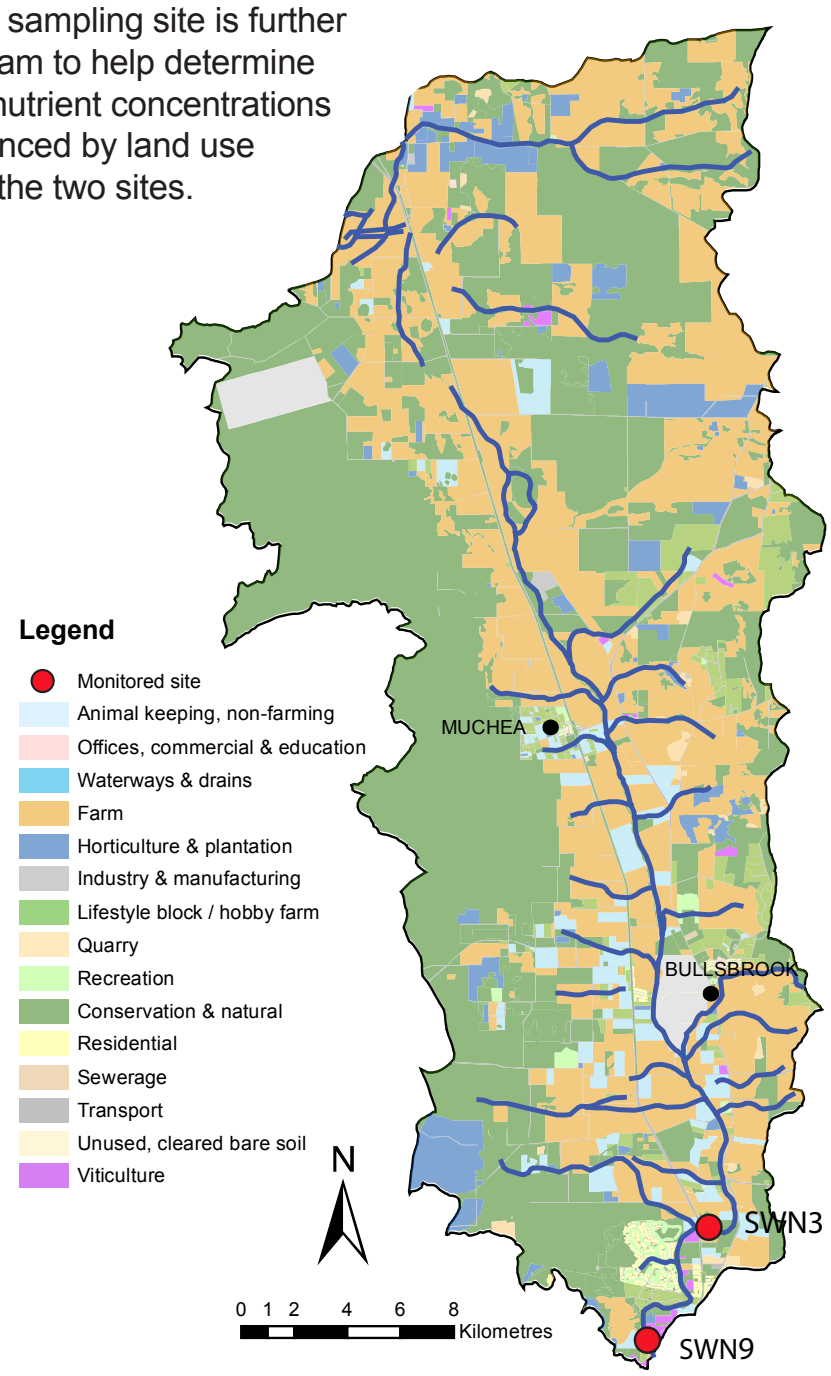
Ellen Brook

Ellen Brook is a natural, ephemeral waterway and has the largest catchment area of all the Swan Canning subcatchments on the Swan Coastal Plain. It discharges into the Upper Swan Estuary near West Swan Road in Belhus.

Much of the Ellen Brook catchment has been cleared for agriculture. Some of the remaining areas of vegetation have a high conservation value, containing rare and endangered flora and fauna such as the western swamp tortoise.

Soils in the Ellen Brook catchment consist mainly of Bassendean sands in the west, Guildford clays along the Ellen Brook valley and red earth soils to the east. Shallow lenses of sandy-clay and loamy-clay duplexes are also common in valley areas, giving rise to perched wetlands during wet periods. Groundwater flows towards Ellen Brook from the Gnangara Mound in the west and from aquifers on the Dandaragan Plateau to the east. Natural springs are present in some areas.

Water quality is monitored fortnightly at the Department of Water and Environmental Regulation gauging station near the lower end of the brook, close to Great Northern Highway. This site is useful to estimate what nutrients are leaving the catchment, but not nutrient concentrations in upstream tributaries. A second sampling site is further downstream to help determine whether nutrient concentrations are influenced by land use between the two sites.



Ellen Brook – facts and figures

Average rainfall (2014–18)	~ 720 mm per year (Perth metro)
Catchment area	715 km^2
Per cent cleared area (2005)	54%
River flow	Ephemeral (May to December) No major water supply dams in catchment
Average annual flow	~ 15.2 GL per year (2014–18 average)
Main land uses (2005)	Conservation and natural, farms

A riffle installed in Ellen Brook, October 2016.

High water levels at West Swan Road after heavy summer rainfall, February 2017.

Nutrient summary: concentrations, estimated loads and targets

Year	Site	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Annual flow (GL)	616189	12.9	19.1	2.3	9.2	3.1	18.3	9.7*	4.1*	18.4*	17.8*	26.1*
TN median (mg/L)	SWN3	2.00#	2.40	2.00#	2.20	1.80#	2.50	2.20	2.30	2.50	2.70	2.70
TP median (mg/L)	SWN3	0.390	0.440	0.270	0.430	0.280	0.495	0.440	0.310	0.440	0.565	0.450
TN load (t/yr)	SWN3	29.68	46.10	4.38	20.88	5.88	45.21	22.19*	8.77*	46.93*	46.58*	70.84*
TP load (t/yr)	SWN3	5.81	9.09	0.82	3.94	1.10	9.46	4.13*	1.58*	8.81*	9.01*	12.59*
TN median (mg/L)	SWN9			0.78	1.45	0.98#	0.97#	1.25	1.30	1.80	1.60	1.35#
TP median (mg/L)	SWN9			0.115	0.185	0.150	0.130	0.135	0.105	0.210	0.150#	0.135#

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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