



Tamar Estuary and Esk Rivers

Natural Resource Management
in Northern Tasmania

CATCHMENT LOADS OF POLLUTANTS TO THE TAMAR RIVER ESTUARY

WATER QUALITY IMPROVEMENT PLAN

BACKGROUND

The Tamar Estuary and Esk Rivers (TEER) catchment area covers 10,000km² (approximately 15 percent of Tasmania, Figure 1). This large catchment drains to the Tamar River estuary transporting pollutants from land surfaces as catchment run-off and from point sources such as industry discharges or Sewage Treatment Plants. 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 River estuary and its tributaries by identifying the key drivers of water quality issues and the priority actions to address these issues. Catchment sources are the dominant supply of flows and pollutants to the Tamar River 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 and approximately 85% of the enterococci bacteria.

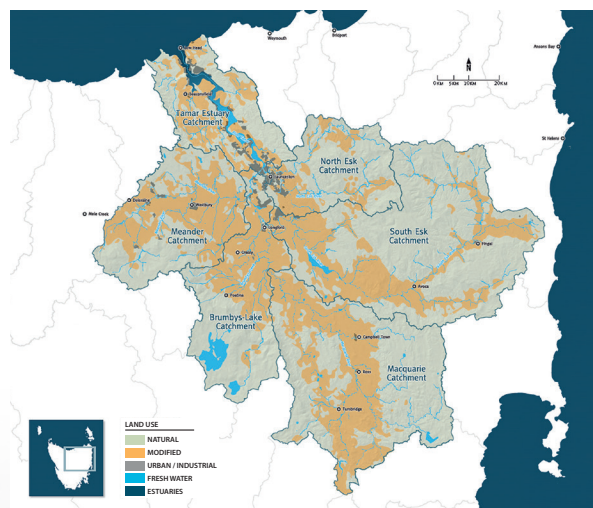


FIGURE 1. TAMAR CATCHMENT MAP

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Figure 2 shows the 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 their 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 River 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 focused on the lower catchment areas, 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.

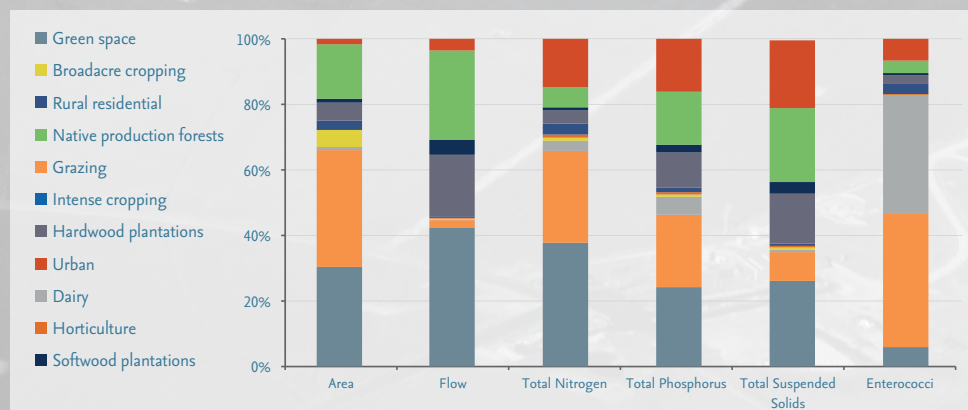


FIGURE 2. ESTIMATED DIFFUSE POLLUTANT LOADS AND FLOW VERSUS LAND USE AREA



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, in particular nutrients and enterococci. Dairy farming is a very small land use in the catchment, covering roughly 1% of the land area but is estimated to contribute approximately 3% of the TN, 5.5% of the TP and over 30% of the catchment enterococci load. Urban areas are 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 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 loads (approximately 1% of nutrients and sediments).

WQIP ACTIONS AND IMPLEMENTATION

The WQIP explores a range of potential actions to reduce nutrient, sediment and enterococci loads delivered to the Tamar River estuary. Catchment actions explored in grazing, dairy, cropping and urban areas were developed in consultation with stakeholders. Modelled scenarios were used to prioritise actions in each of these landscapes based on both their leverage in reducing pollutant exports and their adoptability on-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 to:

- Fence stock out of streams;
- Revegetate riparian zones;
- Improve dairy effluent management;
- Maintain and improve groundcover in grazing and cropping areas;
- Improve fertiliser use;
- Improve irrigation scheduling;
- Implement 'water sensitive urban design' in urban areas; and
- Soil and erosion control on building sites in urban areas.

FOR MORE INFORMATION and to download a copy of the Plan visit:

<http://www.nrmnorth.org.au/teer-water-qualityimprovement-plan-2015>

FURTHER INFORMATION

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FENCING STOCK OUT OF STREAMS



IMPROVING DAIRY EFFLUENT MANAGEMENT



RIPARIAN REVEGETATION



SOIL AND EROSION CONTROL WORKS

FIGURE 3. SOME OF THE WQIP MANAGEMENT ACTIONS BEING IMPLEMENTED BY NRM NORTH

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