

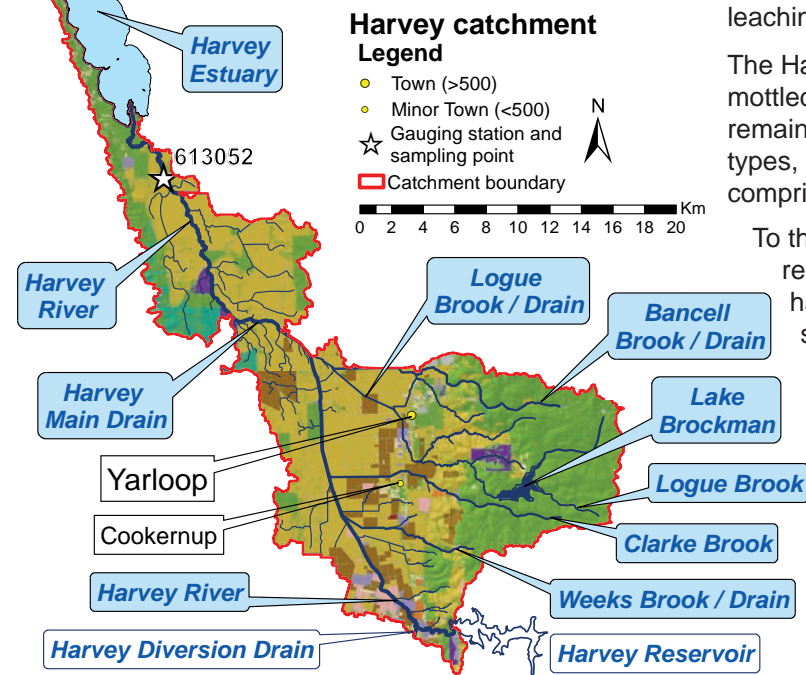


Harvey River

The Harvey River flows north-easterly from the Harvey Reservoir to its discharge point at the southern end of the Harvey Estuary. Many of the waterways within the catchment have been modified and these portions of the rivers and brooks have been re-named as drains. Just downstream of the Harvey Reservoir the Harvey Diversion Drain carries water directly to the ocean.

The headwaters of Logue Brook are located on the Darling Plateau in the Dwellingup State Forest. The Brook flows into Lake Brockman, the reservoir formed by Logue Brook Dam, before continuing through the coastal plain to its confluence with Harvey Main Drain. Bancell Brook flows into Logue Brook while both Clarke Brook and Weeks Brook discharge into Harvey Main Drain, upstream of Logue Brook.

The Harvey River monitoring site at Clifton Park (613052) is one of three long-term monitoring sites within the Peel-Harvey catchment. Nutrients have been monitored since 1982 and flow measured from 1983. The Harvey River flows year-round.

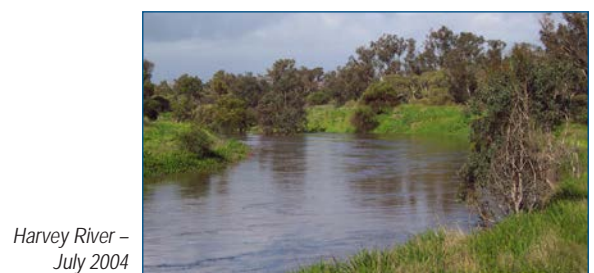


| Land use classification (2006) | Area | |
|---------------------------------------|--------------------|------------|
| | (km ²) | (%) |
| Animal keeping – non-farming (horses) | 1.1 | 0.26 |
| Cattle for beef (predominantly) | 169 | 41 |
| Cattle for dairy | 27 | 6.5 |
| Conservation and natural | 172 | 42 |
| Cropping | <0.01 | <0.01 |
| Horticulture | 5.3 | 1.3 |
| Industry, manufacturing and transport | 8.1 | 2.0 |
| Intensive animal use | 0.15 | 0.04 |
| Lifestyle block | 5.6 | 1.4 |
| Mixed grazing | 4.9 | 1.2 |
| Offices, commercial and education | 0.54 | 0.13 |
| Plantation | 9.5 | 2.3 |
| Recreation | 0.10 | 0.02 |
| Residential | 1.3 | 0.31 |
| Viticulture | 4.3 | 1.1 |
| Total | 408 | 100 |

Nearly 10% of the Harvey catchment is subject to seasonal inundation (9.4%) and more than a quarter of the catchment has a high or very high risk of phosphorus leaching to waterways (27%).

The Harvey River flows through sandy acidic yellow mottled soils, some containing ironstone gravel. The remainder of the catchment consists of a variety of soil types, including leached sands and poorly drained flats comprising of black and grey cracking clays.

To the east of the Darling Scarp the catchment remains relatively undisturbed. West of the scarp, the land has been cleared, mostly for agriculture such as stock grazing, as well as more intensive land uses such as piggeries and turf farms.



Nutrient summary: median concentrations, loads and status classification at 613052

| Year | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Annual flow (GL) | 217 | 196 | 208 | 57 | 106 | 105* | 103* | 143 | 38 | 84 | 107 | 95 | 20 | 73 |
| TN median (mg/L) | 0.96 | 0.98 | 1.0 | 0.90 | 1.0 | 1.0 | 1.0 | 0.88 | 1.0 | 1.3 | 1.3 | 0.85 | 0.80 | 1.1 |
| TP median (mg/L) | 0.16 | 0.19 | 0.14 | 0.16 | 0.15 | 0.15 | 0.12 | 0.14 | 0.13 | 0.15 | 0.20 | 0.11 | 0.07 | 0.10 |
| TN load (t/year) | 504 | 374 | 388 | 81 | 189 | 198* | 191* | 273 | 71 | 190 | 199 | 201 | 30 | 147 |
| TP load (t/year) | 57 | 54 | 58 | 11 | 27 | 29* | 27* | 42 | 9.4 | 24 | 27 | 26 | 3.8 | 19 |

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

Status reported for three-year period end (i.e. 1996 – 1998 reported in 1998)

* best estimate using available data

TN = total nitrogen TP = total phosphorus