Department of **Water and Environmental Regulation**
Department of **Biodiversity, Conservation and Attractions**
GOVERNMENT OF WESTERN AUSTRALIA

Avon River (Millendon)

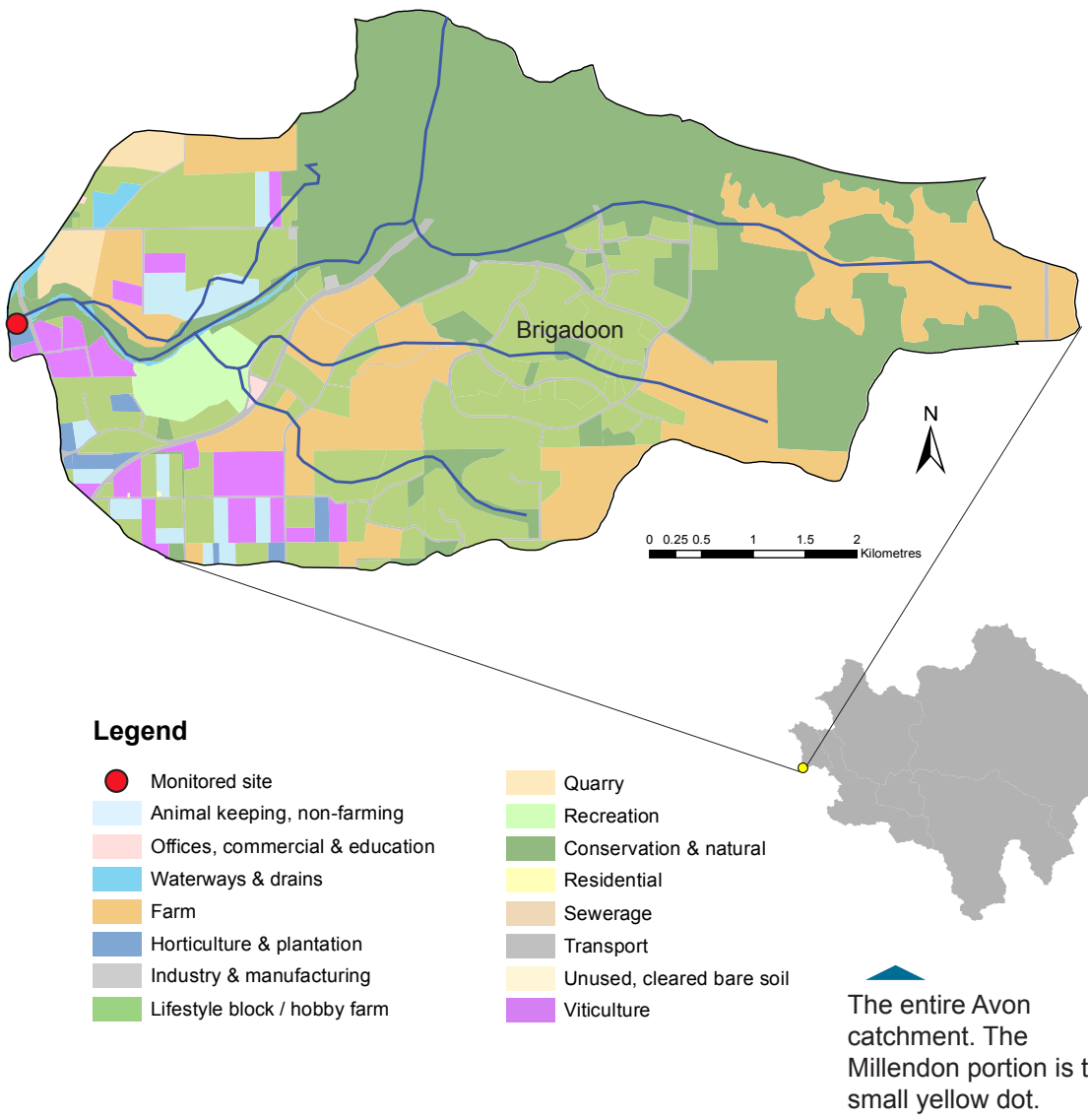
The Avon River contributes the single-largest inflow to the Swan River and has the largest overall catchment of those monitored, however only 35 km^2 is on the Swan Coastal Plain (see adjoining map). The remainder of the catchment (about 120 000 km^2 in total) extends about 500 km inland, past the Darling 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 evapotranspiration 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 fortnightly near the Great Northern Highway to indicate the nutrient contribution from the Avon catchment. Note that the values determined may not represent nutrient concentrations in upstream tributaries. Flow is measured at the Department of Water and Environmental Regulation's gauging station just downstream of Walyunga National Park.

Sampling site at Great Northern Highway, August, 2012.



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

Millendon – facts and figures

Average rainfall (2014–18)	~ 720 mm per year (Perth metro) ~ 300 mm per year (Southern Cross)
Catchment area	120 000 km^2 (total Avon catchment) 35 km^2 (Millendon catchment only)
Per cent cleared area (2005)	53%
River flow	Ephemeral No major water supply dams in catchment
Average annual flow	~ 220 GL per year (2014–18 average)
Main land uses (2005)	Conservation and natural, farming, lifestyle blocks/hobby farms.

Nutrient summary: concentrations, estimated loads and targets

Year	Site	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Annual flow (GL)	616011	181.9	246.0	23.8	135.0	35.1	150.1	118.0*	45.3*	222.1*	421.7*	310.6*
TN median (mg/L)	SWN5	0.80	1.00	0.73	1.10#	0.89	1.15#	0.94	0.87	1.00	0.97	1.05#
TP median (mg/L)	SWN5	0.019	0.016	0.018	0.030	0.014	0.015	0.023	0.017	0.026	0.018	0.017
TN load (t/yr)	SWN5	251.0	319.0	20.6	155.4	30.2	169.8	115.7*	44.2*	247.1*	800.9*	519.9*
TP load (t/yr)	SWN5	7.52	9.37	0.48	4.44	0.70	4.53	2.90*	1.10*	7.09*	28.72*	15.4*

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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