Upper Swan

The Upper Swan catchment consists of a number of creeks and drains which discharge into the Swan River and Upper Swan Estuary at various points. Drainage is highly modified in the southern and central portions of the catchment but remains more natural in the northern section.

Archaeological evidence shows that the Upper Swan River and surrounding areas were important to the local Nyungar people. After the foundation of the Swan River Colony the fertile alluvial flats along both sides of the river were used as agricultural land. Over time, land use has changed in the southern portion of the catchment to urban and industrial uses while the northern section retains many vineyards. Caversham Airbase is in the upper part of the Wandoo Creek subcatchment.

The western edge of the catchment is characterised by leached, highly permeable, Bassendean sands which have poor nutrient-retention capabilities. The remainder of the catchment has neutral red and yellow earths which tend to be more fertile and viticulture is the dominant land use here.

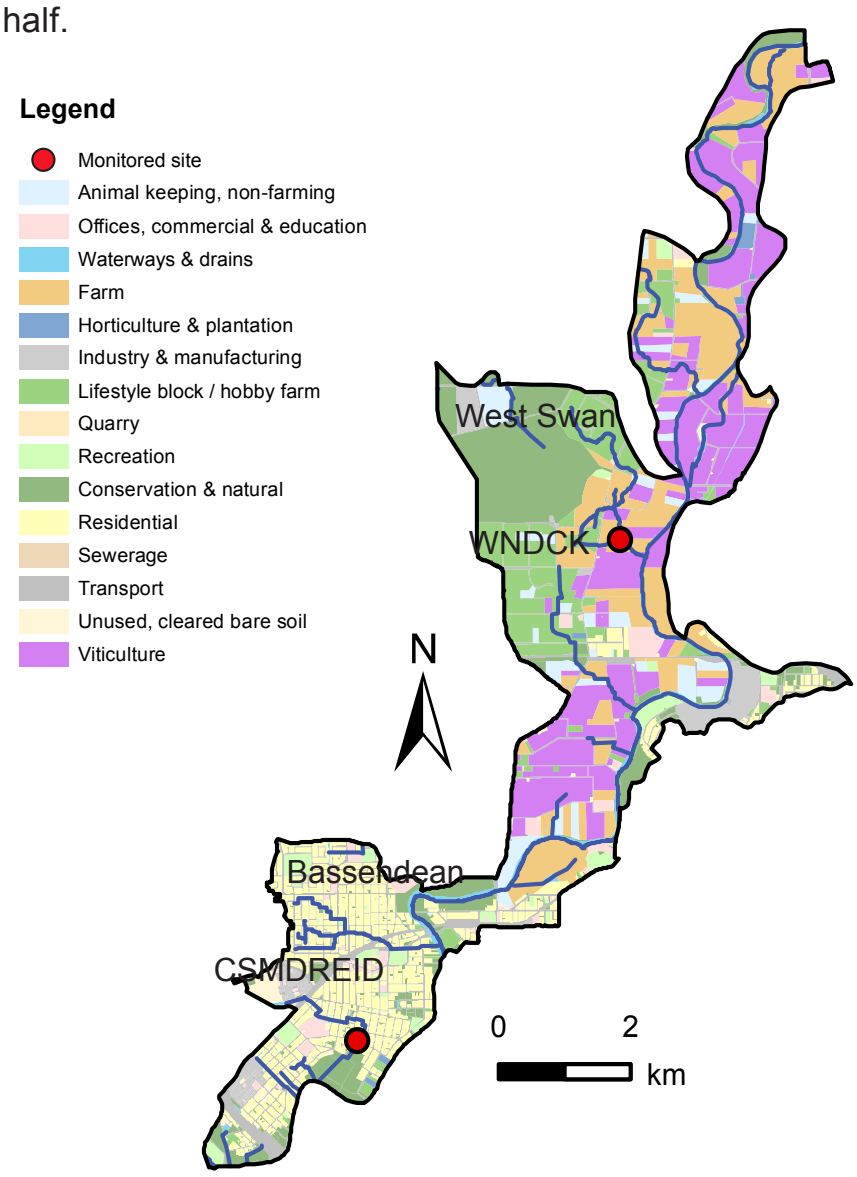
Two sites are monitored fortnightly for water quality. One is on Wandoo Creek (WNDCK), West Swan and one is on Chapman Street Drain (CSMDREID), Ashfield. These two waterways have very different land uses in their catchments. The sampling sites give an indication of the nutrient concentrations leaving the two subcatchments and entering the Swan River and Upper Swan Estuary. They do not represent nutrient concentrations in upstream areas, nor give an indication of the water quality in the remaining subcatchments. In 2015 and 2017, the Wandoo Creek site (WNDCK) was not flowing on any of the sampling occasions. In 2018 the site was not flowing in the first half of the year and was inaccessible in the second half.

Upper Swan – facts and figures

Average rainfall (2014–18)	~ 720 mm per year (Perth metro)
Catchment area	39 km^2
Per cent cleared area (2005)	83% (total catchment)
River flow	CSMDREID flows year round whilst WNDCK dries for at least six months every year
Main land uses (2005)	Viticulture, farms, residential and lifestyle blocks/ hobby farms (total catchment)

Looking downstream from Chapman Street Drain sampling site (CSMDREID), April 2015.

Looking downstream from Wandoo Creek sampling site (WNDCK), August 2016.



Nutrient summary: concentrations, rainfall and targets

Year	Site	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Annual rainfall (mm)	009225	807.8	607.2	503.8	860.8	608.2	782.4	674.4	617.8	715.8	854.0	741.6
TN median (mg/L)	CSMDREID			1.40	1.20	1.20	1.10	1.30	1.60	1.35	1.10	1.20
TP median (mg/L)	CSMDREID			0.110	0.120	0.120	0.150	0.160	0.160	0.165	0.145	0.150
TN median (mg/L)	WNDCK					2.80	3.00	2.55		3.05		
TP median (mg/L)	WNDCK					0.340	0.440	0.335		0.370		

TN short term target = 2.0 mg/L TN long term target = 1.0 mg/L TP short term target = 0.2 mg/L TP long term target = 0.1 mg/L

insufficient data to test target failing both short and long-term target passing short but failing long-term target passing both short and long-term target

* Best estimate using available data. # Statistical tests that account for the number of samples and large data variability are used for testing against targets on three years of winter data. Thus the annual median value can be above the target even when the site passes the target (or below the target when the site fails).

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