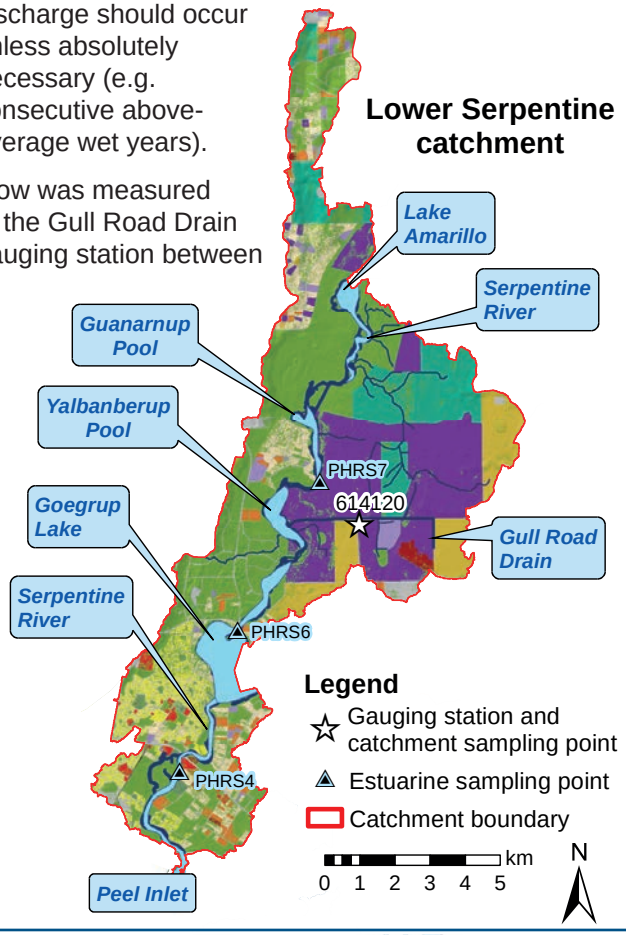
Lower Serpentine River

The lower Serpentine catchment drains to the Serpentine River and Lakes between Lake Amarillo and the Peel Inlet. The catchment encompasses land to either side of the Serpentine River and Lakes.

The lower Serpentine River itself is tidal so 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. The sampling site's nutrient concentrations have been of concern for many years and are attributed to excess volume from Wandalup Farms' (piggery) treatment ponds being discharged there in the past. The surface water discharge from Wandalup ceased in 2005 and while licence conditions still enable it, no surface water discharge should occur unless absolutely necessary (e.g. consecutive above-average wet years).

Flow was measured at the Gull Road Drain gauging station between March 2005 and April 2008. The drain ceases to flow between December and May in most years.



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.

To the Serpentine River's west 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, as well as 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, however in 2006 it had the largest area and percentage area dedicated to 'mixed grazing'

Land use classification (2006)	Area (km²)	Area (%)
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 2013 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	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Annual flow (GL)						0.87*	0.03	0.31						
TN median (mg/L)	19	4.7	14	12	3.9	4.7	4.3	4.4	4.9	4.1	4.4	5.3	5.0	4.5
TP median (mg/L)	3.4	1.6	3.4	4.4	2.3	2.1	4.8	1.6	1.5	1.1	1.3	1.5	1.1	0.77
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. 2011–13 reported in 2013)

* best estimate using available data

TN = total nitrogen TP = total phosphorus

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