South West rainfall and streamflow summary
Seasonal response update – September 2013

Summary
The following rainfall and streamflow summary for September 2013 is based on information from the Department of Water, Bureau of Meteorology (BoM), Department of Agriculture and Food (DAFWA), and the Water Corporation. This summary is produced monthly from May to October. Some of the information here is also presented in the context of Seasonal response on the Department of Water website; go to www.water.wa.gov.au and follow the links under News & Events.

The following points summarise the current rainfall and streamflow conditions at September 2013:

- The rainfall in September was high across South West WA and varied from average to highest on record. Majority of monitored sites received highest on record falls.
- The high rainfall resulted in above average and well above average streamflow in September at all monitored gauges.
- Half of the monitored rainfall stations had year-to-date totals in the above average category.
- Streamflow records from 12 gauging stations moved up in classification category with six stations shifting from below average to average flow totals for the nine months of this year.
- The Wellington Dam reached its capacity and is overflowing while Harvey and Stirling are 97% and 85% full respectively.
- The BoM rainfall outlook for the December quarter predicts average rainfall for South West WA.

Photo: Wellington Dam overflowing (left) and rainfall gauge at Pardelup Prison East 509498 (right)
September rainfall and streamflow

Data from 31 rainfall stations across South West WA are summarised to show the September rainfall condition across the region in comparison to historical rainfall since 1975. The period post 1975 is used because there has been an observed reduction in rainfall and runoff in the south-west from 1975 in comparison to long-term averages.

Figure 1 (top) shows that rainfall in September was high and varied from average to highest on record. Only two sites (at Newdegate and Warren River) had average rainfall total for the month. Fourteen out of 31 monitored sites had highest on record rainfall including those stations located within catchments feeding Perth’s water supply dams (Jarrahdale), groundwater recharge areas (Jandakot Aero, and Perth Airport) and also in major south-west irrigation dams catchments (Harvey River).

Rainfall across the state can be viewed at the Bureau of Meteorology’s website; go to www.bom.gov.au, follow the links to Climate > Maps – recent conditions > Rainfall, and select the Rainfall Deciles map, 1 month period and Western Australia area.

The Department of Water operates numerous river monitoring sites throughout Western Australia. Information from telemetered sites is available for viewing on the Department of Water website; go to www.water.wa.gov.au and follow the links under Tools & data > Monitoring and data > River level monitoring. A small subset of 31 of these sites is used in this report.

Seventeen telemetered streamflow gauges across South West WA were analysed for the month of September (Figure 1 – bottom). Streamflow recorded this month fell into two categories: above average and well above average. Ten sites had above average streamflow totals, while seven stations recorded well above average flows.

Figure 1: Monthly decile ranges for rainfall (top) and streamflow (bottom) in South West WA, with reference to the 1975–2012 base period
Year to date rainfall and streamflow

The year-to-date rainfall (January to September 2013) ranged from below average to highest on record (Figure 2 – top). Two stations, Geraldton and Warren River recorded below average year-to-date rainfall. Half of the monitored rainfall stations had year to date totals in the above average category.

Year-to-date rainfall across the state can be viewed at the Bureau of Meteorology’s website; go to [www.bom.gov.au](http://www.bom.gov.au), follow the links to Climate > Maps – recent conditions > Rainfall, and select the Rainfall Percentages map, Year to date period and Western Australia area.

The year to date streamflow (Figure 2 – bottom) ranged from well below average to above average across the south-west. Twelve sites moved up in classification category with six stations moving from below average to average flow totals for the nine months of this year. The Gingin Brook station continued recording well below average streamflow, while three gauges at Harvey, Murray and Hotham rivers were in the below average group.

Figure 2: Year-to-date decile ranges (January to September 2013) for rainfall (top) and streamflow (bottom) for South West WA, with reference to the 1975–2012 base period
South West storages

The Water Corporation produces monthly storage level graphs for all its dams throughout South West WA on its website. These graphs provide a comparison of the storage levels to the same time last year and the total capacity. To access the information go to www.watercorporation.com.au, navigate to Water supply & services > Rainfall, dam storage and water supply > Dam levels.

The Department of Water has developed rainfall indicators that are used to track the status of water level in numerous dams throughout South West WA.

Due to high rainfall in September, the year-to-date rainfall at Jarrahdale increased to 947.6 mm. As a result, streamflow into IWSS dams has increased to 65.8 GL as of 2 October.

The total IWSS dam storage for the Metropolitan region has increased by 18% between August and September (from 174 GL in August to 207 GL by the end of September).

This year we are trialling the rainfall-inflow indicator with industry partners for Harvey, Logue, Stirling, Wellington and Harris dams. The Wellington Dam reached its capacity and is overflowing while Harvey and Stirling are 97% and 85% full respectively. The Harris Dam is storing 61% of its capacity and the Logue Brook Dam is 32% full.

Groundwater

The current average groundwater level can be viewed at the Department of Water’s website: www.water.wa.gov.au

From 1 January, an estimated 675 mm (±10%) of rainfall at Perth Airport is needed to recharge Gnangara groundwater levels to those recorded at the end of last winter. Rainfall from 1 January to 30 September at Perth Airport was 661.6 mm.
Rainfall outlook

The Bureau of Meteorology produces a three-monthly outlook of the probability of exceeding the median rainfall. The probabilities are generated from the Predictive Ocean Atmosphere Model for Australia (POAMA), the Bureau of Meteorology's dynamical climate model. The outlook for total rainfall over the December quarter (October to December) for Western Australia is shown in Figure 1. The probability of exceeding median rainfall for months October to December is 50% across most of WA. The chance of exceeding the spring median rainfall is less than 45% for small parts of Kimberley and South Coast. The per cent consistent figure shows that the majority of the state has a reasonable per cent consistent figure above 50%.

![Figure 3: Probability of exceeding median rainfall (1981-2010) for October to December 2013 across Western Australia (left) and corresponding percent consistent map (right) (Courtesy of Bureau of Meteorology, copyright Commonwealth of Australia reproduced by permission)](image)

The Department of Agriculture and Food WA also produce statistical seasonal forecasts (SSF) of the most probable decile range. The forecast for the December quarter for South West WA and the per cent consistent figure are not available for this month. Due to the U.S Federal government shutdown, global data from NOAA.gov and most associated web sites are unavailable. This means that SSF rainfall forecasts cannot be produced in October 2013.

To access the information from the previous months go to: [ww.agric.wa.gov.au/PC_94494.html](http://ww.agric.wa.gov.au/PC_94494.html)
Rainfall tracking

Seasonal tracking of rainfall is shown for Harvey, Albany, Katanning and Perth Airport (Figure ). The year-to-date rainfall for 2013 is plotted against the historical rainfall ranges from 1975 to 2012. Figure 4 shows that the Harvey and Albany sites are tracking in the above average category while Katanning and Perth Airport are tracking in the average category. The BoM forecasts suggest rainfall is likely to continue to track in the current categories.

Figure 4: Rainfall year-to-date for Harvey (top left), Albany (top right), Katanning (bottom left) and Perth Airport (bottom right), with reference to the 1975–2012 base period.