



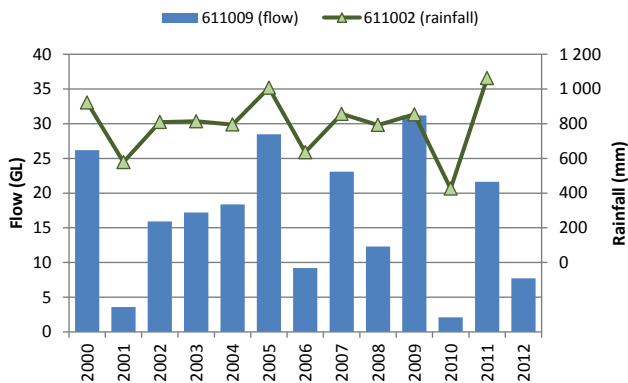
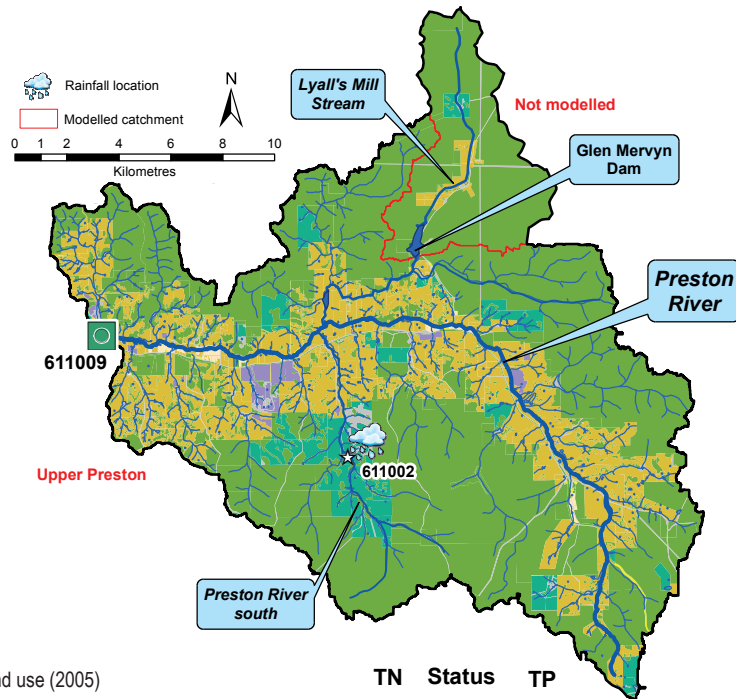
Upper Preston River

The Upper Preston catchment lies on the Darling Plateau, upstream of Lowden. It consists of land draining to the Preston River upstream of the gauging station near Ferguson Road, north of the Donnybrook-Boyup Brook Road.

The Preston River has two main tributaries, the Preston River south and Lyall's Mill Stream. Glen Mervyn Dam (completed in 1969) impounds the Lyall's Mill Stream and controlled discharge aids in regulating flow in the Preston River during summer.

Most of the catchment remains uncleared (68%) however the land surrounding the waterways is utilised for agriculture (e.g. stock grazing and plantations).

The upper Preston River (gauging station 611009) at Lowden was monitored regularly for nutrients from May 2006 and flow since March 1999. Nutrient sampling at this site stopped in mid-2012 when funding ceased. Rainfall is recorded on the Preston River south (611002), Mandalay.



Status and trends

The upper Preston River had a low nutrient status for both total nitrogen (TN) and total phosphorus (TP) (2009–11).

No trends in either TN or TP concentrations were detected (2007–11).



Performance against targets

TN concentrations (2009–11) failed the water quality target while TP concentrations passed.

The *Leschenault Estuary water quality improvement plan* (WQIP) classifies the Upper Preston as an intervention catchment as the modelled winter TN concentrations failed the target while the TP concentrations passed (1998–2007).

The catchment upstream of Glen Mervyn Dam was not included in the modelling undertaken for the WQIP.



Annual concentrations, flow and target performance (611009)

Year	2004	2005	2006	2007	2008	2009	2010	2011
Flow (GL)	18	28	9	23	12	31	2.1	22
TN median (mg/L)			0.55	0.54	0.51	0.79	0.52	0.66
TP median (mg/L)			0.008	0.013	0.011	0.014	0.013	0.012

insufficient data to test target passing target failing target

TN concentration target = 0.45 mg/L TP concentration target = 0.02 mg/L

Statistical tests that account for the number of samples and large data variability are used for compliance testing on three years of winter data.



Modelled nutrient loads (1998–2007)

Each year there was an average of 11 tonnes of nitrogen and 0.25 tonnes of phosphorous exported from the Upper Preston catchment.

The primary source of nutrient loads were cattle for beef, followed by uncleared (i.e. state forest and national park) and plantation land uses. While loads from uncleared land are from natural processes, both cattle for beef and plantation land uses could be better managed to reduce their nutrient exports.

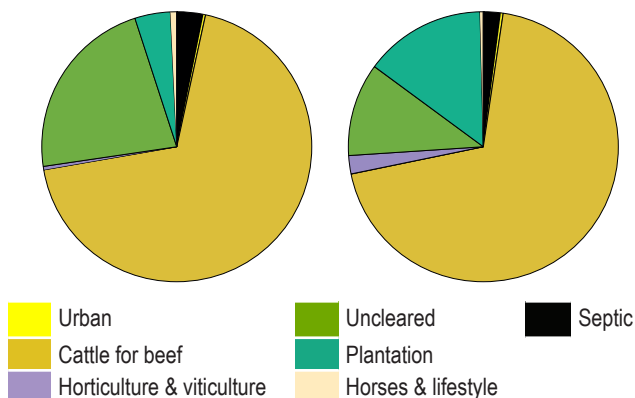
To achieve water quality targets a 9% reduction in nitrogen load was set for the Upper Preston catchment. Phosphorous loads were considered acceptable.

Nitrogen

annual load = 11 tonnes
load reduction target = 9%

Phosphorus

annual load = 0.25 tonnes
load reduction target = 0%



The Leschenault Estuary water quality improvement plan (WQIP)

The WQIP outlines a range of management actions which have the potential to improve water quality and prevent further decline. These fall under the following categories:

- Nutrient and contaminant reduction.
- Environmental water management.
- Assess condition and measure progress.

Nutrient reduction strategies

The best management practices (BMPs) that will result in improved water quality in the Upper Preston catchment in descending order of effectiveness for N and P are as follows:

Nitrogen reduction

1. Riparian zone restoration and creation of buffers (includes removal of stock from waterways).
2. Perennial pastures.
3. Better fertiliser management.

Phosphorus reduction

1. Riparian zone restoration and creation of buffers (includes removal of stock from waterways).
2. Better fertiliser management.
3. Slow release fertiliser (once available).
4. Perennial pastures.



Upper Preston River.

Key messages

- The Upper Preston River catchment is failing the TN target.
- No clear progress in achieving a nitrogen load reduction has been detected yet.
- TN and TP status classifications are low.
- TP concentrations are passing the water quality target and no reduction in TP load is required.
- Fencing stock from waterways and revegetating the riparian zone are the best methods for reducing nitrogen and phosphorus concentrations and improving water quality.