Improving water quality in the kanamaluka/Tamar estuary

The TEER Water Quality Improvement Plan

In December 2015, NRM North's TEER Program released the Water Quality Improvement Plan (WQIP). This plan provides a comprehensive picture of water quality throughout the Tamar estuary and its tributaries by identifying the key drivers of water quality issues and the priority actions to address these issues. The WQIP provides a long-term vision for water quality improvement in the catchment and estuary. It was developed over a three year period with extensive community input and best available science and modelling.

Catchment sources are the dominant supply of flows and pollutants to the Tamar estuary. Close to 100% of the contributions of flow and total suspended sediment loads (TSS) can be attributed to catchment sources.

For nutrients, approximately 80% of the total nitrogen (TN) and approximately 65% of total phosphorus (TP) are attributed to catchment sources with the rest from wastewater treatment plants and aquaculture in the estuary. Approximately 85% of the enterococci bacteria come from catchment sources, particularly from stock in grazing and dairy farming areas, with most of the remaining enterococci load coming from overflows from Launceston's combined sewage and stormwater system.

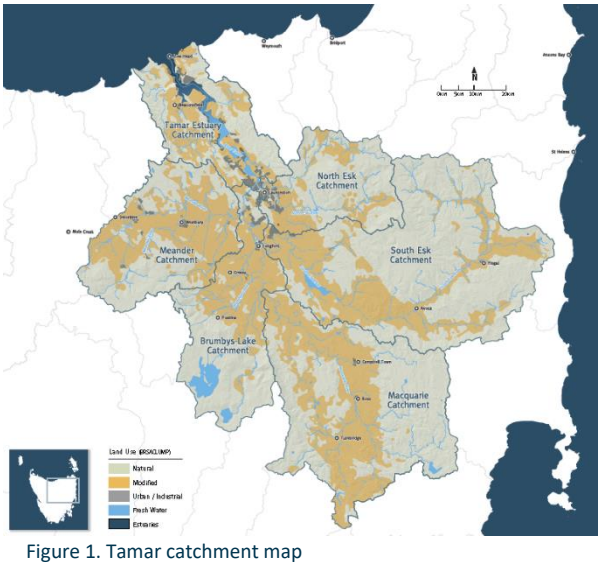

Figure 1. Tamar catchment map

Catchment loads of pollutants to the kanamaluka/Tamar estuary

Figure 2 shows the relative contribution of different land uses to average annual catchment pollutant loads and flows. It also shows the proportion of the total catchment area of each land use so that the contribution of each land use can be considered relative to its land area. Dominant land uses in the TEER catchment by land area are greenspace (~30%), grazing (~36%) and native production forest (~20%) with other land uses covering less than 5% of the total land area each. Land uses which contribute the most flow to the Tamar estuary are native production forest (~30%), hardwood plantations (~20%) and greenspace (~40%) with smaller but significant contributions from grazing (~2%), softwood plantations and urban areas (both <5%).

The dominance of green space, hardwood plantations and native production forests in producing runoff is due to their position in the

catchment. These land uses tend to occur in high slope, high rainfall areas at the top of the catchment and so produce high flows relative to their areas. Grazing, dairy and cropping areas tend to be situated in the lower catchment, with lower rainfall and slope.

Land cover is a significant factor that contributes to the volume of surface runoff, however slope and rainfall are also important contributing factors. For this reason it is important to compare the relative load contribution of land uses not only to their relative area but also to the flows they produce as this is a major driver of pollutant loads, with higher flows contributing higher pollutant loads all other things being equal.

