

## 9.1 Introduction

Both the quality and the quantity of water resources are critical issues for agriculture and aquaculture in Australia and New Zealand. Water quality is also of major importance for the protection of human consumers of food products. In keeping with the principles of ecologically sustainable development, these guidelines have been developed to take consideration of not only productivity issues but also the possible adverse impacts of these primary industries on downstream water quality.

Productivity in the Australian agricultural sector has increased significantly during the 1990s, with the highest growth rates occurring in specialist broadacre cropping industries. In comparison, livestock industries have been relatively static over this period (Wilson & Johnson 1997). In 1996–97, the gross value of agricultural commodities produced in Australia was approximately \$28 000 million, with a significant proportion contributing to export earnings (ABS 1999).

The value of aquaculture production in Australia has been growing at over 10% per annum since the late 1980s, with an estimated farm gate value in excess of \$464.6 million in 1994–95 (O'Sullivan & Kiley 1996). The industry is also expanding rapidly in New Zealand. The intimate association between the cultured organisms and their water environment makes water quality of paramount importance in achieving high production rates and profitability.

Agriculture is a major consumer of water resources in Australia and New Zealand, predominantly for use in irrigation and livestock watering. The industry relies on the use of both surface and groundwater resources, since rainfall in most regions is inadequate for industry requirements. Where appropriate, the guidelines provided for agricultural water use (irrigation, livestock and general water use) are applicable to both surface and groundwater quality.

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