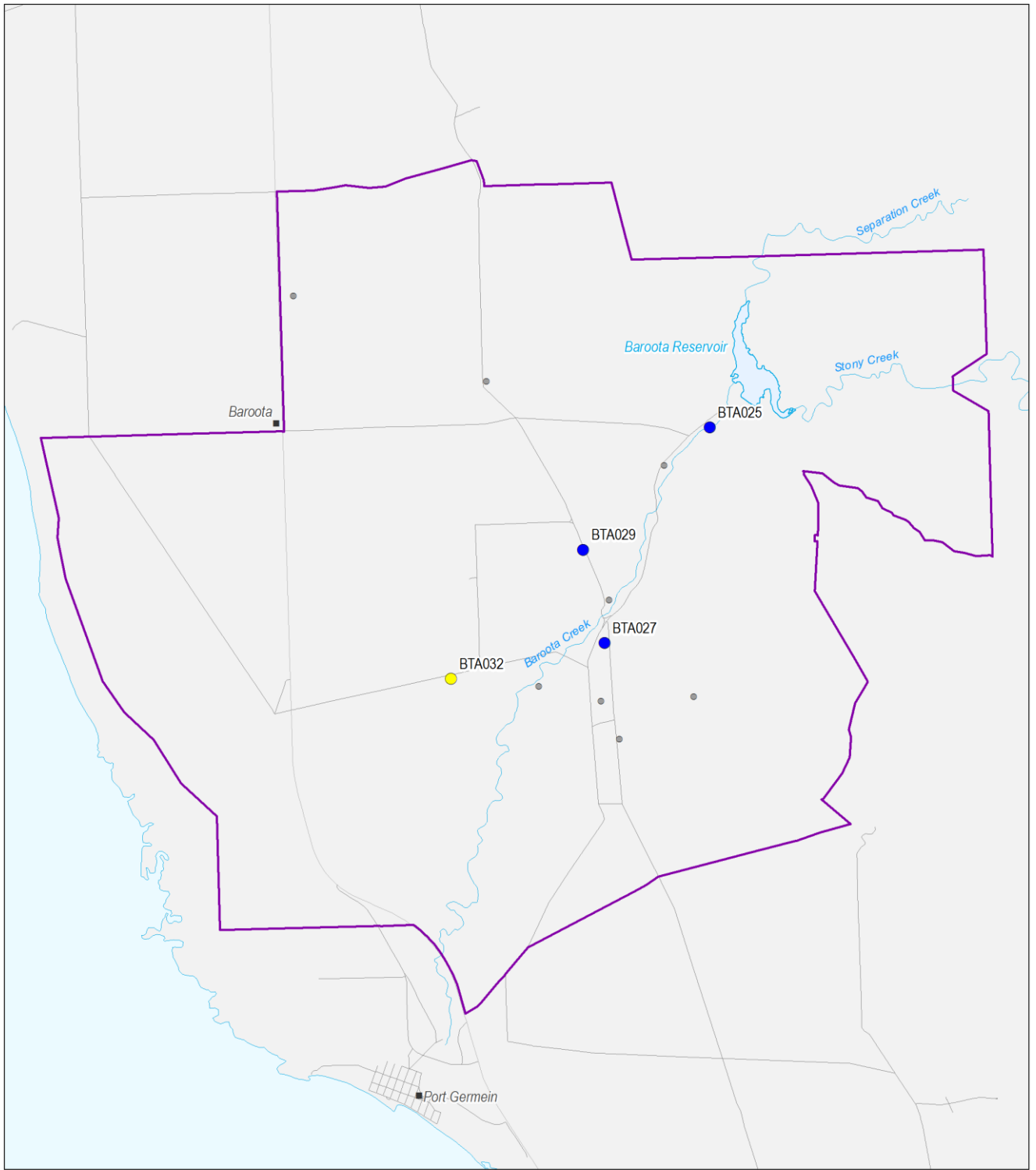


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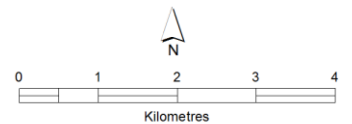
Figure 3. Five-year trends (2013–17) in groundwater pressure levels: Baroota PWRA



2017 Salinity (mg/L)

- < 1000
- 1000 - 1500
- 1500 - 3000
- 3000 - 5000
- 5000 - 8000
- > 8000

- Current monitoring well, insufficient data available
- Localities
- Watercourse
- Road
- Reservoir
- Baroota Prescribed Water Resources Area

