



Lower Serpentine River - Gull Road Drain

The lower Serpentine catchment drains to the Serpentine River and lakes between Lake Amarillo and the Peel Inlet.

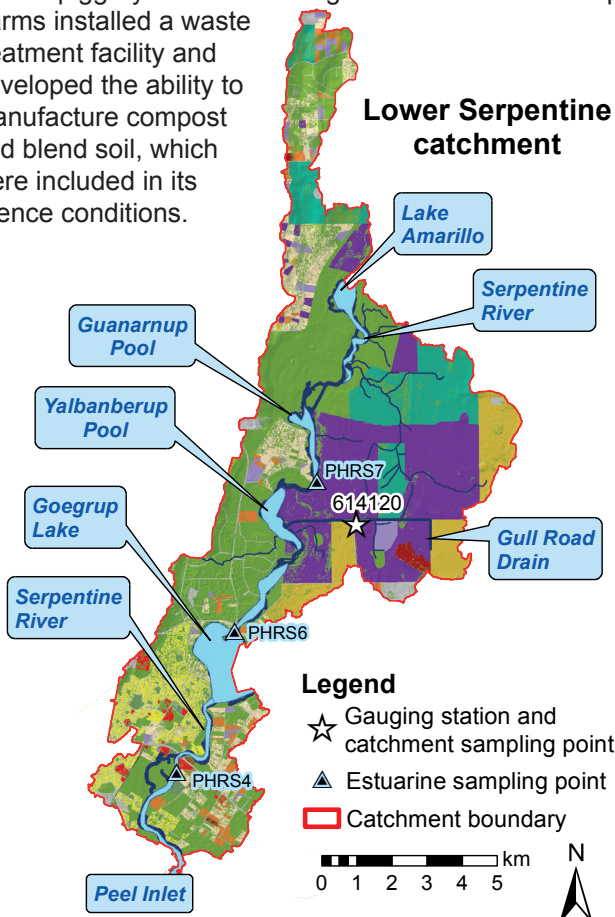
The lower Serpentine River is tidal so it was not monitored as part of the catchment program. Water quality was monitored at a sampling point in Gull Road Drain (614120), which flows from the east to Yalbanberup Pool. Flow was measured at the Gull Road Drain gauging station between March 2005 and April 2008. The drain stops flowing between December and May in most years.

This site's nutrient concentrations have been of concern for many years and are attributed to Wandalup Farms' (piggery) treatment ponds overflow in the past. In December 2003, in an effort to reduce the impact of the the piggery on the receiving environment Wandalup Farms installed a waste treatment facility and developed the ability to manufacture compost and blend soil, which were included in its licence conditions.

Most of the lower Serpentine catchment is situated on dunes with leached sands and nearly 90% of the catchment has a moderate to very high risk of phosphorus leaching to waterways.

West of the Serpentine River and south of Goegrup Lake, much of the catchment has been urbanised, yet large areas of natural vegetation remain. To the river's east, north of Goegrup Lake, the land has been cleared – mostly for agriculture such as stock grazing, plantations and horticulture. Most of this area is subject to inundation (67%).

Between 2003 and 2006 the area used for 'horticulture' reduced by two-thirds, while land dedicated to 'plantations' nearly doubled. The lower Serpentine catchment is one of the smallest subcatchments in the Peel-Harvey catchment, but in 2006 it had the largest area and percentage area dedicated to 'mixed grazing'.



Land use classification (2006)	Area	
	(km ²)	(%)
Animal keeping – non-farming (horses)	1.8	1.9
Cattle for beef (predominantly)	6.1	6.5
Conservation and natural	42	44
Horticulture	1.7	1.8
Industry, manufacturing and transport	4.8	5.1
Intensive animal use	0.52	0.55
Lifestyle block	5.6	5.9
Mixed grazing	18	19
Offices, commercial and education	0.66	0.70
Plantation	9.5	10
Recreation	0.44	0.46
Residential	3.6	3.8
Viticulture	0.01	0.01
Total	94	100

In 2016 Gull Road Drain had the highest median TN and TP concentrations of the 13 sites sampled in the Peel-Harvey catchment.

Nutrient summary: median concentrations, loads and status classification at 614120

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Annual flow (GL)	-	-	0.87*	0.03	0.31	-	-	-	-	-	-	-	-	-
TN median (mg/L)	12	3.9	4.7	4.3	4.4	4.9	4.1	4.4	5.2	5.0	4.5	4.4	6.3	5.4
TP median (mg/L)	4.4	2.3	2.1	4.8	1.6	1.5	1.1	1.3	1.4	1.1	0.77	0.93	0.94	0.80
TN load (t/year)	-	-	4.1*	0.15	1.4	-	-	-	-	-	-	-	-	-
TP load (t/year)	-	-	2.0*	0.07	0.64	-	-	-	-	-	-	-	-	-

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

Status reported for three-year period end (i.e. 2012–14 reported in 2014)

TN = total nitrogen TP = total phosphorus

* Best estimate using available data (- not applicable)