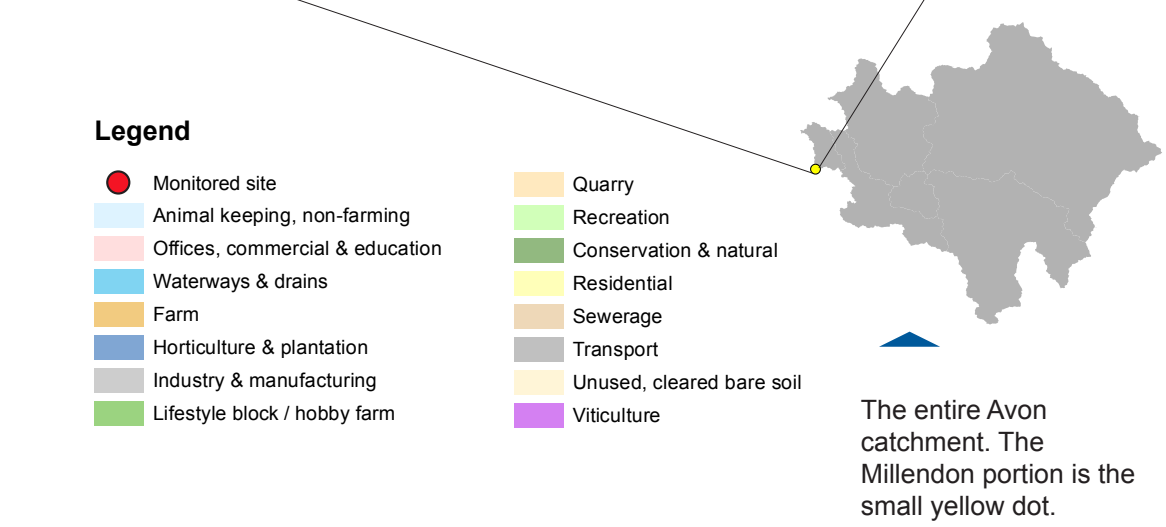
Avon River (Millendon)

The Avon River contributes the single-largest inflow to the Swan River and has the largest overall catchment of those monitored, only 35 km^2 of which is located on the Swan Coastal Plain (see adjoining map). The remainder of the catchment (approximately 120 000 km^2 in total) extends about 500 km inland, past the Darling Scarp and the goldfield towns of Southern Cross and Lake Grace. Most of the catchment east of the scarp drains internally and does not contribute flow to the monitored portion year-round.

Extensive areas of the catchment have been cleared of the natural dry sclerophyll woodland for agriculture. The replacement of this deep-rooted vegetation by seasonal shallow-rooted crops has reduced evaporation and increased surface water run-off and groundwater recharge. In turn this has increased annual flows by an estimated 80% in the catchment's monitored portion. It does, however, remain an ephemeral system – drying to a series of pools in summer.

Soils in the catchment's monitored portion include red gravels and earths to the east of the Darling Scarp; shallow red and yellow earths as the Avon flows over the scarp; gravelly and sandy Forrestfield and Guildford soils in the foothills; and alluvial red earths adjacent to the river.

Water quality samples are collected at the Avon River's lower end near the Great Northern Highway to indicate the nutrients leaving the catchment. Note that the values determined may not represent nutrient concentrations in upstream tributaries. Flow is measured at the Department of Water gauging station located just downstream of Walyunga National Park.



The entire Avon catchment. The Millendon portion is the small yellow dot.

Great Northern Highway bridge, January, 2003.

Avon River – facts and figures

Length	~ 260 km (overall); ~ 7 km (monitored)
Average rainfall (2011–15)	~ 709 mm per year (Perth metro)
Gauging station near monitored site	Site number 616011
Catchment area	120 000 km^2 (total) 35 km^2 (monitored)
River flow	Ephemeral No major water supply dams in catchment
Average annual flow	~ 97 GL per year (2011–15 average)
Main land uses	Broad-acre grazing, livestock agistment, cereal crops and townships

Nutrient Summary: concentrations, loads and targets

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Annual flow (GL)	267.0	111.0	292.0	107.4	140.2	181.9	246.0	23.8	135.0	35.1	150.1	118.0*	45.3*
TN median (mg/L)	0.74	0.52	0.78	0.79	0.79	0.80	1.00	0.73	1.10#	0.89	1.15#	0.94	0.87
TP median (mg/L)	0.018	0.016	0.022	0.010	0.013	0.019	0.016	0.018	0.030	0.014	0.015	0.023	0.017
TN load (t/yr)	318.4	107.6	355.0	113.8	153.4	251.0	319.0	20.6	155.4	30.2	169.8	115.7*	44.2*
TP load (t/yr)	9.21	2.79	10.45	3.07	4.00	7.52	9.37	0.48	4.44	0.70	4.53	2.90*	1.10*

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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