



Samson North Drain

The Samson Brook catchment starts in the Dwellingup State Forest on the Darling Plateau and drains west to the Harvey River. Samson Brook is dammed at Lake Kabbanup (Samson Brook Dam) which is used to supply the Waroona Irrigation District. Seven kilometres downstream of the Samson Brook Dam is the Samson Brook Pipehead Dam. Originally a pipehead weir constructed in 1962 it was upgraded to a dam in 2003 and feeds water into the state water supply grid.

| Land use classification (2006) | Area | |
|---------------------------------------|--------------------|------------|
| | (km ²) | (%) |
| Cattle for beef (predominantly) | 45 | 23 |
| Cattle for dairy | 1.77 | 0.91 |
| Conservation and natural | 125 | 64 |
| Horticulture | 2.7 | 1.4 |
| Industry, manufacturing and transport | 17 | 8.8 |
| Lifestyle block | 0.87 | 0.45 |
| Mixed grazing | 0.97 | 0.50 |
| Offices, commercial and education | 0.01 | <0.01 |
| Plantation | 0.39 | 0.20 |
| Residential | 0.16 | 0.08 |
| Total | 195 | 100 |

Downstream of the dams, engineering works divert Samson Brook to the south into Samson South Drain and Samson North Drain. Excessive flows may flow north but are prevented from flowing into Waroona Drain. Samson North Drain flows through the north west of the catchment and drains into Samson South Drain which in turn drains into the Harvey River downstream of Logue Brook.

The catchment's monitoring site on Samson North Drain is located adjacent to Somers Road (613014). The drain has been monitored for nutrients since 1990 while flow was measured from 1978 to 1999 and again between 2005 and early 2008. Samson North Drain flows year round.

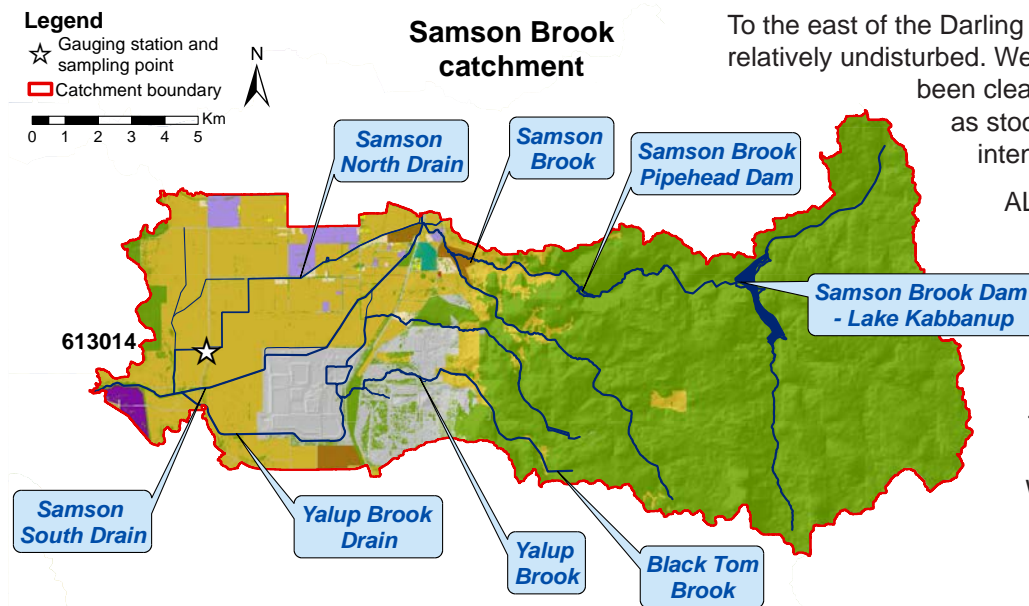


Samson North Drain gauging station at Somers Road - March 2005

Only 2% of the Samson Brook catchment is subject to seasonal inundation while 8% of the catchment has a high or very high risk of phosphorus leaching to waterways.

To the east of the Darling Scarp the catchment remains relatively undisturbed. West of the scarp, the land has been cleared, mostly for agriculture such as stock grazing, as well as more intensive land uses such as industry.

ALCOA's Wagerup refinery has been in operation since 1984 and was expanded in 2006. It covers 9% of the catchment and utilises the brooks and drains that flow through or are adjacent to its holding. The alumina refinery processes bauxite from the nearby Willowdale bauxite mine.



Nutrient summary: median concentrations, loads and status classification at 613014

| Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Annual flow (GL) | | | | | | 5.6* | 2.3 | 4.7* | | | | | | |
| TN median (mg/L) | 1.7 | 1.2 | 1.6 | 1.9 | 1.8 | 1.2 | 2.9 | 1.9 | 1.5 | 1.9 | 1.0 | 1.4 | 1.3 | 1.9 |
| TP median (mg/L) | 0.21 | 0.16 | 0.21 | 0.23 | 0.24 | 0.11 | 0.53 | 0.16 | 0.14 | 0.22 | 0.13 | 0.18 | 0.23 | 0.18 |
| TN load (t/year) | | | | | | 14* | 5.4 | 14* | | | | | | |
| TP load (t/year) | | | | | | 1.7* | 0.82 | 1.4* | | | | | | |

Status classification: ■ Low ■ Moderate ■ High ■ Very high

Status reported for three-year period end (i.e. 2011-13 reported in 2013)

* best estimate using available data

TN = total nitrogen TP = total phosphorus