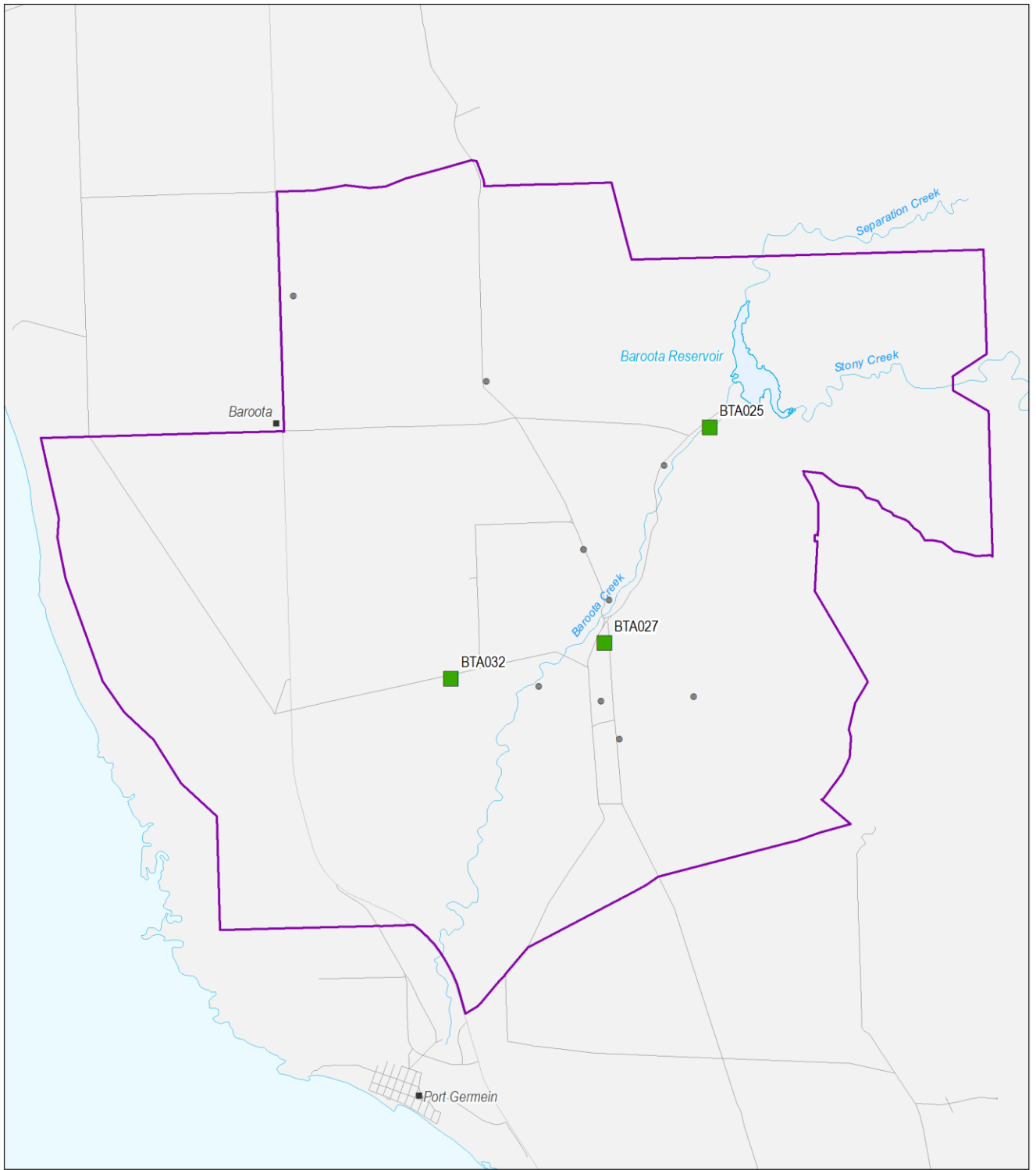


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



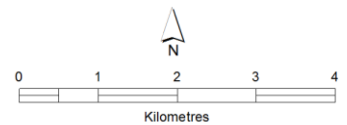
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Figure 4. 2017 groundwater salinities: Baroota PWRA



2017 salinity status

- | | | | |
|---|--|---|---|
|  | Decreasing salinity trend |  | Watercourse |
|  | Stable salinity |  | Road |
|  | Increasing salinity trend |  | Reservoir |
|  | Current monitoring well, insufficient data available |  | Baroota Prescribed Water Resources Area |
|  | Localities | | |



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Figure 5. Five-year trends (2013–17) in groundwater salinities: Baroota PWRA

More information

To determine the status of the Baroota PWRA for 2017, the trends in groundwater levels and salinities over the past five years (2013 to 2017, inclusive) were analysed, in contrast to the year-to-year assessments that have been used in *Groundwater level and salinity status reports* published prior to 2015. Please visit the [Frequently Asked Questions](#) on the *Water Resource Assessments* page on WaterConnect for more detail on the current method of evaluating the status of groundwater resources.

To view descriptions for all status symbols, and to review the full historical record of the monitoring wells, please visit the *Water Resource Assessments* page on [WaterConnect](#).

For additional information related to monitoring wells nomenclature, please refer to the *Well Details* page on [WaterConnect](#).

For information completeness and consistency across all the groundwater and salinity status reports, the legend on each map herein shows the full range of water level and salinity status that could possibly be reported. However, the measured data that appear on each map may not span this full range.

Rainfall data used in this report is sourced from the SILO Patched Point Dataset, which uses original BoM daily rainfall measurements and is available online at <https://silo.longpaddock.qld.gov.au/>. Rainfall maps have been compiled using daily gridded data produced by the BoM Australian Water Availability Project (www.bom.gov.au/jsp/awap/).

To view the *Baroota PWRA Groundwater Level and Salinity Status Report 2009–10*, which includes background information on hydrogeology, rainfall and relevant groundwater-dependent ecosystems, please visit [WaterConnect](#). To view all past published *Groundwater level and salinity status reports*, please visit the [Water Resource Assessments](#) page on WaterConnect.

To download groundwater level and salinity data from monitoring wells within the Baroota PWRA, please visit the *Groundwater Data* page under the Data Systems tab on [WaterConnect](#).

For further details about the Baroota PWRA, please see an update on the development of the *Baroota Water Allocation Plan* on the Natural Resources Northern and Yorke [website](#).

Units of Measurement

mm	millimetre
ML	megalitre
m/y	metres per year
mg/L	milligrams per litre
mg/L/y	milligrams per litre per year
mm/y	millimetres per year



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