

1 Introduction

The Derwent Estuary, situated along Tasmania's southeastern coastline, is one of the State's largest estuaries (200 km²), extending approximately 50 km from New Norfolk to the Iron Pot. The Derwent is a drowned river valley-type estuary, quite deep in its lower and middle reaches. The upper reaches are characterised by a well-defined channel, bordered by shallow tidal flats and wetlands. The estuary is microtidal, with large and relatively consistent freshwater inputs from the Derwent River at its head.

The estuary is an important recreational and scenic resource, particularly for the Cities of Hobart, Clarence and Glenorchy, as well as for numerous smaller communities along the eastern and western shores. The Derwent is Tasmania's third largest port and supports several large metal- and wood-processing industries. Contaminants enter the estuary from a variety of point and diffuse sources: these include sewage and industrial effluent, urban runoff, atmospheric and ground-water pollution, as well as agricultural and forestry runoff from the catchment.

Environmental concerns in the Derwent have broadly centred on:

- pollution of water, sediments and biota by metals, pathogens, hydrocarbons, and other contaminants (e.g. resin acids, fluoride, arsenic);
- distribution and effects of pulp mill sludge in the upper and middle estuary;
- elevated nutrients and the potential for algal blooms;
- effects of introduced species, particularly toxic dinoflagellates and the northern Pacific seastar;
- loss of seagrass beds and other wetlands.

To fulfill the objectives of RiverWorks Tasmania, a document which summarises our present understanding of the environmental status of the Derwent Estuary was required. The following 'State of the Derwent Estuary' report was prepared on the basis of existing information and is intended to:

- provide an overview of the estuary's physical setting and uses;
- identify and quantify (where possible) major inputs, providing a 1996 'snapshot';
- identify, compile and review existing environmental quality data on water, sediments and biota.

This report is not based on new information or studies, but is a compilation and assessment of existing data on the Derwent Estuary. A variety of monitoring programs and other environmental quality investigations have been carried out in the Derwent, as well as some detailed circulation modeling. However, there are still a number of gaps in our knowledge, particularly as regards sediments, biology and biogeochemical processes, and the findings presented in this report should be used and interpreted with care.

This report was originally commissioned to assist the RiverWorks Tasmania Steering Committee and Consultative Committee in developing, evaluating and prioritising projects, particularly through the identification of 'hot spots' and significant historical sources of pollution. However, it is anticipated that the report will serve a number of broader purposes as well. These include:

- to inform and educate resource managers and the public;
- to identify gaps in the existing information base;
- to establish benchmarks for determining trends and improvements in the environmental quality of the estuary.