

**Shifting Currents:
A history of rivers, control and change**

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Certificate of Authorship / Originality

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Damian Lucas

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Abbreviations

CRCC = Clarence River Country Council - Flood Mitigation Authority
CSIRO = Commonwealth Scientific and Industrial Research Organisation
CVFN = Clarence Valley Field Naturalists
EPA = Environmental Protection Authority
GL = Giga litre (1000 mega litres)
MDBC = Murray-Darling Basin Commission
ML = mega litre (1000 litres)
NPWS = National Parks and Wildlife Service

Conversions

This thesis uses the measurements quoted in primary material. Conversions are provided below.

1 acre = 0.405 hectares
1 inch = 25.4 millimetres
1 foot = 30.5 centimetres
1 mile = 1.61 kilometres
1 pound = 0.45 kilograms

Abstract

The benefits and costs of controlling rivers – building dams, controlling floods, extracting water – are constantly contested.

Modifying rivers has brought great benefit to communities, fulfilling important community goals – supporting profitable commercial activities and providing a basis for vibrant communities. However modifying rivers has also had negative consequences – in particular, a decline in the quality and quantity of water. These impacts have undermined valued aspects of rivers (such as fish habitat) and have also caused decline in commercial activities (such as fishing and floodplain grazing).

This thesis explores the ways that these contending perceptions of modification work out on the ground in rural communities. How are the benefits of modification recognised? How are the negative consequences of modification noticed and measured? Under what conditions are the benefits of modification reassessed? These are important questions in the current moment as our society reassesses the past modification of rivers and attempts to move towards more sustainable use of natural resources.

This thesis explores this topic by undertaking in depth case-studies of two distinctive riverine environments: one coastal, the Clarence River in lush coastal northern New South Wales; and one inland, the Balonne River, at the top of the Murray-Darling Basin, in semi-arid south-west Queensland. The case studies explore responses to modification of the rivers in two periods: the post-war decades – a time of widespread support for modification, and recent decades – a time of widespread recognition of the negative consequences of development.

The thesis investigates perceptions of modification at three different scales: (i) groups within localities – the ways that modification is perceived by local groups with contrasting physical and conceptual interactions with the rivers (such as graziers, fishers, irrigators, Aboriginal people, ecologists and engineers); (ii) regional communities – which are constituted by groups with differing interests, and (iii) governments – which have the role of managing the long-term health of the economy and the environment, despite the long-term goals often being contested.

This thesis provides insights into the ways that our complex society grapples with the possibility, and effects, of modifying the natural environment. This thesis suggests that local conditions – the actual local physical environment and local social conditions – shape the ways that modification of rivers is supported, challenged and reassessed. However, both local social conditions and the environment are constantly changing, often in surprising ways. Therefore outcomes are always an interaction between different levels of interest groups and the environment itself.

Dedication

To Jess, the bravest person I know.

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