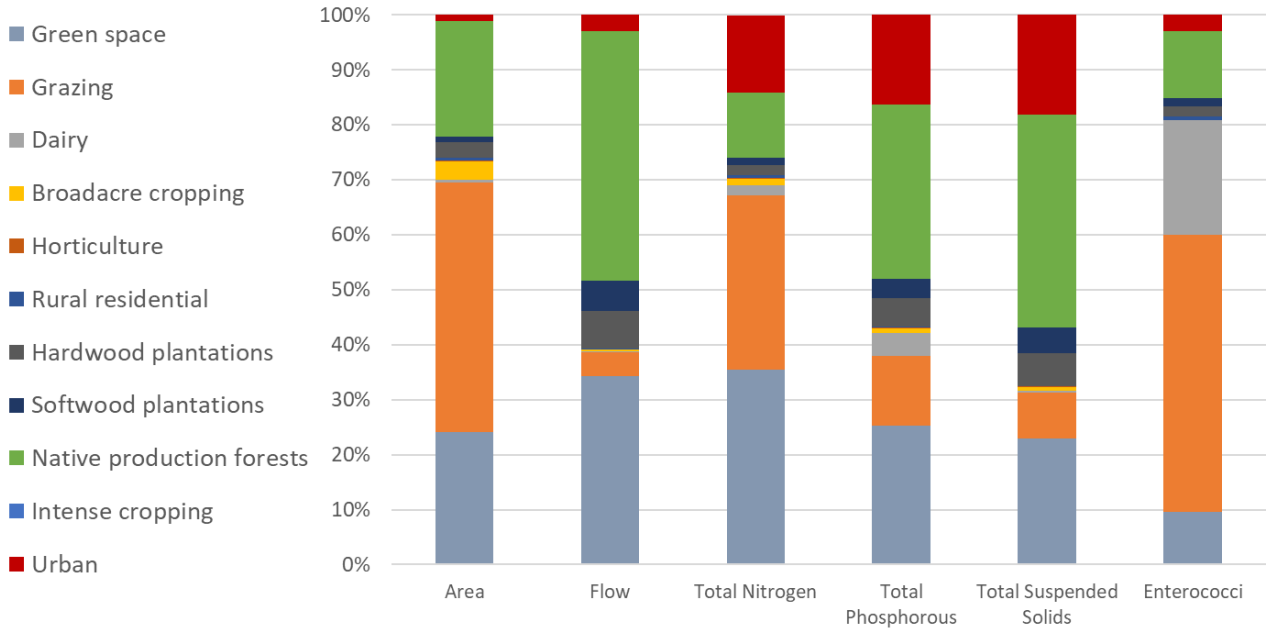

Figure 2. The relative estimated diffuse pollutant loads and flows coming from different land uses

Grazing areas represent approximately 36% of the land area of the catchment but only 2% of the total flows, as they are located in much lower rainfall areas. Despite this small contribution of flow, these areas can represent a significant source of other pollutants, particularly nutrients and enterococci. Dairy farming is a very small land use in the catchment, covering roughly 1% of the land area but it is estimated to contribute approximately 3% of TN, 5.5% of TP and over 30% of the catchment enterococci load. Urban areas are also a very small land use in the catchment, covering only 2% of the land area. Relative to their area, they contribute substantially higher proportions of the total pollutant load, ranging from 15% to 21% of nutrient and sediment loads. Cropping areas are a small land use in the catchment (5%) and produce a very small proportion of total pollutant loads (approximately 1% of nutrients and sediments).

WQIP ACTIONS AND IMPLEMENTATION

Working in consultation with stakeholders, the WQIP explores a range of potential actions to reduce nutrient, sediment and enterococci loads delivered to the Tamar estuary from grazing, dairy, cropping and urban areas. Modelled scenarios were used to prioritise actions in each land use type, based on both their leverage in reducing pollutants exported and their likelihood of adoption on the ground. The potential benefits of upgrades to sewage treatment plants around Launceston were also explored. A set of catchment load and estuary condition targets were developed using feasible adoption of key management actions across the range of catchment and point sources.

NRM North continues to work with partners to invest in implementation of the WQIP through a range of projects. The most substantial implementation of these works is through the Tamar Estuary Management Taskforce and their River Health Action Plan with funding provided by State and Federal Governments as part of the Launceston City Deal. Priority activities include:

- fencing stock out of streams;
- revegetating riparian zones;
- improving dairy effluent management;
- maintaining and improving groundcover in grazing and cropping areas;
- improving fertiliser use;
- improving irrigation scheduling;
- implementing 'water sensitive urban design' in urban areas; and
- improving soil and erosion control on building sites in urban areas.

NRM North

TEER Program

(03) 6333 7777

nrmnorth.org.au

admin@nrmnorth.org.au