

12 Conservation and management

Mark Lintermans

INTRODUCTION

Globally, freshwater fishes and their habitats are imperilled (Malmqvist and Rundle 2002; Dudgeon *et al.* 2006; Jelks *et al.* 2008). The main threats are habitat loss or modification, altered flow regimes, changed water quality, barriers to fish passage, alien species, translocation and stocking and overexploitation. Freshwater fishes are about 40% of all fish species but their habitats – in rivers, lakes and wetlands – are only a tiny part (0.01%) of the world's water. Australia in particular has a comparatively small freshwater fish fauna of 256 recognised species, of which 74% are endemic (Ch. 2).

For many years, recreational fisheries, especially for alien salmonids, were the main concern in Australia. From the 1980s, reviews (Cadwallader 1978; Michaelis 1985; Harris 1987b) drew attention to threatened native species, regionally and nationally, and helped shift the focus to conservation, including the monitoring, maintenance and restoration of species, communities and ecosystems. This will seem curious to readers outside Australia, but we have few commercial freshwater fisheries and their yield is dwarfed by that from marine fisheries (Kailola *et al.* 1993). This reflects the nature of our freshwater fauna and the fact that most Australians live near the sea.

Indeed, the pressures on native fishes are concentrated in the southern part of the continent, where most people live. Fish populations in the north generally are in better condition.

Australia's freshwater fishes are at a crossroads. Intense competition for water, proliferations of alien species and continuing habitat losses mean that, without concerted action, extinctions will occur within the next 30 years. What should we conserve, and how should we go about it? This chapter explores these issues, including discussions of threatened species, the nature of threats to fishes and responses by management. Although our context is Australian, the book by Helfman (2007) is a good introduction for those interested in a global perspective.

CONSERVATION

Legislation

The legislative basis for freshwater conservation in Australia is a recent development. Awareness of the decline of biodiversity increased in the 1970s and 1980s, with the Victorian *Flora and Fauna Guarantee Act 1988* in the vanguard. National approaches followed, with the *Endangered Species Conservation Act 1992* (ESC Act) supplanted by the still-current